Arkansas Department of Health

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Governor Asa Hutchinson
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Ms. McNair:

The Arkansas Department of Health (ADH) Environmental Epidemiology Section received your email request on August 26, 2021 regarding review of a letter from Dr. Calcagni, a community member, related to potential health issues for residents living near the landfill in Tontitown, AR. Below are the questions from your original email and the ADH response.

1. **Has there been any concern related to this landfill located in Tontitown, AR?**

The Arkansas Department of Health (ADH) became aware of community concerns in October 2020 when the Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ) sent us an email regarding concerns from a citizen who lives in the community next to the landfill in Tontitown, AR. An ADH representative attended the public meeting virtually on October 20, 2020. Attached are fact sheets shared with participants of the meeting.

2. **Does the Health Department (or any other agency) monitor health impacts of residents near landfills in the State of Arkansas?**

In general, ADH does not monitor health impacts of residents near landfills in the state. The ADH Environmental Epidemiology Section may review environmental data from landfills or waste treatment facilities, as available or requested. DEQ does monitor air emissions, water, and soil conditions from permitted landfills as laid out in state regulations.

3. **Do you have any response to any of the information within the letter provided?**

Health complaints cited in literature from exposure to offensive odors such as emanating from animal processing facilities, wastewater treatment plants, or landfills include eye, nose, and throat irritation; headache; nausea; diarrhea; hoarseness; sore throat; cough; chest tightness; nasal congestion; palpitations; shortness of breath; stress; drowsiness; and alterations in mood [1, 2]. Usually, the symptoms occur at the same time as the odor and resolve when the odor goes away. Conversely, if a substance level in the air is high, happens often, and last a long time, the odor can become toxic and may cause adverse health effects in some individuals. A study in North Carolina demonstrated that air pollutants from a regional landfill negatively impact the health and quality of life of neighbors [2].

A substantial body of literature exists demonstrating that offensive or objectionable odors themselves may cause health symptoms [3 - 6]. These symptoms may result from protective inborn or learned aversions to offensive odors, which may signal personal danger or threats to health in an individual [1 - 6].

In sensitive people, such as those with asthma, the very young, or the very old, odors can result in symptoms that last longer and may aggravate existing medical conditions [3]. In addition, previous exposure to high levels of an irritating substance has been shown to make some people acutely sensitive to the substance in the future. If these people smell even very low levels of the substance, they might experience symptoms ranging from headaches and nausea to effects associated with panic attacks, such as lightheadedness or shortness of breath [4]. The Agency for Toxic Substances and Disease Registry (ATSDR) has developed a website with information on environmental odors. This website, http://www.atsdr.cdc.gov/odors/index.html, contains additional reference information on the effects of odors on health as well as resources for residents who are concerned about odors in their community.

**References**


1. Bulsing PJ, Smeets MAM, and Van Den Hout MA. The implicit association between odors and illness. Chem Senses 2009; 34:111-119.
2. Heaney CD, Wing S, Campbell RL, Caldwell D, Hopkins B, Richardson D, Yeatts K. Relation between malodor, ambient hydrogen sulfide, and health in a community bordering a landfill. Environ Res. 2011 Aug;111(6):847-52. doi: 10.1016/j.envres.2011.05.021. Epub 2011 Jun 15. PMID: 21679938; PMCID: PMC3143289.
3. Schiffman SS and Williams CM. Science of odor as a potential health issue. Journal of Environmental Quality Jan/Feb 2005; 34(1):129-136.
4. Schiffman SS, Walker JM, Dalton P, Lorig TS, Raymer JH, Shusterman D, Williams CM. Potential health effects of odor from animal operations, wastewater treatment, and recycling of byproducts. J Agromedicine 2004; 7(1):397-403.

5. Shusterman D. Review of the upper airway, including olfaction, as mediator of symptoms. Environmental Health Perspectives August 2002; 110(S4):649-654.
6. Collins J and Lewis D. Hydrogen Sulfide: Evaluation of Current California Air Quality Standards with Respect to Protection of Children. California Air Resources Board; California Office of Environmental Health Hazard Assessment; September 1, 2000.

**4. Are the studies listed in this letter related to landfills in general, or were they related to a specific landfill in question (or a specific type of waste)?**

In general, the purpose of scientific studies is to answer a question that can be applied to the broad expanse of a subject matter being investigated. It is typically not feasible or necessary to study every site of interest to answer the same question when multiple studies already exist that demonstrate similar outcomes. Therefore, in the scientific community, studies published in scientific journal articles are known to provide both specific information to an experiment performed (results) and applied information to a subject based on universally inferred data (discussion and conclusions).

In the letter provided by Dr. Mikaila Calcagni, we were able to locate the three referenced scientific studies, cited below.

Palmeira Wanderley V, Affonso Fonseca FL, Vala Quiaios A, Nuno Domingues J, Paixão S, Figueiredo J, Ferreira A, De Almeida Pinto C, Da Silva OR, Alvarenga R, Machi Junior A, Luiz Savóia EJ, Daminello Raimundo R. **Socio-Environmental and Hematological Profile of Landfill Residents (São Jorge Landfill–Sao Paulo, Brazil)**. *International Journal of Environmental Research and Public Health*. 2017; 14(1):64. https://doi.org/10.3390/ijerph14010064

Francesca Mataloni, Chiara Badaloni, Martina Nicole Golini, Andrea Bolignano, Simone Bucci, Roberto Sozzi, Francesco Forastiere, Marina Davoli, Carla Ancona, **Morbidity and mortality of people who live close to municipal waste landfills: a multisite cohort study**. *International Journal of Epidemiology*, Volume 45, Issue 3, June 2016, Pages 806 815, https://doi.org/10.1093/ije/dyw052

Missouri Department of Health and Senior Services, **Evaluation of Exposure to Landfill Gasses in Ambient Air Bridgeton Sanitary Landfill Bridgeton, St. Louis County, Missouri**. *U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, Division of Community Health Investigations Health Consultation*, September 21, 2018, https://health.mo.gov/living/environment/bridgeton/pdf/bridgeton healthconsult.pdf

While all three of these referenced journal articles discuss the specific findings and results of a site being investigated, it can also be inferred that the findings can be applied to landfills that share similar waste treatment processes, its by-products produced, and known air pollutants associated with landfills and the breakdown of organic matter. It has been proven in numerous studies that prominent odors emanating from landfills can impact neighboring communities with adverse health effects and reduction in quality of life in general. As previously stated, with sensitive populations, such as those with asthma, the very young, or the very old, odors can result in symptoms that last longer and may aggravate existing medical conditions. Additionally, previous exposure to high levels of an irritating substance has been shown to make some people acutely sensitive to the substance in the future.

A limitation at this site is not having specific data for the Eco-Vista Landfill in Tontitown, AR; therefore, more specific conclusions to the potential ambient air contamination from landfill emissions cannot be made at this time. If ambient air data and meteorological data become available, ADH can conduct a public health review of the specific data collected from the Eco-Vista Landfill and/or surrounding community in Tontitown, AR.

Thank you for allowing ADH the opportunity to respond to comments regarding this important decision. From a public health perspective, whatever outcome is decided on may impact the community surrounding the landfill in Tontitown, AR. Should you have any questions regarding this response, please contact us.

Respectfully,

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