

The Harm to Health caused by Recurrent Fires at Lauanders Lane

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Summary

Taking the available evidence as a whole, it is very likely that the recurrent fires at Arnold Field are harming both the physical and mental health of local residents. That harm will continue to accrue while the fires continue.

Introduction

This paper what written from a public health perspective to inform discussions as to whether Arnold's Field should be designated as contaminated land under the Environmental Protection Act.

What is health?

The World Health Organization (WHO) defines health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity".ⁱ

This definition emphasizes that health is more than just the absence of illness; it encompasses a positive state of overall well-being. As such, health is determined by both factors that directly cause disease but also factors that undermine the ability of individuals and communities to cope with persistent stress and setbacks, including concerns that are unpredictable and perceived to be out-with their control.

The Council must consider the impact of both when assessing the harm caused by the recurrent and ongoing fires at Arnold's Field.

Using the best available evidence to quantify health harms

Arnold's Field is an unusual scenario - it being a relatively small site, located close to residential areas; with frequent but relatively small, short-lived fires, occurring each summer for seven years and counting; combining the characteristics of both landfill and brush fires.

There is a great deal of evidence about particulate air pollution, brush fires and landfill sites but thus far, none of the studies identified is directly comparable to Arnold's Field.

The Council has undertaken its own analyses but the relatively small population affected, intermittent nature of the exposure and reliance on routinely collected data supplied by NHS partners limits the power of these studies to detected health harms and account for confounding factors.

In the absence of 'perfect evidence' Council officers must use the best available. To this end, we should triangulate the most relevant published evidence and authoritative sources with residents' reports and local analysis to arrive at a view as the likely impact of the fires on the health of residents living in the vicinity.

Risk of immediate physical injury

Fires pose an immediate risk of physical injury most obviously to London Fire Brigade (LFB) staff. The LFB take steps to protect the health of staff as they would in any fire. Nonetheless, some level of risk must remain. The degree of risk is difficult to assess given what is buried on the site is largely unknown. In this instance, the LFB further mitigate the risk to officers by fighting fires from the periphery of the site. Nonetheless, some residual risk will remain and will persist while the fires continue.

Physical access to the site for members of the public is difficult but not impossible as perimeter fencing is incomplete and can be bypassed by anyone determined to do so. The likelihood that this happens during a fire, with the LFB on site would seem remote. However, the recurrent nature of the fires suggest that hot spots often remain after a fire has been suppressed. There is one anecdotal report of injury to a young person from a thermal burn that could relate to contact with such a hot spot. This risk remains while the fires continue.

Further possible means of direct harm include:

- Road traffic collisions - smoke can obscure the vision of drivers; who might also be distracted by the fire scene pending the establishment of diversions.
- The fires are a huge draw on the resources of the LFB, which incurs significant cost as a result of the fires. The LFB is well practiced in managing its resources to meet the changing demands placed upon it. Nonetheless, it is possible that having to devote so much resource to Arnolds Field hampers the LFB response to other issues that are less preventable. The general increase in wild fires during the summer can only increase the pressure on the LFB.

Short-term impacts of air pollution

There is extensive evidence showing that short episodes of particulate air pollution increase the risk of exacerbations of existing respiratory (e.g. COPD and asthma exacerbations) and cardio-vascular disease (e.g. heart attack and stroke).ⁱⁱ

Notwithstanding the absence in UK law of a short-term limit on levels of particulate air pollution, DEFRAⁱⁱⁱ advises UK residents that episodes of poor air quality may have significant acute health impacts, with older people and people with existing heart and respiratory problems being more vulnerable. DEFRA further advises that although only a minority of individuals in vulnerable groups will experience significant problems, it is not possible to predict who they might be affected and as such they advise anyone who might be vulnerable to take steps to reduce their risk of coming to harm e.g. avoid taking strenuous exercise and increase preventative medication.

DEFRA is clear that such conditions are the exception not the rule in the UK

“air pollution in the UK on a day-to-day basis is not expected to rise to levels at which people need to make major changes to their habits to avoid exposure; Nobody need fear going outdoors”.

This statement does not hold true for the community living in Rainham where for several weeks each year, for the past seven years and counting, levels of particulate air pollution rise from low to moderate and occasionally to high for short periods because of fires at Arnolds Field.

