

# Saxon Pit - Reviews of Multi-agency study, and Objection by Director of Public Health to Planning Application

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## 1 Background

- My full name is Dr Andrew Neil Rollinson.
- My qualifications are: PhD (University of Leeds), MSc Energy and Environment (University of Leeds), and BSc (Hons) Physical Science (Open University).
- I have my own consultancy and I am based in Scotland. I specialise in reactor design and process engineering for thermochemical energy from waste (EfW) and recycling technologies, within which I have some expertise in the composition and hazards of incinerator bottom ash (IBA).
- This report contains my observations after peer reviewing the following documents:
  - *“Saxon Pit Public Health Report 13.01.26”*. Hereafter called the ‘multi-agency study’, its full, internal, title is: Dougan, S. 13<sup>th</sup> January 2026, *“Saxon Pit. Report on behalf of the Director of Public Health, Cambridgeshire County Council.”*
  - *“CCC\_Public Health 60732”*. Hereafter it is called *“CCC Public Health Planning Objection”*.
  - Subsequent to the above documents, data were provided by the Environment Agency following a freedom of information request. Where relevant, that material is considered in this report, with greater detail set out in Appendix B.
- I was asked to undertake this peer review by Saxongate Residents Group. I have no other affiliation with this group nor do I have any interest in the outcome of my review.
- In undertaking this review I also considered other sources of information, namely external independent scientific journal papers, permit documents, and some databases provided by Saxongate Residents Group which had been obtained from regulators via Freedom of Information requests. These sources are cited within the text and referenced either in footnotes or in a list at the end.
- I am not a public health practitioner. I approached the peer review as I would for any scientific study. Specifically, this involves assessing the two documents for rigour by way of methodological relevance and robustness, along with objective analysis of findings and limitations, plus depth of contextual interpretations. Following this, I have provided suggestions as to what key data would be required for the study’s findings to be accepted under the scientific peer review system, and how the study could have been strengthened.

## 2 Notes on the Two Texts

### 2.1 The Multi-agency Study

- The format is as a collection of presentation slides. There is no other ‘traditional’ form of document to complement the slides.
- The slides are not numbered. Therefore, when referring to the slides in my review, I have assigned page numbers derived from the sequence in which the slides are ordered.
- The slides contain the results of a study involving the following agencies in the United Kingdom: the Health Security Agency (UKHSA), the Environment Agency (EA), the Animal

and Plant Health Agency (APHA) Environmental Health (EH) at Fenland District Council (FDC), and Waste Planning Authority (WPA) at Cambridgeshire County Council (CCC). The slides call this collective the 'Incident Management Team' (IMT). The IMT was set up in July 2025, in response to a high incidence of complaints about, *inter alia*. **dust, odour, and noise**, emanating from Saxon Pit, Whittlesey, Cambridgeshire<sup>1</sup>.

- In the document:
  - Sections headed 1 to 4 (slides 1 to 29) summarise the findings of the IMT study, provide some background, and offer recommendations.
  - Appendix 2 (from slides 36 to 59) contains the main scientific content of the study. It also presents the findings and recommendations of the multi-agency team.
  - A small Appendix 1 (slides 30 to 35) contains information on extant CCC planning and EA permits for two companies at Saxon Pit: Johnsons Aggregate Recycling Limited (JARL) and East Midlands Waste Management Ltd (EMWML). One other slide has information on how the EA 'scores' non-compliance with issued permits.

## 2.2 Public Health Planning Objection

This is an eleven page objection to an application by JARL to vary its existing planning permission and extend its operations at Saxon Pit (reference CCC/24/091/VAR). The document is in the form of an e-mail originating from Dr Sarah Dougan and Dallas Owen of CCC.

## 3 Background on Peer Review – What constitutes acceptable science

It is necessary to give some background on how scientific studies should be undertaken, along with the context in which the peer review process sits. Without going into its historical origins, all scientific studies have requirements for methodology, presentation, and analyses. These principles are outlined by what are known as the Mertonian norms, commonly described as scientific 'rigour'. For example a scientific study must have enough information for it to be reproducible (*i.e.* transparent disclosure of all the data used), subsequent results must have been interpreted and reported objectively (*i.e.* without bias), and the research must attempt to answer directly the question being asked. Finally it must stand up to scrutiny, which is where the peer review system comes in; peer review being the quality assurance stage by which scientific works are deemed sufficiently credible and so accepted, or rejected.

# Section 1 – The Multi-agency Study

## 1 Overview – The multi-agency study

Following this peer review, it is my opinion that the findings of the multi-agency study cannot be considered as addressing the objectives that it sought, namely:

*"[to] quantify any potential risks to public health from emissions to air, land, or water from the current operations at Saxon Pit".*

This question remains unanswered, and the potential risks to public health from Saxon Pit remain outstanding.

For, it is important to be clear that the scope of the study's findings are extremely limited. Also, the method used is loose, important evidence is downplayed or overlooked (such as dust emissions and IBA), interpretations are weak, there is a consistent lack of transparency regarding

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<sup>1</sup> Slides 17, 18 and 22.

the datasets used to draw conclusions, and where data are summarised, they are incomplete. The methodological deficiencies are substantial. In its current form, the study does not meet the standard required for a robust public health risk assessment.

## 2 It is Important to Understand the Limited Scope of the Study's Findings

Slide 4 states (in larger font size) that there are "*no identified risks to public health*", with underneath (in smaller font), three constraining caveats, namely that this is limited to:

1. Water from King's Dyke being used for livestock.
  2. Emissions from land gas from the site<sup>2</sup>.
  3. Air quality in the location of Hallcroft Road.
- It is important to note the very specific and narrow range of these findings. Though the authors have outlined some limitations with regard to missing data, they could, and should in my opinion, have emphasised this limited applicability and discussed the methodological limitations of the study in greater detail which would be conventionally expected. Instead, this results in an inappropriate portrayal of the study's value.
  - Notwithstanding the narrow applicability, I have identified wider limitations with these three findings:
    - Point 1 is discussed in §10. The methodological rigour of this part of the study is particularly poor, and I cannot support the statement. The continued existence of abstraction licences for spray irrigation from Kings Dyke, and the prior reliance on agricultural demand to expedite determination of a discharge permit in 2023, indicate that irrigation has been treated by regulators as a reasonably foreseeable use.
    - The second statement is valid, but it seems totally irrelevant to the objective of the study (this is discussed in §7.1)
    - For item 3 (discussed in §6.3.1), it is important to clearly understand that this finding does not apply elsewhere than Hallcroft Road. Moreover, this finding involves an incomplete dataset, analyses which have failed to identify actual spiked dust exceedances, and no chemical analyses of the dust. I therefore dispute the claim of "*no identified risks*" even in this narrow context of just Hallcroft Road.

## 3 Recommendations of the Multi-agency Study

Slide 5 provides a list of recommendations. It predominantly suggests 'soft science' with three of the five being to strengthen policy and community trust in regulators, and a call for more multi-agency collaboration. Though not an improper way of shaping conclusions, it would have been expected to include some 'hard science' recommendations too, for example with respect to the need for better data and the need to analyse dust chemical composition (for the multiple hazards associated with IBA). Some 'hard science' recommendations are actually made by the IMT but have not found their way into Slide 5, which again tends to overly pronounce the value of the findings, particularly to the cursory reader. For example:

- Slides 22 and 59 refer to the need for further, more comprehensive air quality monitoring due to identified elevated levels of dust deposition on the Saxon Pit site and its boundary. The slides also recommend monitoring water sediment in different seasons, as the water

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<sup>2</sup> "*Site*" is not specified, but I assume that it means Saxon Pit.

was found to contain undisclosed metal pollutants. Because of this contamination, Slide 59 recommends that private water abstractions should not be used for drinking water.

## 4 Methodology

When planning a research study, it is essential to determine just what is being tested and what answers are being sought. This then provides a basis for setting the parameters of the method. Often this is framed as a testable (traditionally negative) research question, such as “*Dust is not transferring from Saxon Pit to the surrounding residential areas*”. But, this need not be the case; for example, a study rationale might be “*Assessment to determine whether dust, odour and noise emanating from Saxon Pit poses a risk to resident’s health*”. Without this, the answers may not be relevant to the information sought. The researcher may easily lose sight of what is relevant, and so gather irrelevant information. Without a clearly defined research question, the resulting analysis risks being misdirected and of limited evidential value. In my view, this weakness is clearly reflected in the multi-agency study.

### 4.1 Incinerator Bottom Ash — An Omission Inconsistent with the Available Evidence.

It is essential to understand what residents’ complaints describe, together with their commencement and frequency. This information provides necessary context to identify potential emission sources in relation to changing activities at Saxon Pit. This does not appear to have been considered.

Including such information would set appropriate parameters for the investigation and reduce the risk of analytical misdirection. Although I am not privy to the full descriptive detail of all complaints, as this has not been disclosed by the study and is difficult to extract from the slides, the following can be identified from the slides and other sources:

- The odour had a distinctive smell which would rule out other sources, namely an “*earthy smell*”<sup>3</sup>. Elsewhere, “*the odour is of ash*”<sup>4</sup>.
- Since 2021, 152 cases [complaints] have been raised with **EA at FDC**. These complaints are specifically “**noise, dust and odour**” and are “**emanating from**” (not detected in the region surrounding) Saxon Pit.<sup>5</sup> No information is given as to whether there were complaints before 2021.

