

Summary of Parsons Brinckerhoff Ltd (PB) Report

Darlington Borough Council commissioned PB to undertake site investigation works at the site known as the former Shearwater Landfill. The objectives of the study were to assess the nature and extent of contaminants potentially present at the site and to carry out gas monitoring.

The report details the site history, geology, hydrogeology, hydrology and the site investigation works.

Site Investigation Works

The site investigation works were undertaken between 6 October and 24 October 2008, and comprised the following:

- Excavation of hand dug pits within private gardens across the investigation site, the gardens of Phoenix Court, and the recreational (open space) areas.
- Installation of probeholes for gas monitoring within private gardens, Phoenix Court, the recreational area and the rear of the commercial shops.
- The completion of a six month gas monitoring programme, followed by three rounds of indoor air monitoring conducted within selected residential properties in January 2009, November 2009 and February 2010.
- Two rounds of groundwater sampling from existing boreholes

Results of soil and groundwater sampling

The risk assessment for the surface soils on the recreational land, residential gardens, gardens areas at Phoenix Court and the groundwater are detailed in the report. The gas risk assessment was not included within the scope of this report (see report by The Environmental Protection Group Ltd).

The results of the soil sampling from October 2008 identified a number of elevated levels of certain metals and hydrocarbons, both on the recreational ground and within the residential gardens. Further soil sampling was recommended in two residential gardens and subsequent risk assessment concluded that there are no concerns with regards to the surface soil both on the recreational ground and within the residential gardens.

The results of the groundwater monitoring identified some elevated levels of analytes. However, the exceedences were marginal and not repeated through monitoring rounds.

Following the completion of the full risk assessment PB concluded that there are no concerns with regards to the shallow soils of the private gardens, the gardens of Phoenix Court and the recreational ground at the former Shearwater Landfill site. In addition, based on the risk assessment, the site does not pose a risk to controlled waters.

No further works or assessment with regards to soil contamination or groundwater is considered necessary at the former Shearwater Landfill site.

Summary of The Environmental Protection Group Ltd (EPG) Report

Darlington Borough Council commissioned EPG to conduct a gas risk assessment for the former Shearwater Landfill site.

The EPG report provides an assessment of the risks posed by the presence of ground gas (methane and carbon dioxide) from landfill material at the former Shearwater Landfill site. The report is based on information provided by Darlington Borough Council from a considerable number of site investigations and extensive gas monitoring rounds.

The report details the site history, the findings of the previous site investigations and reviewed the gas monitoring carried out by Parsons Brinckerhoff

The findings of the risk assessment identified that, although methane and carbon dioxide is present in the ground, the volume of gas generation appears to be very small. The rate at which gas could plausibly migrate away from the landfill site and out of the surface into nearby houses or other buildings is negligible due to the low gas generation rates. Gas will not migrate outside the landfill boundary to any great distance because the surrounding soils are predominantly clay which is not permeable enough to allow gas to flow through it quickly. The clay does not contain any obviously continuous sandy layers and those that have been encountered are waterlogged thereby preventing gas migration.

Landfill material and gas is also present directly below some properties in Shearwater Avenue, Heron Drive, Phoenix Court and the shops on Yarm Road. Risk assessment has demonstrated that the rate at which landfill gas would come out of the ground and into the overlying buildings is very small and insufficient to cause gas to exceed levels that would constitute a risk. This has been confirmed by gas monitoring inside the houses and also below floor slabs on numerous occasions over the past 17 years. The monitoring has never given any evidence of landfill gas migration into properties. To put the risk into context the risk posed by the presence of other sources of gas inside the properties is much greater (e.g. carbon dioxide from breathing).

The report concludes that the gas present in the ground does not cause concern to occupiers of the houses around the landfill site, to Phoenix Court, the shops on Yarm Road or to users of the open space in the recreational ground. However, there is some uncertainty in the results of one previous internal survey in the 1990's. In order to deal with this and confirm these conclusions the report recommended that 3 further rounds of indoor air monitoring and surface sweeps of gardens and the recreational ground are undertaken at selected residential properties, Phoenix Court and the shops on Yarm Road. This work has now been completed confirming the report conclusions and allow final closure on the site.

This report also discusses that it may also be possible to turn off the positive pressure systems installed in the late 1990's in a number of residential properties on Shearwater Avenue and Heron Drive.