

June 13, 2018

Department of Public Health
Attn: Environmental Permitting and Inspections
333 South State Street, Room 200
Chicago, IL 60604

To whom it may concern:

Thank you for the opportunity to comment on the Chicago Department of Public Health's ("CDPH") proposed changes to the Rules and Regulations for Control of Emissions from the Handling and Storage of Bulk Material Piles ("Bulk Material Rules" or "Rules").¹ These comments are submitted on behalf of the Natural Resources Defense Council ("NRDC") and our more than 11,000 members and activists in the City of Chicago ("City"), including nearly 200 supporters who reside on the Southeast Side in zip codes 60617 and 60633; the Southeast Environmental Task Force ("SETF"), an active community group dedicated to improving the Calumet neighborhood's environment; the Southeast Side Coalition to Ban Petcoke ("SSCBP"), a community group fighting for a healthy, thriving neighborhood free of petroleum coke, manganese, and other toxins; National Nurses United-Illinois; the Midwest SOARRING Foundation, a Chicagoland-based organization that seeks to educate the public about various indigenous North American cultural and environmental issues and has dedicated itself to the preservation of natural resources and the promotion of environmental justice in the area; Moms Clean Air Force; the Peoples' Lobby Education Institute; Reclaim Chicago; the Chicago Environmental Justice Network, whose members include the Little Village Environmental Justice Organization, People for Community Recovery, Blacks in Green, Ixchel, and SETF; the Respiratory Health Association; and Lebanon Church.

INTRODUCTION AND SUMMARY OF COMMENTS

Comprehensive Reforms Are Needed to Address Environmental Inequities

While we provide extensive comments on the proposed changes and other needed fixes to CDPH's bulk material rules below, we call on the City to move beyond its inadequate and narrow focus on one pollutant and take action to address the full burden of the toxic soup borne by the Southeast Side and other Chicago communities like it. For many decades, unsafe levels of particulate matter, air toxics and other hazards from inadequately controlled industrial activity sited next to dense residential communities have posed a serious risk to the health of the residents living on the Southeast Side of Chicago. The U.S. Environmental Protection Agency ("U.S. EPA") has deemed the Southeast Side community an environmentally overburdened

¹ Available at

https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/ChgoBulkMatRules_ProposedAmendments_Apr182018.pdf. CDPH should amend the title of the Rules to remove "Piles," as the term does not accurately convey the scope of the Bulk Material Rules.

community², and as set forth below, thousands of young children call the community home. Data available to the public via U.S. EPA’s web tools show that S.H. Bell and other companies with facilities that are still operating in the community have regularly received numerous notices of violation from the federal government, dating back to the early 1980s. As the Agency for Toxic Substances and Disease Registry (“ATSDR”) pointed out in its 2016 health evaluation of the KCBX petroleum coke sites, particulate matter exposures have created significant respiratory and cardiovascular health hazards to the community.³ Moreover, although the 2016 ATSDR report focused on the particulate matter harms caused by outdoor storage of petroleum coke piles, it also identified elevated non-cancer health risks “driven by potential manganese exposure”⁴ from the ambient air; these findings reinforce the importance of air monitoring data in the efforts to create a healthier community. Most recently, the impact of the fugitive manganese emissions on residents was made more evident when CDPH identified dangerously high levels of the neurotoxin in soil in the neighborhood closest to S.H. Bell, confirming yet again that manganese dust is entering the community and likely getting into homes and adding to the overall exposure.

In addition to petcoke and manganese threats, the community is facing the potential of a second confined disposal facility for toxic materials within its boundaries, as well as a number of proposals for new asphalt, other construction material, and scrap metal processing and handling operations as these facilities are pushed out of Northside neighborhoods in conjunction with the City’s re-visioning and re-zoning of that area. The new facilities will be on top of the already long list of heavy industrial sites along the Calumet River and Lake Calumet, many of which have a lengthy and disturbing record of environmental violations involving issues from air pollution to open dumping to discharging of toxic substances into waterways. The existing cumulative burden on the Southeast Side is unacceptable, both as a general matter and relative to other Chicago communities; allowing or enabling the siting of additional heavy industrial activity here would be adding insult to injury.