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<sup>3</sup> This is not referred to in the two documents named in the multi-agency study. The descriptions come from Minutes of a Whittlesey Local Liaison Committee Meeting on 17th November 2025. These minutes were obtained by a freedom of information request. It is important to note that in this meeting the liaison group dismissed the complaint as “*not typical of IBA*”, when both JARL and the EA have elsewhere stated that IBA **does** have an “*earthy smell*”:

1. In the Environment Agency, in its permit for the JARL site, repeatedly describe the odour of IBA as having “*an earthy kind of smell*” (Environment Agency, 2022).
2. “*IBA and IBAA is likely to result in earthy odours*” according to page 37 of Air Quality Assessment, Proposed changes to the currently operational facility, Saxon Brickworks, Whittlesey, report P4648-R3-V3, NoiseAir on behalf of JARL, 2<sup>nd</sup> July 2024.

<sup>4</sup> Page 4 of CCC/24/091/VAR – Sarah Dougan, Public Health Objection, 13<sup>th</sup> January 2026.

<sup>5</sup> Slide 14.

- On different timescales, namely “*in 2024*” it is stated that there were 276 complaints about “*dust, noise, and odour*” reported to the **National Incident Reporting System (NIRS)**<sup>6</sup>. What is not disclosed is what happened as a consequence of these reports, and to whom were they allocated (if to any agency at all).
- No data is provided for reports to **(NIRS)**<sup>7</sup> for years 2022 and 2023. It is not explained why such data was not sought and included in the study, if it were available.
- Reports to **NIRS** were maintained at a similar level (243) in 2025<sup>8</sup>. It is not explained what these complaints described.
  - However, I have seen the NIRS data for 1<sup>st</sup> Jan to 17<sup>th</sup> July 2025 relating to Saxon Pit. In this period there were 154 complaints, 59 about odour, 85 about noise, and 8 regarding dust. These were described as “*in relation to Saxon Pit...observed outside the site*”.
- The WPA of CCC recorded “7 (*evidenced*) complaints” since 2023, again specifically about “*the site*” (**Saxon Pit**).<sup>9</sup> It is not explained what constitutes an “*evidenced complaint*” and whether there were other “*un-evidenced complaints*”.
- It is stated that the EA has visited Saxon Pit (both JARL and EMWML) a total of nineteen times in 2025<sup>10</sup>. And, three reports [complaints?] were “*substantiated and attributed to the permitted activities within Saxon Pit*”.
- History of permitting and planning permission at the site is summarised<sup>11</sup>. Though going back to changes occurring in 2012 at EMWML, there is no coincident data of complaint times with which to suggest a correlation with 2012. Based only on the complaint record provided, the key date appears to have been when the planning application and environmental permits were granted for JARL to process incinerator bottom ash (IBA) at Saxon Pit, namely 2021 and early 2022. Some explanation of the possible correlation here would have been very helpful and expected. In addition, a range of contemporaneous site activities may affect complaint patterns and the interpretation of trends. These include the accelerated eastern buttress remediation works nearing completion, the commencement of a seven-year southern buttress remediation programme, recovered metal operations associated with IBA processing, metal recycling activities, the presence of non-conforming waste on site, and other uses such as car storage, lorry parking and plant hire operations.
- Based on some of the descriptive information disclosed above (with regard to ash), and elsewhere, no mention is made in the scientific section of the multi-agency study (Appendix 2) regarding IBA. This is notable given that the EA disclosed that they had provided samples to the IMT of IBA and IBAA from JARL.
- IBA has repeatedly been shown to contain hazardous constituents (Rollinson, 2021). I previously provided information (supported by independent scientific references to empirical studies) on this subject to both CCC planning permission and EA permit

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<sup>6</sup> Slide 19.

<sup>7</sup> *Ibid.*

<sup>8</sup> *Ibid.*

<sup>9</sup> Slide 18.

<sup>10</sup> Slide 15.

<sup>11</sup> Slides 10, 31-32, 34-35.

applications with respect to the proposed expansion of works involving IBA by JARL. I have provided this information again, as an appendix to this report (Appendix A).

- In brief summary: IBA has been shown to contain various heavy metals including cadmium, copper, zinc, tin, vanadium, antimony, chromium and cobalt, all of which were identified downstream of the Saxon Pit discharge point in Environment Agency monitoring data disclosed in February 2026, with several parameters exceeding relevant UK guideline or baseline values at the time of disclosure. These data were not incorporated into the UKHSA assessment (see Appendix B). IBA has also been shown in the literature to contain persistent organic pollutants regulated under the Stockholm Convention, including PFAS, dioxins and furans (both brominated and chlorinated), plus polychlorinated biphenyls, substances known to bio-accumulate in animal tissue. Because these constituents remain mobile many years after the formation of IBA, their propensity to leach into surrounding environments over extended periods represents a further hazardous characteristic of IBA that warrants explicit consideration in exposure assessment.

#### **4.2 Where do Information Gaps Remain?**

- Disclosure of the extent and nature of complaints over the years 2020 to present (further back if necessary), and when their frequency began to escalate. Does this correlate with any of the planning and permitting changes at Saxon Pit?
- To which agency (-ies) were the NIRS complaints allocated, and what were the findings of any investigations?
- Why was IBA and IBA aggregate not mentioned in Appendix 2 of the multi-agency study, despite it being identified as a “*key issue*” by residents, despite IBA being proven to contain both organic and inorganic constituents that are hazardous to public health, and despite chemical analysis of IBA and IBAA being provided by the EA to the IMT?

#### **4.3 How Robust are the Conclusions?**

- Any conclusions made about the risk to public health of dust inhalation, where that dust might be from IBA, and where chemical analysis is not provided, are greatly limited in my opinion.

#### **4.4 What Data is Needed to Strengthen the Findings?**

- Chemical analysis of the dust found outside the site, such as on Peterborough Road (see Figure 1) and a comparison made with the chemical analyses of IBA and IBAA.

### **5 The Stated Methodology**

Here I have explained my findings following a review of the study’s methodology as described by slides 41, 42 and 44, “*Data Sources*”, “*Methods of Analysis*”, and “*Conceptual Site Model*” respectively. Also included is slide 3 “*Scope of the Study*”.

- The slide titled ‘Methods of Analysis’ does not set out a clear research question, nor does it provide sufficient methodological detail for the study to be replicated and independently verified. This would not meet the standards expected in peer-reviewed public health research.

- The only information provided on the research question is<sup>12</sup>: “This work **initially** set out to quantify any potential risks to human health from emissions to **air, land, or water** from the current operations at **Saxon Pit, Whittlesey, Cambridgeshire**” (bold is my emphasis).
  - The insertion of the word ‘initially’ is unexplained, particularly given the absence of clearly defined objectives. No explanation is given as to whether the study deviated from what it initially set out to achieve.
  - Emissions to “*air, land, or water*” is an unusual formulation, in that it doesn’t accurately describe the issues complained about, namely it **ignores completely noise and odour, both of which are emissions and which can adversely impact on mental health**. Also, it is puzzling to understand what pathways for “*emissions to land*” actually are. They can either be airborne (dust) or leachate (water), which are already covered by the other two terms. It is imprecise wording. Indeed, no pathway for emissions from Saxon Pit to land is shown in the conceptual site model<sup>13</sup>, so in fact it appears that this strand of the study scope was never implemented.
  - On the subject of leachate (emissions to water that permeate onto land), this is a significant pathway to public health impact where IBA is concerned. No evidence is given that this pathway was considered.
- Nowhere is it evident that the study considered the nature of the complaints as described above (§5.1) and in slide 17. Some of them could have been subject to investigation, such as:
  - IBA.
  - The reported “lack of trust in regulators” and the absence of analysis as to its causes.
  - Operator performance and non-compliance.
  - HGV traffic through Whittlesey.
- Many of the ‘data sources’ listed in slide 41 are not data sources, e.g. “*summary of dust and odour complaints Sept 23 to July 25*”, “*Review of Fonterra air management plan*”, “*JARL site permit variation*”, “*EA odour reports and complaints June-July 2025*”. It is not clear what ‘data’ these sources provided.
- The table on slide 41 says it used data of IBA and IBAA analyses provided by JARL (dated Jan to March 2025 and Feb 2025 respectively). This data, though not independent, is not discussed in the report. Clarification would be helpful as to whether the unsupported classification of IBA as ‘non-hazardous’ influenced how potential toxicity was interpreted or reported within the assessment.
- The conceptual site model<sup>14</sup>, created for the methodology, is helpful. But it appears to contain omissions and features that are not explained:
  - No flow of water to groundwater is identified from JARL. IBA is stored and handled across the operational hardstanding area and is actively sprayed with greywater

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<sup>12</sup> Slide 3.

<sup>13</sup> Slide 44.

