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Introduction

Ricardo has been commissioned to review information sources relating to the extent and cause of odour complaints in the Old Wolverton area.

This summary report provides an update of the work that has been carried out and sets out our initial findings following completion of the following tasks:

1. A review of the odour complaints history and analysis

2. An initial analysis of Information on potential odour sources

Task 1 – Findings of the review of complaints

This task drew on a complaints data base for the period from February 2020 to June 2021.

During this period 63 complaints were recorded linked to 41 complaint days. It would be unwise to read too much into the small number of complaints. In the present situation the residential population in the Old Wolverton Road area receiving any odour is relatively small and the psychology of making a complaint means that not all of members of receiving population will be predisposed to making complaints.

Our analysis has been hampered by the quality of the information that was recorded in the complaints database. For example, the complainant location and an objective description of the complaint odour were not always given. Hence our analysis has been limited to less than 63 complaints which makes it difficult to be certain as to the cause of complaint events.

Based on the small data set the Task 1 review concludes:

- That there are two odour types being complained about – namely odours linked to rubbish and those linked to a sharp, acidic, burnt plastic tones. If the descriptors correctly describe the odours that were perceived, then our attention would be drawn towards waste processing on the one hand, on the other a process/activity that that gives rise to either a 'nose feel' or an acid/metallic/oxidant tone or a burnt tone.

- That the complaints linked to locations along Old Wolverton Road predominantly occurred when the wind blows between the north and east compass directions, Other complaints locations were affected by different wind directions.

- Complaints occur throughout the week (Monday - Sunday), hence activities such as local rubbish collection don't appear to make a significant contribution.

To improve the quality of the complaints data set Ricardo recommends that a more structured means of collecting complaints data should be adopted. The objective would ensure that in future all complaints data could be used in future analysis.

Task 2 – Findings of the review of odour sources in the vicinity of Old Wolverton Road

The aim of this task was to identify which sources are most likely to give rise to the odour emissions which lead to complaints being made. To assist our analysis, we have adopted a simple risk-based methodology, that was applied to:

- Identify all potential sources in the area
- Screen out those activities that are unlikely to have any significant odour emission
- Identify activities and operations within this area that are likely to have significant odour emissions and to assess the potential impact of those activities on the residents living near King Stephen Meadows.

This approach allowed us to screen out commercial services, garage services, small manufacturing/engineering, small scale agriculture operations, some activities linked to rubbish collection, barges on the canal. Other activities such as odour from movement of refuse vehicles and muck spreading, although potential sources, these were not considered further because of their transient or infrequent nature.

The main focus of the detailed analysis was on:
- The SERCO, Viridor and Amey facilities which are all linked to the handling refuse in one way or another.
- The Mars Horsecare facility which is an animal feed compounding operation.
- Gemini Rail services have several paint spray booths used for coating rolling stock.

The detailed analysis made best estimates of odour emission from each of these processes and went on to consider the odour impact as hourly averages at a simple location on King Stephen Meadow. The odour emissions used in this exercise were based on site specific measurement (Amey site), industry best practice (Serco & Viridor sites), and surrogate plants (animal feed and vehicles painting). The indicative results from this exercise are given in Table 1:

Table 1: Indicative odour emissions from potential sources

	Impact concentration* (OU_E/m^3 as a 98th%ile)	Impact concentration † (OU_E/m^3 as a 100th%ile)	Likely nature of odour
Fugitive emissions from Serco	0.01	0.19	Refuse odour
Fugitive emissions from Viridor	0.10	1.24	Refuse odour
Process emissions from Mars	0.17	1.08	Cereal type odour
Process emissions from Gemini	0.14	0.82	Solvent odour with possible burnt tone
All emissions from MKWRP	1.26	8.36	Refuse + some burnt type odour
Process emissions for MKWRP	0.67	3.82	
Fugitive emissions for MKWRP	0.63	6.28	

Note * – typically used for permit or nuisance assessment against a benchmark of 1.5 or 3.0 OU_E/m^3 as a 98th%ile; † – worst hour prediction with recognisable, faint, and distinct odour being at about 3, 5 and 10 OU_E/m^3 with the possibility that exposure of less than 1 hour will be greater than the predicted concentrations due to fluctuating concentrations.

The Task 2 review concludes that based on the odour emission rates assigned to the more significant sources:

- The odour modelling has confirmed that none of the individual odour emission sources exceed the odour benchmark used for permit related odour compliance, typically taken to be 3 OU_E/m^3 as a 98th%ile.
- The hourly average individual odour concentrations for most of odour sources remains below 5 OU_E/m^3 and is unlikely to be judged greater than a faint odour.
- The hourly average odour concentrations for the MKWRP depend on the contributions considered and may lie anywhere from ca. 1 to 8 OU_E/m^3. The intensity of the odour may fluctuate between faint and distinct odour.

To improve the quality of the impact assessment particularly linked to rubbish type odour emissions it is recommended that:
- *A full audit of the Serco and Viridor facilities should be undertaken. As part of this audit an estimate of the odour emission from each facility should be made. In the event that the measured odour emission rate exceeds the emission used in the modelling then the predictions presented here should be revised.*
- *A full audit of the Amey facility should be undertaken. As part of this audit, odour emission should be assigned to the carbon filter system prior to the filter bed being changed and to the biofilter prior to an AD vessel being opened. Fugitive emission estimates should be made when the reception and compost areas are in full use. Due to the size of the facility this should be done annually.*
- *The odour emission concentration should be determined for refuse vehicles to confirm the scale of contributions that vehicles in transit make.*
- *Gemini should be asked to provide details on their painting schedule to indicate the frequency of emission.*
  Mars should be asked to provide details of compounding activities to indicate the frequency of emission.