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Paul Leadbeater
Principal Environmental Health Officer – Pollution
Elmbridge Borough Council,
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14/08/2018

Dear Mr Leadbeater,

Former Walton Gasworks Part 2A investigation and interpretation
Our Reference: 43778/1

Thank you for forwarding a copy of these reports to the Centre for Radiation, Chemical and Environmental Hazards (CRCE) at Public Health England on 04/07/18.

We have assessed:

- Geotechnical Factual Report on Ground Investigation, Ref 33485, dated 15 May 2018
- BuroHappold Walton-on-Thames former Gas works Part 2a Site Investigation Draft report, Ref 0040045, dated 29 June 2018 v01

You asked us to comment on the reports with particular cognisance to the reliability of the data collected and collated; the robustness of the evidence for the key contaminant linkages and associated assessment; and the conclusion of the assessed level of risk, taking into account uncertainties and limitations of data and models.

Data collection, and appropriate reliability

Given the constraints of services, housing and land use, the site investigation had a good coverage of sample points and samples. The rationale is not given for all sample points with regard to source, although receptor and pathway is considered. Given that many of the potential historic sources such as naphtha, tar tanks and spent oxide are at the centre of the site, more sample points in this area would have been advantageous. However, it is understood that previous remediation in this area involved a surface strip and local excavation, which should have removed the worst visible contamination. We recognise the difficulty of investigating in privately owned residential areas. Even with this above caveat, we feel that the sampling points are enough to identify potential pollutant linkages around both Stonebanks, Bishops Hill and Broadshaw House.

We note QA/QC was considered for sampling, with good practice such as taking duplicate samples, preventing cross contamination, and the calibration of instruments undertaken.

We consider that the ground gas assessment was not wholly reliable due to the flooded nature of many of the boreholes, and the fact that the boreholes were not measured at falling pressure below 1000mb. However, this assessment has been repeated for volatile organics. It was noted that the BTEX values were potentially above the child health criteria values (HCV) for the maximum concentration recorded. Again, some wells were partially flooded which will have affected the amount of soil vapour versus the groundwater vapour. Given flow rates were negligible, then flow into any property is unlikely to be advective and as stated is likely to be decreased by the Damp Proof Membrane (DPM) (and conservative assumptions).

We note that the statistics used to compare soil and groundwater concentrations against health based values for residential and commercial land use uses the lower confidence limit, which is appropriate for Part 2A. The site has been zoned as one and indicates that there is a low risk to residents and workers at the site if the hotspot outlier of SS32 is removed.

Uncertainties and limitations

We consider that regardless of soil type, any gardening activity is likely to go down 30cm/spade depth, therefore comparing only topsoil to residential end-use has its limitations. Although most householders are currently not doing significant gardening this doesn't mean that it will always be the case. Also worm movement of soil is likely to impact the top 60cm. However, after discussion on the statistics with the consultant, regarding zoning the site on spatial rather than vertical extent, we are satisfied that the area with the highest contamination still does not pose an unacceptable risk.

As stated above, there were limitations, but not more than expected for a site investigation of this size and coverage. Site investigation points by their nature are small points in time and space, but coverage of the site should ensure that they are also fairly representative of the majority of the soil. We consider there is suitable coverage and testing.

The sample concentrations have been compared against a conservative scenario of a 0-6 year old child spending 365 days a year at a property of which 1 hour per day is spent playing outside, and they eat a proportion of home grown vegetables. Therefore, for the majority of residents and tenants at this site this is very conservative and highly protective.

Assessed level of risk and complete pollutant linkages

The report shows that overall there is higher than background risk to homeowners and tenants. It should be considered however, that the assumptions made when looking at pollutant linkages from the contaminated soil to the residents are very conservative and assumes that everyone is a young child, can come into contact with bare soil, and all eat some vegetables/fruit grown in their gardens. Some of these linkages are unlikely to exist; for example no growing of produce was observed, the amount of bare soil (unvegetated) was low and it was likely that few residents spend time every day in the garden independent of weather. The assessment also assumes that residents will walk back into their property with some soil on their shoes. Therefore it should be remembered that the screening values are highly conservative, as not all exposure assumptions occur.

Whilst the overall site statistics show a higher than background risk, if spatially zoned statistics are considered then certain areas of the site are at or close to background concentrations. Those areas with a higher than background risk however, would not be considered unacceptable, as significant harm or significant possibility of harm is not likely to occur. Therefore the legal test for significant possibility of significant harm is not met and it is deemed that regulatory intervention under Part 2A is not warranted.

However, given the past land use we would recommend that the Local Authority discuss with land owners ways to reduce any risks outside of the Part 2A regime. If there are still concerns, then we

would recommend highlighting good hygiene practices and gardening considerations that do not impact on their enjoyment of their outdoor space.

Yours sincerely,

A handwritten signature in black ink that reads "Sarah Dack". The signature is written in a cursive style with a large initial 'S'.

Sarah Dack BSc, MSc, FGS, C.Geol, SiLC, MCIWEM
Specialist Environmental Public Health Scientist