<sup>14</sup> Slide 44.

from the wedge pits for dust suppression. Rainfall and surface run-off across this area therefore provide a clear mechanism for contaminant mobilisation. This pathway should have been identified and assessed within the conceptual site model.

- The conceptual site model shows a dashed line connecting the end of the IBA flow into the lagoon. The meaning of this dashed representation is not explained, and this apparent transfer of IBA into the lagoon is not discussed in the study.

## 5.1 Where do Information Gaps Remain?

- The issues of pathways from JARL require clarification.
  - Was JARL assessed as a source of water contaminant pathways to the lagoon and Kings Dyke? If not, on what basis was it excluded?
  - The flow of IBA into EMWML is shown entering the lagoon as a dashed line. Was this pathway assessed in relation to potential contamination of King's Dyke?
  - How does the IMT define "emissions to land", and how are these distinguished from emissions initially released to air (resulting in land deposition) and water (for example, from IBA leachate into groundwater)?
  - Were such emissions to land discounted from the study scope, and if so what was the justification?
  - The operational activities undertaken by East Midlands Waste under T9 exemption, including mobile shredding, screening and crushing of IBA-contaminated metal near the lagoon, are not discussed within the multi-agency study. It is unclear whether potential fugitive emissions or surface contamination arising from these activities were assessed.
- What was the specific scope of the study? Did it have a defined scope, or did it gather available data opportunistically, or were inclusion and exclusion criteria applied in a way that materially influenced the conclusions reached? Did it deviate from what it "initially" set out to achieve, and if so, how and why? How Robust are the Conclusions?
- A firm and clearly defined methodology underpin the validity of the study's conclusions. With an ill-defined or weakly framed research question, the study's conclusions must be treated with caution.

## 5.2 What Data is Needed to Strengthen the Findings?

- There needs to be transparency through disclosure of the full dataset used by the study. Otherwise, the report relies on unverified summary statements. There is also a risk of selective use of data. Where data can be independently checked, certain findings warrant closer examination (for example, the Hallcroft Road dust monitor).

## 6 Dust

From the following observations it appears that the IMT did not include certain dust emissions directly associated with Saxon Pit. There is also substantial reliance on results from the Hallcroft Road monitor. In addition, the IMT did not analyse the chemical composition of dust collected by off-site monitors against the composition of IBA, despite having IBA analyses as part of its dataset; such comparison would have strengthened the investigative aim of identifying the source of residents' complaints with respect to dust arising from Saxon Pit activities, including IBA handling and processing.

## 6.1 Visible Dust Evidence Omitted

- There is visible evidence that dust is leaving the Saxon Pit site and transferring into residential streets (see Figure 1). Figure 1 was obtained from CCC, who were members of the IMT, yet this evidence was not included in the multi-agency study's findings. The omission of this evidence from the study's findings warrants explanation.
- The colour of the dust shown on the road in Figure 1, pallid grey, appears consistent with the dust visible within Saxon Pit in the top right-hand corner of Figure 1. This apparent correlation could have been tested through chemical analysis and discussed within the study, but no such analysis is reported. This omission warrants explanation.



Figure 1. Dust on the A605 Peterborough Road, taken 10<sup>th</sup> April 2025. Photograph courtesy of Cambridgeshire County Council. From Public Health Planning Objection, page 4.

## 6.2 Fugitive Dust on-site Identified but not Pursued

- It was reported that fugitive dust emissions are produced at Saxon Pit by both JARL and EMWML, with the JARL dust deposition described as “*elevated*”:<sup>15</sup> While this is not evidence *per se* of dust in residential areas surrounding the site being harmful to public health, taken together with the evidence in Figure 1, and the off-site dust monitoring data, it could have been used to formulate joined-up conclusions. But such joined-up interpretations are not made.
- No quantification of this dust is reported, no chemical analysis is provided, plus the raw data **is** not disclosed. The multi-agency study states that occupational health is not within its remit and that dust deposition levels (not disclosed) cannot be compared with air quality standards. However, deposition measurements can in principle be expressed as mass per unit area over a defined time period, allowing quantitative interpretation. The assertion that such data cannot be compared is therefore not technically justified.

## 6.3 Off-site Dust Monitoring

There was limited data available here and, to some degree, this is acknowledged by the multi-agency study. But the narrow limitations of this data are not sufficiently emphasised.

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<sup>15</sup> Slide 54.

### 6.3.1 The Hallcroft Road Dust Monitor

- The dust monitor on Hallcroft Road was out of action for extended periods during the last two years, so the dataset is incomplete. The report states that it drew on data from February 2023 to January 2024, June 2024 to October 2024, and June 2025 to October 2025, and that no exceedances were observed.
- There are three relevant limit values against which the data from this monitor could have been compared by the IMT:
  1. An annual average of 40  $\mu\text{g}/\text{m}^3$  for  $\text{PM}_{10}$ ;
  2. Air Quality Standard - a 24-hour average of 50  $\mu\text{g}/\text{m}^3$  more than 35 times in a single year for  $\text{PM}_{10}$ ;
  3. An annual average of 20  $\mu\text{g}/\text{m}^3$  for  $\text{PM}_{2.5}$ .
- Since the data is online, I have been able to check it against the findings of the report. Online data only goes back to 2023 so there is no possibility of comparing trends against the changes in operations at Saxon Pit. The data, for  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$ , from 1<sup>st</sup> January to 31<sup>st</sup> December 2025, is shown in Figures 2 and 3.
  - For  $\text{PM}_{10}$  (Figure 2) the IMT did not refer to frequent spikes of daily exceedances between July and October 2025, with a maximum of 91  $\mu\text{g}/\text{m}^3$  (twice the limit value). Although this does not exceed the *legally set averaged* limit values it merits consideration, particularly in the context of the limited dataset; if such daily exceedances were commonplace but unrecorded, annual exceedances could have resulted.

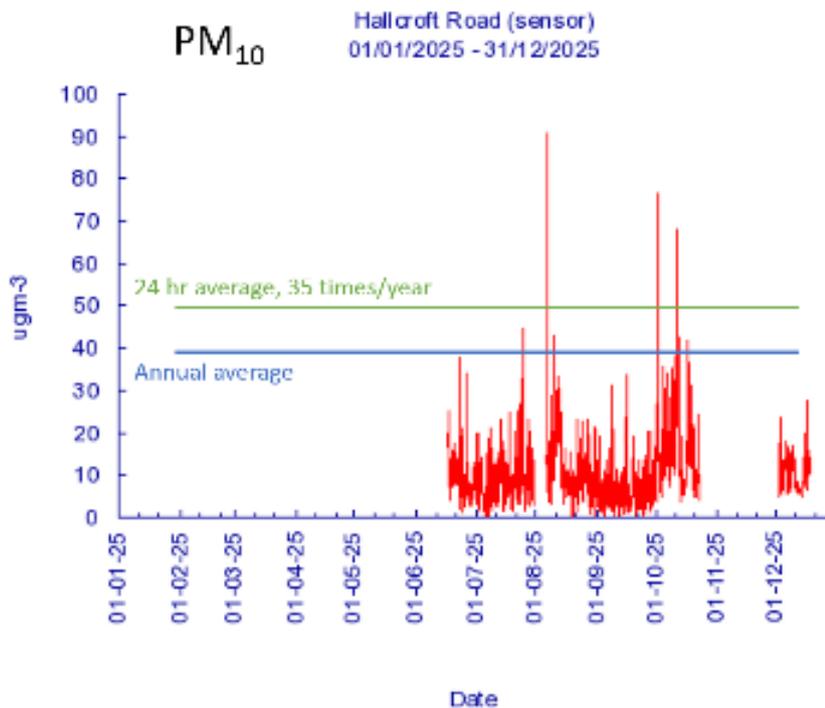


Figure 2. Online  $\text{PM}_{10}$  data for Hallcroft Road dust monitor from 1<sup>st</sup> January to 31<sup>st</sup> December 2025. Also shown are air quality exceedance values. Data obtained on 2<sup>nd</sup> February 2026 from [https://www.airqualityengland.co.uk/site/graphing?site\\_id=FEN001](https://www.airqualityengland.co.uk/site/graphing?site_id=FEN001)

- Similarly for  $\text{PM}_{2.5}$  there were frequent spikes of daily exceedances (Figure 3), on occasion three times the legal limit between July and October 2025. As stated for  $\text{PM}_{10}$  this does not mean an exceedance of the legal limits which are time averaged, but it is worthy of

mention that there were spiked daily exceedances of PM<sub>2.5</sub> recorded at the Hallcroft Road site, taken in context of the missing data for 2025.