Due to action on the part of the LFB and/or changing wind direction, the actual duration of each spike of particulate air pollution caused by the fires is usually brief. Nonetheless, the published literature and professional consensus as reflected in the DEFRA statements suggest that short-term peaks of air pollution entail an increased risk of acute harm. Because of the uniqueness of the Arnolds Field situation, it has not been possible to estimate the size of the additional risk based on published studies that tend to involve very big, one off wildfires, affecting very large populations^{iv}. However, analysis of local health data^v found an increase (+30%) in rates of GP attendances by people with existing health conditions on fire days, which is consistent with the expectation that peaks of particulate air pollution have acute impacts on health.¹

¹ With the support of relevant academics, the Council has investigated potential impacts on physical health of the fires, using time series analysis of routinely collected NHS data. An increase in GP attendances by residents with existing chronic health conditions was found, but no impact on A&E and hospital admissions. However, given the relatively small population size, this study has limited statistical power and should not be over interpreted as evidence of no impact on more significant health outcomes. This analysis did not consider potential acute mental health impacts. Mild to moderate mental health issues that the literature suggests might be associated with a long running concern like Arnolds Field are not considered urgent requiring an immediate NHS response. As such, there is no reason to predict a temporal relationship between the fires and residents seeking help from the NHS as might be investigated using the time series analysis approach.

Residents report a wide range of physical symptoms to ‘toxic smoke’ emanating from the fires at Arnolds Field.

Long-term impacts on life expectancy and other aspects of physical health

There is an overwhelming scientific consensus that long-term exposure to particulate air pollution is harmful to health. The WHO has set limits at the level at which harm (increase in all-cause mortality) has currently been confirmed^{vi} but it is assumed that reducing pollution to still lower levels would further reduce mortality^{vii}. PM_{2.5} levels measured around Arnold’s Field are in any case above the WHO limit^{viii}. As there is clear evidence^{ix} that the fires increase levels of particulate pollution, it follows that they are harmful to local residents.

Notwithstanding the fires at Arnold’s Field, annual average PM_{2.5} concentrations measured around the site remain similar to if not better (lower) than levels recorded elsewhere in Havering and London as a whole ^{viii}. Therefore, the fires are likely to add only a relatively small amount to the overall burden of pollution experienced by local residents. However, they have suffered this preventable additional burden for 7 years and will continue to do so until the fires stop.

In addition to the impact on all-cause mortality rates; there is considerable evidence linking particulate air pollution with the incidence of many diseases, affecting all life stages. ⁱⁱ

Given the interval between exposure and disease, an observable increase in disease or mortality rates in the seven years since frequent fires began is unlikely. The relatively small population resident close to Arnold’s Field makes it still more unlikely that a statistically significant difference would be found and if it were, it would be very difficult to account for the impact of confounding factors e.g. rates of smoking, occupational exposures, population movement etc. Therefore, local epidemiological studies cannot be realistically expected to provide useful additional insight.

Nonetheless, residents attribute a variety of health conditions to toxic smoke from the site.

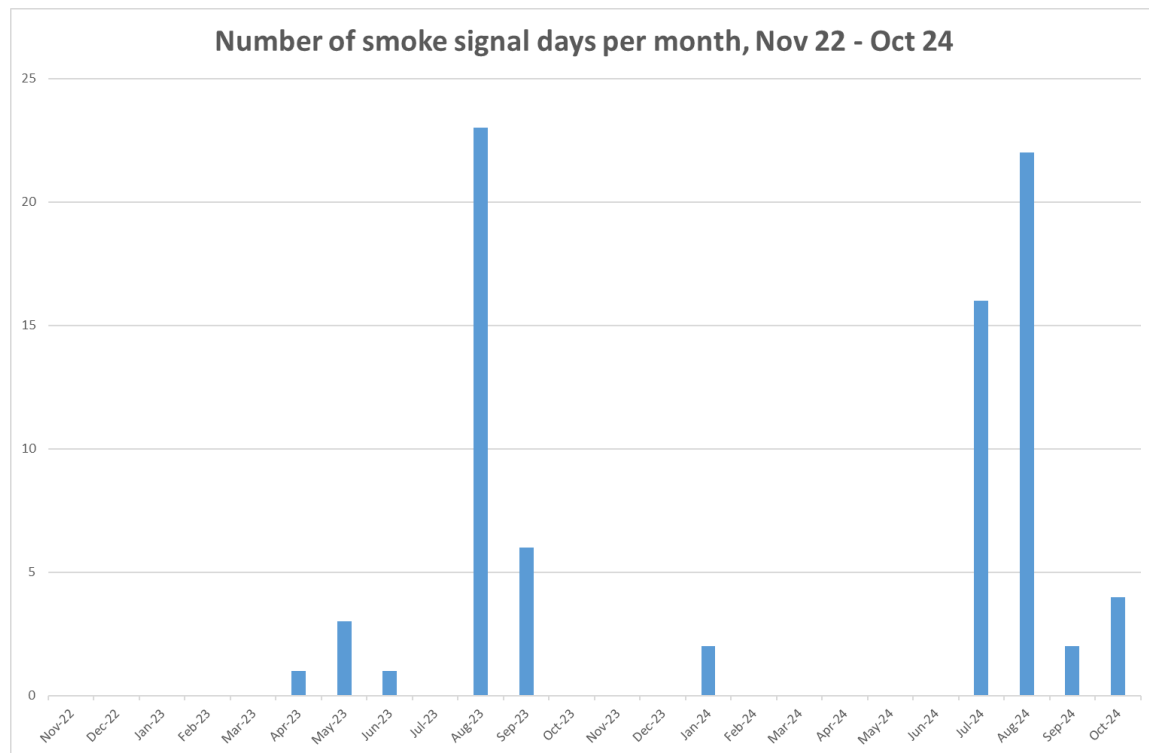
Long term impacts on mental health and wellbeing

