



Detroit Health Department Memo

DATE: October 7, 2020
TO: Dave Bell, Director, BSEED
FROM: Denise Fair, Chief Public Health Officer, Detroit Health Department *DF*
SUBJECT: Health Department Issues and Recommendations: Marathon Variance Request

Background

In 2017, the City of Detroit amended Chapter 22 of the 1984 Detroit City Code to include provisions intended to reduce fugitive dust emissions from bulk solid material facilities (referred to here as the "Bulk Solids Material Ordinance" or "ordinance"). The ordinance was enacted in part to address "gaps" left by insufficient federal and state regulations. The ordinance explicitly names the Health Department (DHD) three times in reference to review of fugitive dust plans and monitoring equipment and in regards to a public health fund. ¹

Summary of Variance Request

Marathon Petroleum Company ("Marathon") is currently operating its refinery under a Renewable Operating Permit (ROP) issued by MDEQ's Air Quality Division.² Marathon is making another request for a variance on the City's Bulk Solids Material Ordinance for an enclosure of carbonaceous bulk solid materials and related enclosure plan, requirements, deadline, and reporting.

Recommendation

DHD has had the opportunity to review Marathon's request. The ordinance puts a high burden on an applicant for a variance to provide detailed information explaining, among other things, why they cannot comply or why their proposed alternative is superior. In reviewing the request, BSEED is charged with giving particular consideration to inclusion of a definite compliance program, evaluation of all reasonable alternatives for compliance, and demonstration that any adverse impacts will be minimal. Based on DHD's review of the ordinance, the variance request, and public comments from legal sources and community members, we recommend that BSEED approve the monitoring station variance and deny the variance request on covering the pile at this time. As an interim control, we would recommend an immediate limit on the pile height inside the containment walls so that the pile must stay 10 – 15 feet below the top of the walls.

¹ Sec. 22-5-12. Reviewing and approving applications: "In determining whether to approve a fugitive dust plan and issue a certificate of operation, BSEED shall solicit comments from the health department and the water and sewerage department." Sec 22-5-19. Fugitive dust monitoring should be conducted with "...permanent, continuous Federal Equivalent Method (FEM) real-time PM10 monitors, or other sensors acceptable to BSEED and the Health Department..." Sec 22-5-75 establishes a public health fund. This section states that the "department of public health" as well as BSEED may expend from the fund for specified activities which include installation of vegetative buffers and "conducting health impact assessments."

² MR-ROP-A9871-2012c

Health Risks



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Health risks of petcoke are similar to those posed by other products that produce particulate matter of 10 micrometers or smaller (PM10).³ The community in which Marathon resides is host to several other industrial facilities as well as mobile sources, creating an environment of high cumulative impact. Well-documented health concerns relate to the pulmonary and cardiovascular systems.⁴ PM exposure has also been linked to metabolic dysregulation, and neurodegeneration.^{5,6,7,8} To protect the community from PM10 associated with petcoke handling, fugitive dust emissions must be prevented. In the next sections, we will briefly highlight health concerns related to Marathon's variance request.

Variance Request: Specific Concerns

Enclosure

In reference to enclosure, we note that Marathon is seeking a variance from enclosure of carbonaceous bulk solid materials for both its petroleum coke ("petcoke") pit, as well as the dewatering pad to which the petcoke is transferred after it is removed from the pit. Marathon is a member of the American Petroleum Institute, which recommends total enclosure of stored petcoke and wind screens for dewatering pits.⁹ Marathon currently stores petroleum coke uncovered within a facility that includes 30ft walls.

Marathon's request is predicated on an assumption that the wall height combined with the maintenance of moisture content will provide a similar level of protection against fugitive dust as would a roof. Marathon's ROP does not preclude them from storing petroleum coke all the way to the top of the structure. Marathon provided for their original variance request the following analysis regarding moisture levels: the data "shows that the average moisture content of the coke prior to truck loading is maintained at 10.5%."¹⁰ The graph shows, however, that moisture levels fell below 4% and stayed low for weeks at a time. This data suggests that its sprinkler system does not maintain a consistently high moisture level. This suggests a serious risk for fugitive dust release, especially if a high-wind event were combined with a dry weather event. The new proposal does not provide a similar history.

³ Caruso, J. A., Zhang, K., Schroeck, N. J., McCoy, B., & McElmurry, S. P. (2015). Petroleum coke in the urban environment: a review of potential health effects. *International journal of environmental research and public health*, 12(6), 6218-31. doi:10.3390/ijerph120606218

⁴ Brunekreef B., Holgate S.T. Air pollution and health. *Lancet*. 2002;360:1233-1242. doi: 10.1016/S0140-6736(02)11274-8.

⁵ Jung C.R., Lin Y.T., Hwang B.F. Ozone, particulate matter, and newly diagnosed Alzheimer's disease: A population-based cohort study in Taiwan. *J. Alzheimer's Dis*. 2015;44:573-584.

⁶ Calderon-Garciduenas L., Vojdani A., Blaurock-Busch E., Busch Y., Friedle A., Franco-Lira M., Sarathi-Mukherjee P., Martinez-Aguirre X., Park S.B., Torres-Jardón R., et al. Air pollution and children: Neural and tight junction antibodies and combustion metals, the role of barrier breakdown and brain immunity in neurodegeneration. *J. Alzheimer's Dis*. 2015;43:1039-1058.

⁷ EPA, "Health Effects of Petroleum Coke." Available: <https://www.epa.gov/petroleum-coke-chicago/health-effects-petroleum-coke#healthrisks> (Accessed: 3/4/2019)

⁸ Caruso, J. A., Zhang, K., Schroeck, N. J., McCoy, B., & McElmurry, S. P. (2015). Petroleum coke in the urban environment: a review of potential health effects. *International journal of environmental research and public health*, 12(6), 6218-31. doi:10.3390/ijerph120606218

⁹ <https://www.api.org/~media/Files/Oil-and-Natural-Gas/Refining/API-guidance-doc-storage-handling-petroleum-coke.pdf>

¹⁰ Marathon Variance Request, obtained from ASETD website.



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Conclusion

DHD values this opportunity to partner with BSEED in protecting the health of Detroit residents. In this memo, we provide recommendations regarding Marathon's request for a variance from specific provisions of the City's Bulk Solids Material Ordinance. Based on DHD's review of the ordinance, the variance request, and public comments from legal sources and community members, we recommend that BSEED deny the variance request on covering the pile at this time. As an interim control, we would recommend an immediate limit on the pile height inside the containment walls so that the pile must stay 10 – 15 feet below the top of the walls.

Cc:

Dr. Najibah Rehman – Medical Director

Scott Withington, Environmental Health Manager