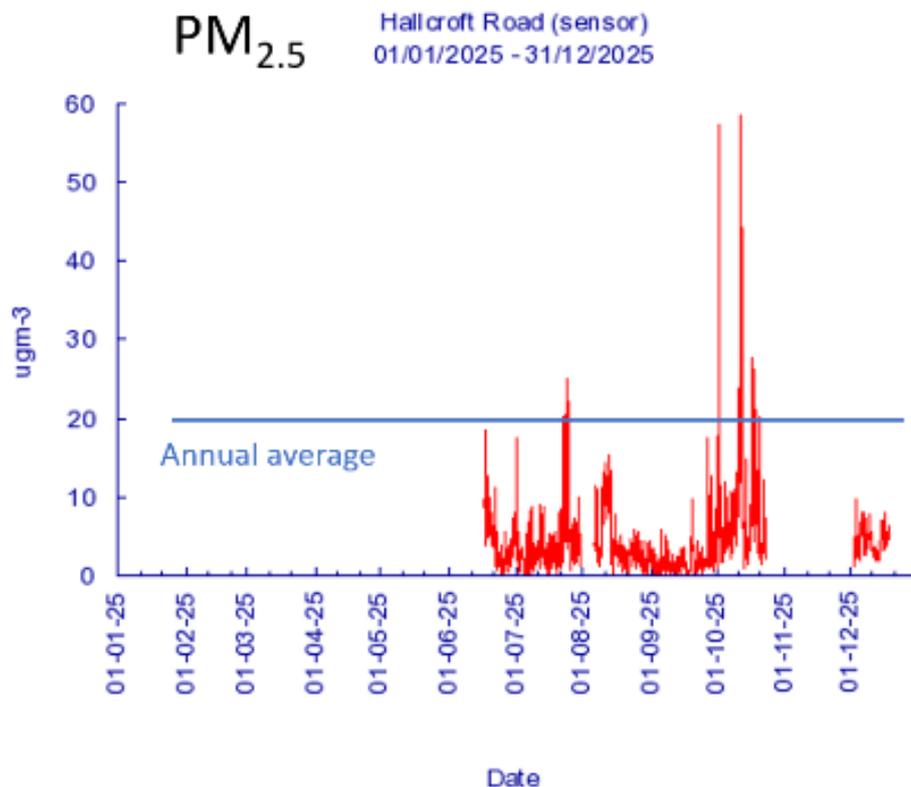


Figure 3. Online PM<sub>2.5</sub> data for Hallcroft Road dust monitor from 1<sup>st</sup> January to 31<sup>st</sup> December 2025. Also shown are air quality exceedance values. Data obtained on 2<sup>nd</sup> February 2026 from [https://www.airqualityengland.co.uk/site/graphing?site\\_id=FEN001](https://www.airqualityengland.co.uk/site/graphing?site_id=FEN001)

- These spikes have particular relevance for it was said in the meeting on 13<sup>th</sup> January (am) that<sup>16</sup> (or similar): “...if exceedances or spikes [in dust deposition] had been detected methods could have been used to identify particle composition, but that this has not been required based on the data observed”.
- As Figure 2 and Figure 3 show, there were, in fact spikes in dust exceedances during 2025 at Hallcroft Road.
- Yet, no chemical analysis was attempted on the dust to ascertain if it compared with the fugitive dust from Saxon Pit.

### 6.3.2 Snoots Road Dust Deposit Gauges

- No data was disclosed of the JARL particulate monitors and the EA monitors on Snoots Road, despite these monitors showing deposited dust.<sup>17</sup>
  - No chemical analysis was attempted on the dust to ascertain if it compared with the fugitive dust from Saxon Pit, specifically the risks to public health if the dust was from IBA.
  - Text says that these deposited dust cannot be compared with air quality standards. This raises the question, why have such device? However, some quantification

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<sup>16</sup> Private Minutes of Public Health Briefing on Saxon Pit.

<sup>17</sup> Slide 55.

could have been attempted by comparing the mass of dust deposited against the time between setting to capture and collection, but this was not discussed.

#### **6.4 Where do Information Gaps Remain?**

- Analyses of chemical composition of the dust detected at multiple monitors.
- Hallcroft Road is only one sample point and it has been out of action for long periods. No reporting of calibration of this analyser.
- Provision of raw data for Snoots Road dust monitors.
- There could have been comparison of dust measurements with both the composition of IBA and the chemical composition of dust across meters.

#### **6.5 How Robust are the Conclusions?**

- Though these dust monitors are in a good location in terms of the prevailing wind, the conclusions have limited applicability.
  - The findings that “*there are no identified risks to public health from air quality in the location of Hallcroft Road*” have narrow relevance, due to sparsity of comprehensive data, lack of chemical analysis, and relevance to this one specific site.
  - The results from Snoots Road are even less useful, due to non-disclosure of the raw datasets, no interpretation of the dust collected, and again no chemical analysis of the dust.

#### **6.6 What Data is Needed to Strengthen the Findings?**

Chemical composition of the dust from the sampling points and from the road (as shown in Figure 1). Disclosure of the IBA and IBAA data held by the EA, and comparison between the two. Though the study says that chemical composition would have been analysed if there had been dust detected outside the site, I believe there is easily sufficient evidence to support the need for analysing the chemical composition of dust collected by meters and visibly deposited on the streets outside Saxon Pit

### **7 Datasets Included Without Clear Methodological Link**

The UKHSA materials include reference to Forterra and sulphur dioxide monitoring. However, no clear methodological explanation is provided as to how this information contributes to the assessment of risks arising specifically from Saxon Pit. Forterra is a separate permitted installation located approximately 1 km from Saxon Pit and further from the primary residential receptors considered in this report. While emissions from its elevated stack may at times be more visually or olfactorily apparent, sulphur dioxide odour is typically distinctive, often characterised as a smell akin to ‘rotten eggs’, and when considered alongside wind direction data is readily attributable. SO<sub>2</sub> is monitored under a permit-required MCERT system and the data are published annually by Fenland District Council. Inclusion of Forterra monitoring material without clear analytical linkage therefore risks conflating geographically and operationally distinct sources without addressing the evidential questions identified in this critique.

#### **7.1 Land/Ground Gas**

- The study states that land/ground gas is emitted from EMWML (slide 41) and monitored between June 2024 and June 2025 (slide 57). However, it is not clear how inclusion of this dataset contributes to assessment of the specific exposure pathways under consideration.
  - Although it emanates from Saxon Pit, such gas, by its nature, it is not dust.

- Many of the gases (no gas analysis is provided) potentially emitted from the ground are odourless, such as CO<sub>2</sub>, CH<sub>4</sub>, radon, CO. Some can have an odour, namely hydrogen sulphide, but there is no record that such a smell (like rotten eggs) has been identified by the IMT.
- Indeed, there is no evidence of ground gas emanating from Saxon Pit, rather the evidence is that gas is **going into** the ground at the site perimeter<sup>18</sup>:

## 7.2 Where do Information Gaps Remain?

- What is the rationale for introducing data on SO<sub>2</sub> from Forterra?
- What is the rationale for including any data from Forterra?
- What is the rationale for including the ground gas data from EMWML?

## 7.3 How Robust are the Conclusions?

- N/A. The query is whether they are relevant.

## 7.4 What Data is Needed to Strengthen the Findings?

- A credible rationale for why all the above data sources were included in the study.
- A chemical analysis of the land/ground gas, coincident with some elaboration on any qualification of the type of odour reported by the residents.

## 8 Odour

Despite odour being a predominating complaint, the methodology, as set, does not have the capacity to assess odour. This relates directly to weaknesses in the methodology, but it need not have been so. As stated:

- (Slide 58): *“None of the information on odours available to the IMT was relevant to a public health risk assessment – the IMT is unable to comment further on odour complaints”*.
- However, this is inconsistent with the bullet point above (slide 58) which says *“[FDC] substantiated thirty complaints [of odour during the period September 2023 to July 2025]”*.

### 8.1 Where do Information Gaps Remain?

- The method, as devised by the IMT, did not seek data that would have enabled assessment of the odour complaints. This is particularly relevant since odour was apparently a significant component of the complaints.
- It is pertinent to know why the odour data was not *“relevant to a public health risk assessment”*.
  - It is unclear what odour data was available to the IMT?
  - Though smell is not as physically easy to measure as, say, dust, there are metrics for measuring odour; and qualitative information, along with its provenance may have provided some insight.
  - Odour can be a cause of mental health, and physical health if the odour is from a toxic gas. As such it appears to come under the remit of the IMT.

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<sup>18</sup> Slide 57.

- Elaboration on the descriptive nature of the odour from resident’s complaints, would have helped identify the source. Assuming that this is logged when complaints are made, it would have meant a researcher compiling a database of such information. That this information is available is evident from extraneous sources, such as an “*earthy smell*”.

## 8.2 How Robust are the Conclusions?

- Actually, the conclusions that no further comment is possible, are robust. There are no results presented with which to make conclusions.

## 8.3 What Data is Needed to Strengthen the Findings?

- Not applicable.