Over the last few years, in response to concerns raised by these groups and others, the City and U.S. EPA have taken some actions to reduce the exposure to particulate matter and manganese—creating the Bulk Material Rules, eliminating outdoor storage of petroleum coke, prohibiting new or expanded manganese handling facilities, and now these proposed changes to the Rules. As you know, many of us commented extensively on the issuance of the Bulk Material Rules in 2014.⁵ The Rules improved the control of fugitive dust emissions, but did not eliminate concerns

² Ex. 1, EPA, *Environmental Issues in Southeast Chicago* Website, available at <https://www.epa.gov/il/environmental-issues-southeast-chicago>.

³ Ex. 2, ATSDR, *Health Consultation: Review and Analysis of Particulate Matter and Metal Exposures in Air*, KCBX, August 22, 2016 (“ATSDR KCBX”), available at https://www.atsdr.cdc.gov/hac/pha/KCBXPetroleumCoke/KCBX_Petroleum%20Coke_HC_508.pdf.

⁴ *Id.*

⁵ See NRDC, SETF, et al, Comments, Proposed Dust Rules, https://www.cityofchicago.org/content/dam/city/depts/cdpH/environmental_health_and_food/PetCoke_Public_Com

about particulate matter or heavy metals exposures in the community. We appreciate that the City recently has recognized the need to amend the existing Bulk Material Rules because they do not adequately address the threat posed by manganese dust, and likely other contaminants.

As we explain below, though, the proposed changes still will not adequately protect the community. First, the health impacts of the neurotoxin manganese, the evidence of its unsafe presence in the community—through air monitoring and soil sampling—and the inability to consistently control fugitive manganese dust cry out for a ban on manganese handling near residential communities. In addition, the ongoing, institutionalized disparities that exist across City neighborhoods make clear that the City must change the way land use decisions are made, and break the cycle that imposes undue and disparate environmental burdens on low-to-moderate income communities and communities of color.

Summary of Comments on Proposed Changes to Bulk Material Rules

With respect to the proposed changes to the Bulk Material Rules, recent experience on the Southeast Side shows that air monitoring has been critical for understanding the nature and extent of air quality problems and the effectiveness of control measures, particularly with respect to the previously protracted problem of fugitive dust. Metals monitors thus should be required at all facilities unless the facility meets the standard for a variance. The Rules also should not allow facilities, manganese-handling or otherwise, to choose between full enclosure or monitoring; both enclosure, as a means of control, and monitoring, as a means of assessment, are necessary to ensure that facilities minimize their harmful emissions on a continuous basis, if the City is not willing to ban the handling of manganese and/or other noxious substances outright. In addition, CDPH should require a range of other available dust control methods to ensure minimization of neurotoxic manganese dust emissions.

Summary of Comments on Other Needed Changes to Bulk Material Rules

In addition to the proposed changes, the Rules should be amended to protect the community from a range of pollutants and better ensure the timely administration of the Rules' requirements. For instance, CDPH should eliminate the exemption for construction and demolition materials because the handling of construction and demolition materials creates harmful dust, and current state and federal requirements are inadequate to address the problem. At the same time that the City is in the process of amending the substance of the Bulk Material Rules, it also should provide more structure around the dust plans and variance application process. Specifically,

[ments/NRDC SETF Alliance for the Great Lakes ELPC Faith in Place RHAMC and Sierra Club Recvd 2-7-14.pdf](https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/PetCoke_Public_Comments/Southeast_Side_Coalition_to_Ban_PetCoke_Recvd%202-7-14.pdf); SSCBP Comments, https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/PetCoke_Public_Comments/Southeast_Side_Coalition_to_Ban_PetCoke_Recvd%202-7-14.pdf; CDPH Final Responsiveness Document, https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/CityofChicagoResponsetoCommentsReceivedonBulkMaterialRules.pdf.

CDPH should subject proposed dust plans to public review and comment, and adopt deadlines for its determinations on both dust plans and variance applications.

COMPREHENSIVE ENVIRONMENTAL JUSTICE REFORMS

In order to protect public health, safety and welfare, the City of Chicago must address fundamental land use and environmental justice issues, while also continuing to expand its regulations for sources of particulate matter and hazardous air pollution. Manganese is only one of many hazardous air pollutants that can result from the storage and processing of bulk materials. Additional assessments are required to characterize the nature and extent of the risks posed by hazardous air pollutants other than manganese, as well the cumulative risks posed by exposure to particulate matter and multiple hazardous air pollutants. Additional assessments are urgently needed because of the close proximity of densely populated residential neighborhoods to the Chicago-designated Planned Manufacturing District where bulk storage facilities are aggregated. This is an environmental justice issue because of the composition of the neighborhoods in closest proximity to regulated facilities. This is also a land use issue because it demonstrates that Chicago's Planned Manufacturing Districts in fact exist in the midst of neighborhoods that experience daily, direct threats to their health, safety and welfare. While we focus here on air pollution in particular, we also note that these facilities pose a range of threats to soil and water as well, as documented in part by the City's own records of inspections and complaints.

