Note for the Local Plan Inspector on Air Quality Monitoring in the Dearne and Holme Valleys

Background

Kirklees Council have a duty to review and assess air quality within the district in order to protect against the health impacts of airborne pollution (Environment Act 1995). In order to discharge this legal requirement, in the late 1990s Kirklees Council conducted a district wide modelling exercise and used this to determine the initial monitoring network.

Since that time the Council has reviewed the network on an annual basis and removed and introduced locations when new issues have been identified.

The review of the existing monitoring network has been done using:

- Monitoring results from previous years monitoring;
- Professional opinion based on ongoing monitoring;
- DEFRA published maps (based on modelling); and
- Any other information which comes into our possession, such as new pollution models.

There is a cost to the public purse to maintain the monitoring network, therefore, we keep the network under continuous review and only measure pollutant concentrations in locations we have a reasonable level of evidence that the pollutant concentrations are or are likely to go over the national objectives.

Our network of monitors includes 'real time' and 'diffusion tubes'. Real Time monitors are stations which continuously draw air in and measure a range of pollutants in real time and record the levels, usually on a second by second basis. The data can then be used to give hourly, daily or yearly means. Diffusion tubes measure Nitrogen Dioxide (NO2) only, they are a recognised cost effective way of measuring pollution, tubes are located at strategic locations, a chemical is exposed to the air which absorbs pollutant, tubes are collected and analysed on a month by month basis and give us a monthly mean. A formula can be used to calculate hourly means. Diffusion Tubes results are validated against co-located real time analysers. Historically Kirklees has been involved in an inter-authority and independently monitored validation scheme to ensure diffusion tubes results are consistent and accurate.

Monitoring Locations can be:

- Road Side
- Curb Side
- Receptor

If road or curb side locations are used then results from these monitoring locations are subjected to a standard, DEFRA approved, dispersion model to calculate the receptor concentration.

Dearne Valley

The original study did not indicate that receptors within the Dearne Valley would exceed air quality objectives. Through the use of monitoring and officer experience we have increased our evidence base of the conditions which result in pollutant levels which will exceed health related objectives.

Firstly, there needs to be a relevant receptor, which are inherently residential properties located directly adjacent to roads without a buffer of garden or yard to allow pollutant levels to diffuse to safe levels.

Secondly, there needs to be conditions which result in elevated pollutant concentration, which is usually a result of high emissions from vehicles. Traffic volume, speed composition are key to this, but topography, microclimates and commercial activity can also influence concentrations.

It is the judgement of the Council that pollution concentrations in the Dearne Valley are not likely to be close or above the National Objectives due to:

- Traffic volumes are not sufficient to produce the concentrations close to the objective.
- Historical data from the Colne and Holme Valleys, which has similar traffic volumes, compositions, topography and weather conditions to those in the Dearne Valley, the results of which have indicated that concentrations are below health related objectives.
- The DEFRA model does not identify the Dearne Valley as an area of concern. DEFRA model the whole of the UK as part of their legal responsibility. The DEFRA model corresponds with the monitoring data gathered by the local authority.
- Kirklees Council have commissioned an Air Quality assessment to assess the cumulative impact of the Local Plan. Baseline conditions were modelled based on 2015 traffic levels and the model outcome was validated against our existing monitoring data. The impact of the local plan was also modelled based on the expected increase in traffic volumes and conservative emission factors for the life of the plan. Neither the baseline assessment nor the future predictions suggested the Dearne Valley to be an area of concern for air pollution.

Holmfirth

Since our monitoring network was introduced Holmfirth has been subject to monitoring at a number of locations, namely:

- Real Time Monitor at the former Adult Learning College at Huddersfield Road and Bridge Lane. This monitor was decommissioned as the pollutant levels were low and measurement in this location was no longer required.
- Diffusion Tube at the main Victoria Street/Huddersfield Road/Woodhead Road Junction. Road Side Location. Annual mean for NO2 exceeded. Decommissioned due to lack of receptors. Replaced with a more representative location (see below).
- Diffusion tube outside the parade of shops with residential premises above known as 71 Huddersfield Road. Curb Side Location. This location has always been below the health related objective the latest reportable result from 2016 is 38.06ug/m3, with a historical high of 39.05ug/m3 (2015) and low of 31.76ug/m3 (2014). The objective for NO2 (Annual Mean) is 40ug/m3.

The Air Quality assessment produced to assess the local plan, giving a baseline and predictions for the life of the plan. The assessment has been validated using the diffusion tube and real time monitor data to verify the baseline assessment.

The only notable mention of the assessment relevant to the Holme Valley is the 'moderate adverse effect' and 'slight adverse effect' in Thongsbridge. The largest predicted increase in NO2 concentration is 1.4ug/m3 by 2030 and is based on 'worse case' scenario. Although this is an increase in the concentration of a pollutant it is not anticipated that this will be large enough to increase the overall concentration above the objective. Kirklees will increase its monitoring network

at this location to keep a track of pollution levels and to help validate any additional air quality assessment made as a result of local plan sites being brought forward for development.