## 9 Soil Sampling

I have significant concerns regarding this aspect of the multi-agency study. My reasons are multiple:

- The soil sampling rationale is not robust since it is not clear whether it is seeking to investigate airborne dust deposition as a pathway to soil contamination and/or the waterborne pathway.
  - This question is exacerbated by there being **no pathway to land identified as part of the study scope in the conceptual site model** (see also §5)<sup>19</sup>. It is therefore unclear how this pathway was assessed, if at all.
  - Slide 46 says that the soil sampling has been done to assess the uptake of water by animals or irrigated plants. But if so, However, only two heavy metals were analysed, both of which are water insoluble.
  - It does not attempt to associate the chemical composition of IBA dust with the chemical species measured (cadmium and lead). It also does not measure organic chemicals that are known to be present in IBA and which are known to bio-accumulate in the food chain.
  - Moreover, if the airborne dust deposition pathway is being tested, the sampling points are not in the ideal geographic location being at south eastern boundary of the Saxon Pit site<sup>20</sup>. The prevailing wind direction is from the south west, thus would tend to carry fugitive dust to the north east.
  - The reported “acceptance limits” appear to be based on an incorrect benchmark. The benchmark applied is more lenient than the appropriate standard.

### 9.1 Cadmium, Lead, and Hen’s Eggs

- The purpose of soil sampling by APHA was stated as<sup>21</sup>: “...to assess for contaminants (metal pollutants) which could impact the health of animals such as chickens and livestock”. From this, the study concludes:
  - “There are no concerns currently”. And:

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<sup>19</sup> Slide 44.

<sup>20</sup> Slide 48.

<sup>21</sup> Slide 51.

- “Egg producers were advised they may now consume/sell their eggs again following receipt of the results”.
- I disagree with both statements.
  - In scientific studies, although lead has been shown to transfer into hen’s eggs, cadmium has not (see Sell, 1975; Sato et al., 1997). Cadmium is therefore not an appropriate biomarker when assessing contaminant transfer into hen’s eggs.
  - Cadmium and lead may be used to assess for historic industrial pollution. But such legacy pollution is not the issue here. The risk to public health would come from run-off that has been in contact with IBA and also possibly fugitive IBA dust deposition in the soil and its uptake by animals and impact on human health. In this case, to assess the safety for human consumption of chickens and their eggs, the correct chemicals to analyse for are POPs (such as dioxins, furans, and PCBs), ideally sampled from the north east of Saxon Pit. These have been shown to bio-accumulate in hen’s eggs from hens kept close to incinerators (so IBA pathway) (Petrlík et al. 2025).

## 9.2 Was this a Comprehensive Assessment?

Slide 47 says “based on the water analysis results and ecological study”, the researcher for APHA did a comprehensive assessment”. I disagree with this on two counts:

- The details of the ecology and water analysis are not disclosed. For example, when were they sampled, and what were the findings? It is unclear whether this refers to the dataset disclosed under FOI and reproduced in Appendix B.
- The researcher analysed, as a proxy for soil contamination, just two elements: cadmium and lead, one of which does not get taken up into the stated animal. Neither cadmium nor lead are readily water soluble, so they are unlikely to be present in dissolved form in water. They may, however, transfer by particle suspension and be found in watercourse sediment, depending on downstream flow conditions.
- The FOI-disclosed dataset (see Appendix B) identified a broader suite of metal elements at, or downstream of, the Saxon Pit discharge point. It is not clear whether these elements were considered in determining the scope of soil and ecological testing, or why they were not subsequently included in further analysis within the study.

## 9.3 Different Limit Values as Benchmark

Slide 50 states that the “acceptance level” (correctly termed “soil guideline value” – SGV) for when soils are considered as contaminated in the UK is 200 mg/kg (for lead) and 10 mg/kg (for cadmium). None of the sample results shown exceed this<sup>22</sup>. But this “acceptance value” is not the only one, and when a different benchmark, which may be more applicable, is used, there is an exceedance.

- There are SGVs for different types of land use. The one chosen in this part of the multi-agency study is ‘residential soil’. No rationale is given for the choice of this land-use type, despite the sampling site (as shown in slide 48) not being residential soil.

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<sup>22</sup> Slide 50.

- An alternative set of SGVs applies for ‘allotments’. This seems more applicable, for the sampling sites are not residential, but have horses, cows, geese and chicken pens<sup>23</sup>.
- The SGVs for allotments are lower. For lead, the limit value is 80 mg/kg (LEPPA, 2025). One of the samples of lead is 100 mg/kg and therefore exceeds the acceptance value, but this is not discussed. This exceedance should have flagged that sample as representing a positive health risk identification.
- Similarly, for allotments in the UK the SGV for cadmium is much lower than as reported by the study, namely 1.8 mg/kg (Environment Agency, 2009). However none of the samples exceed this. But the sampling must be on a dry basis and it is not stated whether this was the case.
- I have obtained, via a Freedom of Information request through Saxongate Residents Group, EA water and soil sampling data <sup>24</sup>. The location cannot be identified from the grid reference provided, and the description is “*Old River Nene, Whittlesey*”. Soil taken on 8<sup>th</sup> January 2025 shows exceedances for cadmium in all three samples, namely 2.1, 2.8, and 6.6 mg/kg.

#### 9.4 Where do Information Gaps Remain?

- The study does not specify which pathways from Saxon Pit to soil contamination were considered or investigated.
- If the aim of the study was to assess airborne dust deposition, the rationale for selecting a site to the south east of Saxon Pit, not in line with the prevailing wind, is not explained.
- The study does not explain why two water insoluble metals (cadmium and lead) were measured if the stated rationale was to assess public health risk from livestock drinking water, particularly given that one of these metals does not bio-accumulate in hen’s eggs. It is also perplexing why these two were chosen when the EA held data that showed there was “a broad suite of [other] elements classified as highly toxic or severely enriched” in sediments at both the Saxon Pit water discharge point and downstream of the same (Appendix B).
- The study does not explain why two legacy industrial contaminants (cadmium and lead) were chosen for analysis when industrial legacy pollution is not the subject of the study. In an area with known historic industrial activity, reliance on such legacy contaminants may complicate attribution of source.
- The study does not explain why it did not test for hazardous metals and persistent organic pollutants (such as dioxins, furans, PCBs and PFAS) known to be present in IBA and known to bio-accumulate in hen’s eggs.

#### 9.5 How Robust are the Conclusions?

- The methodology is not robust. It the study assayed unsuitable contaminants, in soil from a non-ideal location, with limited data, and was seemingly compared against the wrong limit values.

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<sup>23</sup> Slide 49.

<sup>24</sup> Excel file, titled “*Copy of Sample data results 2024-2025 (002)*”.

## 9.6 What Data is Needed to Strengthen the Findings?

- The study should have analysed for specific contaminant compounds known to be present in the water samples and sediments. It should have also analysed for POPs, and analysed the species present in IBA to affirm, or refute, a link with the current activities at Saxon Pit. This has particular relevance because these pollutants are known to be present in IBA. It is also noted that non-conforming waste has been reported as present on site, and that metal recycling activities have taken place under EA exemptions. These additional onsite activities introduce further potential sources of contaminants
- The study does not specify how the samples were taken, whether they were taken in triplicate, the associated analytical error, the limit of detection in relation to the stated concentrations, or whether concentrations were measured on a wet or dry basis.
- The ecology and water analyses should be disclosed. Relevant water and sediment material was disclosed under EIR in February 2026 and is reproduced in Appendix B. The Environment Agency has since stated that the January 2025 Toxicity Summary was preliminary and anomalous and that subsequent modelling and surveys indicate no environmental harm.

## 10 Water

The method for assessing water quality (and its possible impacts on public health) is connected to that used for the soil sampling (see §9).

### 10.1 Weak Data

- The dataset is weakly described<sup>25</sup>, and in this case the description lacks clarity. Descriptions of the following methods of sampling and data acquisition are not disclosed, and the raw data are not provided. This is necessary to determine whether the dataset was comprehensive and fully considered, or whether only a subset was used. .
  - The dataset used (but not disclosed) to assess surface water and water sediment chemistry was provided by the EA and “EM waste” [EMWML?].
  - It is not clear why only “a summary of data Sept 19 – Jun 25” was used, and whether the full dataset was considered.
  - It is not explained why only data for January 2025 was provided by the EA, or whether additional data were available but not included.
  - The meaning of “Jan-Dec for detailed analytical results (EM Waste)” for detailed analytical results is unclear.
  - The datasets used to create the findings are not made clear, and in multiple instances the data provided appear incomplete and fragmented. This undermines the representativeness and robustness of the dataset, and therefore the value of the study’s findings.

### 10.2 Elevated Concentrations of Certain Elements

- “Elevated concentrations of certain elements” were found in both the lagoon and Kings Dyke<sup>26</sup>. The multi-agency study slides do not explain further what these elements are. I

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<sup>25</sup> Slide 46.

<sup>26</sup> *Ibid.*

have later been informed of a claim that these “*elements*” were a single element: mercury.<sup>27</sup> If this is the case, the use of the plural term in the slides requires clarification. Resolving this issue is important for identifying the provenance of the contaminants. It is also not explained why this information was not disclosed initially. However, further subsequent disclosure reveals that there were indeed many other toxic heavy metals that were “*severely enriched*” in sediments at the Saxon Pit discharge point and downstream of it (Appendix B).