As described above, the spikes of pollution caused by fires at Launders Lane contribute a small amount to pollution levels in the long term. However, looking

Investigation of possible mental health impacts of the fires would require the commissioning of primary research, which would take considerable time and there would be a significant likelihood that there would remain some degree of uncertainty as to whether any affects seen were due to the fires or some other confounding factor.

solely at such averages misses the actual experience of residents who experience smoke repeatedly during the summer months.

ERG Imperial College detected a smoke signal in BLC monitoring data on more than 20 days during August 2023 and August 2024.



Source: LBH analysis of BLC data in 2nd Report by ERG Imperial College.

Based on communications with local residents, most are aware of a fire due to odour, visible smoke or social media before it registers on the BLC website suggesting that local residents are highly attuned to smoke from the site.

Occasionally, the LFB has issued formal shelter in-doors advice in response to particularly large fires. The Council repeats this common sense advice whenever residents ask what they should do during fires including at public events. Self-reporting demonstrates that at least some older residents and carers of young children implement this advice whenever there is a fire, reducing their exposure to air pollution by spending long periods in-doors, with no ventilation, at the hottest time of the year.

After 7 years, the only mitigation offered to residents during fires entails significant loss of amenity as a minimum. However, the harm caused is very likely to go beyond mere inconvenience.

There is evidence that communities adjacent to poorly managed landfill sites experience both mental and physical health impacts. These harms may be directly related to some physical property of the specific pollutant. In addition, odour, noise

and smoke also act separately as a stressor. Persistent stress, regarding an issue that is perceived to be out of one's control, results in negative psychological and physical reactions. A significant correlation between the degree of annoyance and mental health issues (depression, anxiety disorder and general mental health) has been demonstrated.^x

There are obvious parallels with Arnolds Field. The energy and longevity of the residents' action group, the number of complaints received each year and the anger expressed at public meetings is clear evidence of the degree and persistence of annoyance amongst residents. As are the feelings of desperation voiced by some residents as the fire season begins for another summer.

As with the other forms of harm discussed above, the negative impacts on mental wellbeing can only grow from year to year while the fires at Arnolds Field continue.

Conclusion

Taken as a whole, the available evidence supports the view expressed by residents that the recurrent fires at Launders Lane are harming their physical and mental health.

References

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 - ⁱⁱⁱ [Short-term effects of air pollution on health - DEFRA UK Air - GOV.UK.](#)
 - ^{iv} <https://assets.publishing.service.gov.uk/media/65705b7a7391350013b03bbc/HECC-report-2023-chapter-10-wildfires.pdf>
 - ^v <https://www.havering.gov.uk/downloads/file/6903/the-effect-of-arnold-s-field-fires-on-the-respiratory-health-of-the-surrounding-population-short-report>
 - ^{vi} <https://iris.who.int/bitstream/handle/10665/345329/9789240034228-eng.pdf?sequence=1&isAllowed=y>
 - ^{vii} <https://www.gov.uk/government/publications/comeap-statement-response-to-who-air-quality-guidelines-2021/comeap-statement-response-to-publication-of-the-world-health-organization-air-quality-guidelines-2021>
 - ^{viii} <https://app.powerbi.com/view?r=eyJrIjoiMDJlYTViZGlhMWFmNi00YTJhLTg4MDktYmRjNDE3ZDYyNTliiwidCI6IjM1MzY2OWUxLTk3MTgtNDZmOC05YmVhLTk1YWZjODc3NmM4YSIsImMiOiJh9>
 - ^{ix} 2nd (update) report relating to fires at Arnolds Field on Launders Lane in Rainham, Havering. ERG Imperial college, July 2025.
 - ^x <https://www.gov.uk/government/publications/landfill-sites-impact-on-health-from-emissions/impacts-on-health-of-emissions-from-landfill-sites#stressor-impacts>