### 10.3 Has a Pathway to water contamination from JARL been considered?

- As discussed in earlier (§5), the conceptual site model<sup>28</sup>, does not identify a flow of water to groundwater from JARL as part of the study. It is not clear whether this route to contamination was assessed. The exclusion of a groundwater pathway appears to rest on an assumption of hydraulic containment. However, this premise has not been demonstrated through testing for leached IBA-related contaminants at Saxon Pit. The potential for flooding plus the monitored discharge from the lagoon to King’s Dyke (Appendix B) indicates the contrary - active site water movement. As such, this warrants explicit consideration of groundwater connectivity within the conceptual site model.

### 10.4 Confusion over Water Abstractions.

The text does not provide sufficient clarity, and the matter (as a research limitation) is not discussed in the report. The related conclusions require further justification. Even in the absence of current groundwater abstractions, the assessment of risk depends on the integrity of hydraulic containment. If the wider groundwater system is interconnected with the lagoon or King’s Dyke, the absence of present abstraction does not remove the relevance of the pathway. The extent to which the underlying aquifer may be affected has not been explored.

- Text says that there is no evidence of groundwater abstractions<sup>29</sup>:
  - “*At present, no evidence of groundwater abstractions has [sic] been identified therefore we do not consider that this pathway poses a risk to public health*”.
  - However, this statement is contradicted in the subsequent slide:
    - “*It is established that water from Kings Dyke has been used to provide drinking water for livestock holdings*”. It therefore raises a potential risk to public health.
- Even if there were not, at present, groundwater abstractions, the finding that it does not pose a risk to public health is questionable, as the wider groundwater hydrology will likely be interconnected with the lagoon and Kings Dyke. Therefore there is potentially a contaminant issue. Regardless of whether water is currently abstracted for animal or human consumption, it may be unsuitable for use should abstraction occur in the future. The extent to which the underlying aquifer may be contaminated is not explored.
- Slide 47 goes on to say that “*it was confirmed that water is not being used for crop irrigation*”. The basis on which this was verified is not disclosed. Subsequent research by Saxongate Residents Group has identified publicly available abstraction licensing records for spray irrigation from Kings Dyke with volumes of up to 91,100 cubic metres per

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<sup>27</sup> Dougan, S. 30<sup>th</sup> January 2026. Response to questions from Saxongate on the Public Health Report.

<sup>28</sup> Slide 44.

<sup>29</sup> Slide 46.

irrigation season. In 2023, the EA's permit application EPR/BP3525PR/A001 stated that discharge to Kings Dyke would provide a resource for agricultural irrigation. These records appear to contradict the conclusion that Kings Dyke water is not being used for crop irrigation and require reconciliation.

### **10.5 Where do Information Gaps Remain?**

- Disclosure of the sampling methods used.
- Disclosure of the chemicals identified at "*elevated concentrations*" in the lagoon and King's Dyke.
- It is not explained why the water in the lagoon and King's Dyke is described as "*not suitable for drinking*"? or why cadmium and lead were assayed, nor is the basis on which it was verified that "*water is not being used for crop irrigation*" disclosed.

### **10.6 How Robust are the Conclusions?**

- It is one of the three main findings that "*There are no identified risks to public health from water from Kings Dyke being used for livestock*". This conclusion is insufficiently supported by the evidence.

### **10.7 What Data is Needed to Strengthen the Findings?**

- The elements that led to the water exceedances in the lagoon and the Kings Dyke.
- Clarification is required on whether the same elements are responsible for the exceedances in both the lagoon and King's Dyke, and, if not, what the differences are.
- It is not clear whether JARL was considered as a source for water contaminant pathways to the lagoon and Kings Dyke, and if it was not, the rationale is not provided.
- More detail and clarity is needed on whether water abstractions occur, along with the implications for downstream activities such as swimming, boating, and further abstractions.
- Upstream sampling of effluent from the lagoon using the same tests as downstream is necessary to determine whether Saxon Pit is the source of water contamination. Relevant analytical data from 2025 was held by the EA but was not incorporated into the report. The EA's disclosed data indicated elevated concentrations at the Saxon Pit discharge point and downstream, including multiple metals known to be present in IBA (see Appendix B). The inclusion of this information would, in my opinion, have materially affected the findings regarding pollution of King's Dyke in connection with activities at Saxon Pit involving IBA. This omission warrants explanation.

## **11 Building back Trust in Regulators – Complaints handling**

Lack of trust in regulators is one of the key issues for the community<sup>30</sup>. Whether there is any substance for this lack of trust could have been assessed as part of the multi-agency study, and some conclusions could have been drawn. If so, then this is the basis for action planning to improve and re-build trust.

Much of the information in the slides is related to "*regulatory action*", with one slide from the EA on how it 'scores' complaints. Despite the absence of further interpretative analysis, the presence of this information justifies inclusion of this aspect in this review.

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<sup>30</sup> Slide 17.

### 11.1 Special Criticism of the EA

There have been a substantial number of complaints. It is not made apparent just how many (of the 243 and 276 per annum<sup>31</sup>) complaints made to the NIRS were passed to different regulators, how they were assessed, and what happened to them. This does not assist in rebuilding trust in regulatory efficacy. I will take one regulator, the EA.

- It is stated that JARL has been scored for non-compliance on noise, though when this occurred and how many instances there were is not stated<sup>32</sup>. The basis on which this was graded is not disclosed.
- Further complaints reported to the EA concern EMWML but it is not explained how these, or any of those relating to JARL, were scored.
- Elsewhere it is stated that, from the 243 and 276 reports to the NIRS, “*three reports have been substantiated and attributed to the permitted activities within Saxon Pit*”<sup>33</sup>, for which “*the EA has acted against the permitting regulation*”.
- A different slide also states that JARL have been given “*advice and guidance*” for one uncovered lorry movement<sup>34</sup>. The grading of this incident is not stated either, The grading of this incident is not stated, but it can be considered against the scoring chart provided, and the resulting score appears inconsistent.
  - Looking at the EA scoring chart<sup>35</sup> just one non-compliance which could have a significant environmental impact gives a score of 31 (grading D). Notwithstanding all the aforementioned regulatory actions, a movement of a lorry, uncovered (and assuming that its cargo was IBA), would correspond to a grade C2 according to the scoring chart.
  - Despite this and the other incidents, Saxon Pit is scored as B, which means that according to the EA the permit holders have “*demonstrated an expected level of permit compliance*”. According to the scoring chart, grade B corresponds to 0.1 to 10 points. No information is provided as to how the ‘B score’ was awarded.

### 11.2 Where Do Information Gaps Remain?

- The information provided, namely the high incidence of complaints/reports and the lack of transparency as to regulatory action, together with the absence of critique of that action by the IMT, is unlikely to remediate the lack of public trust in regulators. This is because significant data gaps remain, namely where all the complaints/reports were allocated, how they were dealt with, and what due diligence was applied in investigations.

### 11.3 How Robust are the Conclusions?

- The IMT report offers no conclusions.

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<sup>31</sup> Slide 19.

<sup>32</sup> Slide 15.

<sup>33</sup> Slide 19.

<sup>34</sup> Slide 15.

<sup>35</sup> Slide 33.

## 11.4 What Data is Needed to Strengthen the Findings?

- Full transparency from public service regulators regarding complaint/report allocation and handling.
- In comparison with the above, the study should have tabulated the specifics of the complaints, i.e. the colour and any smell of dust, its provenance, and recorded wind direction where visible during windy conditions.

## Section 2 – Public Health Planning Objection

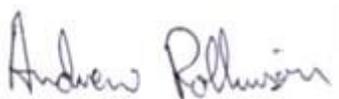
This email does not purport to be a scientific study. As such it would not be subject to peer review.

The document, gives a largely balanced assessment. However, I disagree with certain comments and make the following observations:

- Page 4 *“it is challenging to disentangle the existing source of emissions that are causing concern for residents and that there may be other sources in the surrounding area too”*.
  - When thoroughly interpreted, there is strong evidence pointing to Saxon Pit as the source.
- Also on page 4: *“From a public health perspective, it is the cumulative impact of all processes on residents that matters to their health and wellbeing”*.
  - That may be so, but if one site dominates as the source, it should be identified; other sources may be comparatively minor.
  - IBA has been shown to contain constituents hazardous to public health; therefore, if IBA dust is a risk factor, it would stand out among other sources.<sup>36</sup>:

*“Dust and its potential impacts have understandably been a key concern for residents. While for the most part, complaints from residents are not attributed to a specific operation at Saxon Pit and may even be due to dust from other sources (e.g. nearby fields; other operators outside of the pit), residents have been complaining of dust for a number of years, and some residents are very concerned about dust containing IBA.”*

- From page 9: *“Emissions to air are more complicated [than emissions to water] – there are no identified risks in the vicinity of Hallcroft Road but further evidence is needed to establish whether there are risks to public health from poor air quality in other residential streets based on available data”*.
  - It is appropriate that further data be sought. As stated in this report, a more balanced assessment should have been made of the narrow applicability and limitations of the findings related to Hallcroft Road..
- Finally, the email should make clear whether the grounds for objection are complete (in terms of a full assessment against the planning permission criteria), or whether they relate only to the findings of the multi-agency study.



Dr Andrew Neil Rollinson

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<sup>36</sup> Page 8.

## 12 References

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## Appendix A – Independent Scientific Findings of Incinerator Bottom Ash Composition

The following is a summary of analyses of IBA from the incineration of household wastes made during recent years, mostly using samples of European IBA. These analyses have been performed by independent researchers and are published in scientific literature.

- Glauser et al. (2021) found that samples of IBA did not meet Swiss regulations for landfill. This was due to total concentrations of heavy metals chromium, copper, and lead in some grain size fractions, but in particular antimony which exceeded the threshold for all size fractions, by 11 times in fine fractions, and even by 1.5 to 3 times when the ash was subjected to ‘enhanced treatment’.
- Allam et al. (2019a) assessed IBA using the de-ionized water batch tests commonly applied in many countries. Their results showed that leachate concentrations of copper, chromium, molybdenum and antimony, along with chloride and sulphate put the samples above the legal threshold in The Netherlands for use as a building aggregate.
- Allam et al. (2019b) found that the  $\leq 4$  mm sample of IBA breached the Dutch leach test limit values for chloride, copper and molybdenum. They also referred to their own previously published studies from 2016 and 2017 which showed that leaching of chromium, nickel, lead, antimony and zinc “commonly exceeds the limit for use in non-isolated applications”. With the sequential leach tests, zinc in particular was highly

mobile during the conditions of low pH, while other metals showed high mobility during oxidising conditions (after ageing).

- Vateva and Laner (2020) found IBA leachate concentrations of chloride and sulphate were above the limit values for most grain fractions, while leachate concentrations of copper, chromium and lead were also above limit values. They concluded that the ageing process of four months did not improve the quality of bottom ash with regard to chloride and sulphate. As stated:  
*"The processed bottom ash was not suitable as a whole, neither as a construction material in constrained structures nor as an aggregate in concrete because it did not comply with limit values in current German regulations."*
- Bielowicz et al. (2021) sampled bottom ash over a period of 36 weeks and during this time all elements studied at some stage exceeded the national leachate limit values for Polish legislation. For chloride, the value was never below the limit at all and reached a maximum at seven times the limit value, while other significant maxima were for barium (11.5x above the limit) and antimony (21x above the limit). Zinc also exceeded the limits on four dates; while the mean for antimony was more than twice the limit value, and exceeding the limits more often than not. The mean value for lead concentration in the leachate exceeded the limit value by 70%.
- Kalbe and Simon (2020) showed that the smallest fractions (< 25 mm) of IBA did not necessarily contain the most toxic elements. Approximately twice the amount of bromine, cobalt, chromium and nickel were detected in the largest (0.25 ≤ mm ≤ 45) cut.
- Vateva and Laner (2020) also measured chromium and lead in greater quantities in larger (>31.5 mm) and smaller (4-8 mm) fractions of IBA. Cadmium, nickel and zinc were mostly found in the smallest fractions, while tin and antimony partitioning exhibited a random spread. They also found greater concentrations in the >4 mm fraction of chloride, chromium and sulphate when the sample had been aged.
- Mantovani et al. (2021) detected higher concentrations of chromium and lead in the largest (>16 mm) fraction of IBA, while the highest concentration of nickel was in the 8 – 16 mm cut. They concluded against the worth of sieving and screening because of potentially toxic elements (such as copper, nickel, zinc, lead, antimony) in all categories of carbonates, sulphates and residues
- Arp, et al. (2020) compared total concentrations of polychlorinated biphenyls (PCBs) and their leachability from bottom ash against a number of other substances from waste recycling facilities in Norway. They found that mean total concentration of PCBs were much greater in bottom ash ( $28 \pm 34 \mu\text{g kg}^{-1}$ ) than in fly ash ( $0.3 \pm 0.8 \mu\text{g kg}^{-1}$ ) - 93 times greater taken at the mean, while bottom ash showed the second highest leachability of PCBs for all samples studied.
- In a study over a four year sampling period, the mean concentrations of polychlorinated dibenzo-p-dioxins/dibenzofurans (PCDD/Fs) in IBA were approximately three fifths that of fly ash (Hsieh et al., 2018). Importantly, since the quantities of bottom ash produced were (mean average) three times greater than the quantities of fly ash, bottom ash was the main repository of incinerator PCDD/Fs.
- Chen et al. (2006) also analysed the total concentrations of PCDD/Fs in post metals extraction and air dried bottom ash from two modern incinerators in Taiwan,

described as “the most effective technique for PCDD/F emission control”. They found that particles  $\leq 0.6$  mm accumulate amounts of PCDD/Fs at a level potentially hazardous to the environment and unsuitable for use as a building aggregate.

- The total concentration and leachability of polybrominated diphenylethers (PBDEs) from a variety of waste handling sites, two of which were IBA from a modern Norwegian waste incinerator was assessed by Morin et al. (2017). They found total concentrations approximately an order of magnitude higher in bottom ash than in fly ash, while leachate concentrations were also approximately an order of magnitude higher from bottom ash than fly ash.
- Lin et al. (2014) found that the PBDE total concentrations in IBA were 2 to 19 times higher than in fly ash. These total concentrations were more distributed in larger ( $0.25 \leq \text{mm} \leq 1$ ) particles, and leached out at a rate approximately four orders of magnitude higher than the original waste material. Consequently they advised caution on the proposed use of incinerator bottom ash as construction material.
- The most highly cited study on POPs leachability from bottom ash is by Wang et al. (2010). They found that the content of PBDEs in bottom ash were between one and three orders of magnitude higher than in reference soils. They concluded that reuse of incinerator bottom ash would contribute these substances to the environment.
- Liu et al. (2021) found that bottom ash from two out of three incinerators sampled was enriched in Polyfluoroalkyl substances (PFAS) at three times greater concentration than in fly ash. The authors concluded that bottom ash constitutes an important vector for PFAS into the environment.
- Yang et al. (2021) were the first to show that microplastics transferred into IBA. Their concentrations ranged from 1.9 to 565 particles per kg, or up to 102,000 microplastic particles per metric ton of waste incinerated. The findings have since been corroborated for European IBA (Pienkoß, et al., 2022).

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## Appendix B – Data Disclosed by the Environment Agency (on 20<sup>th</sup> February 2026) following a Freedom of Information Request by Saxongate Residents Group (23<sup>rd</sup> January 2026)

### Summary

This Appendix, as stated in the title, provides new information following a freedom of information request related to the UKHSA report. Many of the documents have information that is redacted. Largely, the data is devoid of a description of sampling methodology, such as the number of sample replicates, weather conditions, time of sampling, and analytical accuracy, meaning that the rigour of the sampling is somewhat limited to gauge. That said, the findings are notable and particularly significant since they indicate clear pollution from the Saxon Pit water discharge point, pollution that can be identified positively against elements known to be constituents of IBA,

The Integrated Water and Solvent Quality data shows that the Saxon Pit discharge point is introducing contaminated water into a controlled drainage system. Multiple parameters exceed Environmental Quality Standards by substantial margins. Zinc is several times the standard, copper is markedly elevated (over 11 times the limit value at the Saxon Pit discharge point). Mercury is four times above the EQS at the Lagoon/discharge point. Chloride is significantly raised at the same location. Conductivity is ten times higher than upstream. COD is elevated. The discharge water is chemically distinct from upstream conditions and carries a clear contamination signature.

As shown by the text provided in the “Toxicity Summary” document, *“a broad suite of heavy metals were identified at elevated levels” in sediment downstream of the Saxon Pit discharge point, and “six elements were classified as highly toxic or severely enriched in sediments (cadmium, copper, zinc, nickel, thallium, manganese)”*. In total there were twenty one different metals found at elevated levels downstream of the Saxon Pit effluent pipe. Importantly, many of these metals are known to be constituents in IBA (see main body of this report and Rollinson, 2021). This indicates ongoing contaminant loading into the receiving system rather than isolated exceedances.

Against this contamination profile, the King's Dyke investigation concludes *“no impact.”* That conclusion might be based on a single macroinvertebrate sweep sample conducted on one day in May 2025. If so, such a conclusion is very weak, because:

- It samples just macroinvertebrates.
- No methodology of the sampling is provided: it could just have been one single point sample rather than in triplicate.
- The results are inconclusive, in fact many of the sample species actually do show a population decline downstream of the Saxon Pit effluent pipe.
- No chemical testing formed part of that survey.
- The WHPT scoring system used is primarily responsive to organic enrichment and ammonia stress and is not designed to detect heavy metal or saline contamination.
- The survey is ecological screening, not contaminant fate analysis.
- This sits within a flow-controlled drainage system rather than a freely flushing river. In such a system, contaminant residence time may be prolonged and ecological response may not be immediate or visible through a single biological sweep.

This new disclosure of information further indicates that the UKHSA assessment appears to rely on a relatively limited and selected evidential base. The water chemistry data referenced are largely drawn from discrete sampling events rather than a multi season or longitudinal dataset. Soil testing undertaken to assess livestock exposure was confined to lead and cadmium despite sediment data indicating enrichment of multiple alternative metals. The ecological survey consisted of a single macroinvertebrate sampling event without concurrent chemical analysis. No structured irrigation or crop spray suitability assessment is presented. No time series trend analysis is set out comparing upstream, discharge and downstream conditions.

The exposure pathways explicitly considered appear limited to livestock water use, land gas emissions and air quality at a particular monitoring location. The assessment does not set out a detailed evaluation of irrigation or crop spraying pathways and does not clearly examine the potential for aerosolisation or deposition of contaminated water used in agricultural contexts. If such pathways exist, they represent distinct exposure routes that require explicit evaluation rather than assumption.

While the report states that irrigation was not occurring at the time of assessment, Environment Agency abstraction licences for agricultural spraying exist and agricultural demand has previously been cited in discharge decision-making. The irrigation pathway therefore appears to have been excluded on the basis of observed use at the time rather than licensed or reasonably foreseeable use. The report does not set out a formal mechanism by which changes in agricultural abstraction or livestock density would be identified and trigger reassessment.

The Environment Agency's EIR response confirms that while the raw datasets have been disclosed, its own assessment and interpretation have been withheld under Regulation 12(4)(e) on the basis of internal communications and the need to think in private. However, that interpretation forms part of the evidential chain supporting both a public health position and a live permitting decision. The analytical reasoning that reconciles exceedances, sediment accumulation and ecological findings has therefore not been made public.

The Environment Agency's subsequent community briefing regarding the granting of the as yet unpublished discharge permit states that although elevated hazardous and specific substances were detected, detailed modelling confirmed that the discharge meets Environmental Quality Standards. However, the modelling assumptions, dilution factors and contaminant fate parameters underlying that conclusion have not been published. Without visibility of those inputs, it is not possible to independently assess how measured exceedances, sediment enrichment and seasonal variability were reconciled with the modelled compliance position.

It is important to distinguish what the agencies are and are not saying. They are not stating that King's Dyke water is chemically clean. The disclosed datasets show measurable exceedances of environmental quality standards for several metals at or near the discharge point, along with elevated conductivity, chloride and other indicators of contamination. Those figures are not denied. The public health position is that they have not identified evidence of human exposure at levels known to cause harm. That is a narrower and different conclusion.

The difference between "*no contamination*" and "*no demonstrated harmful exposure within the assessed pathways*" is substantial. The published conclusion rests on the latter.

Subsequent to the completion of this analysis, the Environment Agency stated on 27 February 2026 that the January 2025 Toxicity Summary had been disclosed in error, that its results were preliminary and anomalous, and that subsequent monitoring, modelling and ecological surveys indicate no environmental harm. However, the modelling assumptions and supporting data underpinning that position had not been published at the time of writing. The data reproduced in this Appendix therefore remain the only publicly available analytical material relating to the discharge and form part of the evidential context considered in this critique.

**Table 1. From Excel sheet titled “King’s Dyke Samples data”. Marked in red (my annotation) are where the recorded values at the Saxon Pit discharge point or downstream of the site exceed those upstream of the discharge point. Note comparison of these values with UK Baseline/Guideline.**

Element	UK Baseline/Guideline (mg/kg)	Upstream (826201)	Downstream (826202)	Discharge Point (826203)
Lithium (Li)	20–40	36	45	36
Sodium (Na)	No Fixed Guideline	700	760	1700
Potassium (K)	No Fixed Guideline	4000	4900	4500
Copper (Cu)	20–80	110	270	260
Silver (Ag)	<1	1	1.4	1.6
Beryllium (Be)	<2	4.5	1.8	1.3
Magnesium (Mg)	No Fixed Guideline	3500	4500	4300
Calcium (Ca)	High in chalky soils	110000	72000	58000
Zinc (Zn)	90–200	440	920	830
Strontium (Sr)	200–400	180	190	220
Cadmium (Cd)	0.5–1.0	0.6	1	0.9
Barium (Ba)	<300	120	210	170
Boron (B)	No Fixed Guideline	2.8	6.6	2.1
Aluminium (Al)	30,000–70,000	23000	29000	24000
Thallium (Tl)	28	29	41	70
Titanium (Ti)	No Fixed Guideline	100	140	230
Tin (Sn)	<5	6.4	24	12
Lead (Pb)	100–300	63	12	81
Phosphorus (P)	500–1000	2200	7200	1400
Vanadium (V)	50–150	43	120	81
Arsenic (As)	15–20	12	11	16
Antimony (Sb)	<1	2.4	2.4	7.2
Chromium (Cr)	40–100	77	170	51
Selenium (Se)	<2	<2	<2	3.4
Molybdenum (Mo)	No Fixed Guideline	4.2	2	15
Manganese (Mn)	300–1,000	550	750	9000
Iron (Fe)	10,000–50,000	34000	38000	32000
Cobalt (Co)	20–30	15	20	51
Nickel (Ni)	<50	44	110	76

**Table 2. Text from document titled “Toxicity Summary”. I infer that it relates to the sediment analyses in Table 1**

### **Toxicity Summary**

A broad suite of heavy metals with known ecotoxicity were identified at elevated levels. Based on toxicity classification:

- 6 elements were classified as highly toxic or severely enriched in sediments (Cd, Cu, Zn, Ni, Tl, Mn).
- The discharge point clearly contributes to increased contaminant loading, with downstream concentrations remaining high, indicating ongoing transport or accumulation.

### **Summary**

Multiple elements exceed UK sediment baseline levels, especially at the discharge location. The most critical contaminants include cadmium (Cd), copper (Cu), zinc (Zn), nickel (Ni), thallium (Tl), manganese (Mn), and antimony (Sb), all of which pose significant toxicity to aquatic organisms. Toxicological classifications indicate that at least 7 elements are of high or very high environmental concern. Downstream enrichment shows clear transport from the discharge point.

Several other elements such as cobalt (Co), selenium (Se), tin (Sn), vanadium (V), and chromium (Cr) are elevated, while many like lead (Pb), arsenic (As), and beryllium (Be) remain within or near natural ranges. Background elements such as calcium, magnesium, aluminium, and iron appear to reflect local geology rather than pollution sources.

In general, the discharge is a likely contributor to toxic metal loading in the sediment

Table 3. Taken from document titled “water quality assessment report”. Marked in red (my annotation) are where the recorded values at the Saxon Pit discharge point or downstream of the site exceed the UK Baseline/Guideline. Note that in some cases (for lead) the limit of detection is outside the range of the UK Baseline/Guidance. The question mark in data column 4 refers to the fact that this location is unknown.

Parameters	EQS (Freshwater)	825603 Discharge point	825605 ?	825602 Downstream
Lead, Dissolved	1.2 µg/l	<2 µg/l	<2 µg/l	2.1 µg/l
BOD: 5 Day ATU	3 mg/l	<3 mg/l	<3 mg/l	<3 mg/l
Chemical Oxygen Demand	10 mg/l	78 mg/l	23 mg/l	25 mg/l
Cadmium, Dissolved	0.08 µg/l	<0.1 µg/l	<0.1 µg/l	<0.1 µg/l
Cadmium (Total)	0.08 µg/l	0.24 µg/l	0.22 µg/l	1.3 µg/l
Ammoniacal Nitrogen as N	0.3 mg/l	2.9 mg/l	<0.1 mg/l	<0.1 mg/l
Nitrite as N	0.05 mg/l	0.048 mg/l	—	—
Ammonia un-ionised as N	0.021 mg/l	—	0.00769 mg/l	0.00746 mg/l

Orthophosphate as P	0.1 mg/l	0.21 mg/l	0.047 mg/l	0.05 mg/l
Chromium (Dissolved)	3.4 µg/l	2.9 µg/l	0.95 µg/l	1.6 µg/l
Zinc, Dissolved	10.9 µg/l	42 µg/l	27 µg/l	8.3 µg/l
Copper, Dissolved	1 µg/l	11 µg/l	3.1 µg/l	2.3 µg/l
Zinc (Total)	10.9 µg/l	82 µg/l	15 µg/l	25 µg/l
Nickel (Total)	4 µg/l	18 µg/l	3.6 µg/l	4.1 µg/l
Oxygen, Dissolved (% Saturation)	>60%	35.8%	88.7%	82.7%

**Table 4. Taken from document titled “Saxon Pit report last sampling”. The caption of the table in this document is titled “Integrated Water and Sediment Quality”**

Parameter	EQS / Guideline	Upstream	Lagoon / Discharge	Downstream
pH	6-9	7.92	8.02	7.82
Temperature (°C)	<20	13	18.2	15.1
Conductivity (µS/cm)	No EQS	510	5254	942
Chloride (mg/L)	<250	84	870	82
COD (mg/L)	<50	45	110	17
Ammoniacal N (mg/L)	<0.3	0.07	0.087	0.03
Mercury (µg/L)	0.05	0.02	0.2	<0.01
Zinc (µg/L)	10.9	15	25	7.2
Chromium (µg/L)	0.47 (Cr VI)	0.6	26	0.5
Copper (µg/L)	Bioavailable	6	18	2.4
Nickel (µg/L)	20	10	14	4.2
Salinity (ppt)	<0.5	-	2.64	-
Volatile Compounds (GCMS)	<1-10 µg/L	None	Trace ≤2 µg/L	None