Manganese is one of thirteen metallic compounds that are identified as hazardous air pollutants in the Clean Air Act.⁶ These hazardous air pollutants are:

1. antimony compounds
2. arsenic compounds
3. beryllium compounds
4. cadmium compounds
5. chromium compounds
6. cobalt compounds
7. cyanide compounds
8. lead compounds
9. manganese compounds
10. mercury compounds
11. fine mineral fibers
12. nickel compounds
13. selenium compounds.

⁶ 42 U.S.C. §7412(b)(1).

The word “compounds” includes any unique chemical substance that contains the named chemical as part of that chemical’s infrastructure.⁷ “Fine metal minerals” include “mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.”⁸

These hazardous air pollutants are listed in the Clean Air Act because they “present, or may present, through inhalation or other routes of exposure, a threat of adverse human health effects...or adverse environmental effects whether through ambient concentrations, bioaccumulation, deposition, or otherwise...”⁹

CDPH possesses substantial evidence that many of these hazardous compounds – including *but not limited to* manganese – are routinely transported, stored and processed in the midst of densely populated Chicago neighborhoods. The extent of this activity is thoroughly documented in the variance requests that CDPH received from regulated entities seeking relief from the City’s regulations for the handling and storage of bulk material piles. For example, below is a summary of some of the (non-KCBX) entities that disclosed the transit, handling and storage of specific bulk materials as part of making variance requests to CDPH:

Kinder Morgan Arrow Terminal magnesite, pig iron and aggregates, ferro silicon¹⁰

S.H. Bell direct reduced iron, silicon carbide, ferroalloys, refractory products, graphite electrode, nonferrous metals such as copper, zinc and aluminum¹¹

Calumet River Terminal pig iron, hot briquetted iron, direct reduced iron¹²

⁷ *Id.*

⁸ *Id.*

⁹ *Id.* at (b)(2) and (3).

¹⁰ Kinder Morgan, *Variance Request to the City of Chicago: Department of Public Health*, June 11, 2014, available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/VarReqKinderMorganChgoArrTerm2926E126thSt.pdf.

¹¹ S.H. Bell, *Request for Variations from Regulations Air Pollution Control Rules and Regulations for Control of Emissions from the Handling and Storage of Bulk Material Piles*, June 10, 2014, available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/VarReqSHBellCo10218SAveO.pdf.

¹² Calumet River Terminal, *Variance Application, Fugitive Dust Plan, Bulk Material Storage Rules and Regulations*, June 12, 2014, available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/VarReqfromCalumetRiverTerm10740SBurleyAve.pdf.

Horsehead	iron rich materials, electric arc furnace dust, zinc and zinc-based products, Waelz Oxide, petcoke and metcoke ¹³
North American Stevedoring	ferromanganese, fluorspar, blast furnace iron ¹⁴
Chicago Port Railroad - Midwest Marine Terminals	pig iron, hot briquetted iron fines, direct reduced iron fines alumina, fly ash, ground blast furnace slag, iron slag fines, kaolin, magnesite and quartzite. ¹⁵

CDPH also possesses credible evidence that several of these materials include entrained hazardous substances that are also listed hazardous air pollutants. This evidence was submitted in joint SETF-NRDC comments on each of these variance requests. These SETF-NRDC comments attached the Material Data Safety Sheets for many of these materials.¹⁶ For example, iron slag fines include manganese, aluminum oxide and magnesium oxide constituents. Ground blast furnace slag includes 7-18% alumina.¹⁷ As its name implies, alumina is 100% aluminum oxide. Ferromanganese includes manganese but also chromium and nickel. The constituents of electric arc furnace dust include lead oxides and lead compounds, chromium and aluminum oxide, as well as manganese oxide and manganese compounds. Many other materials – for example pig iron – are identified as potential sources of a more generic (but no less serious) hazard in the form of “metallic dust” inhalation.

As part of their joint comments, SETF and NRDC also included demographic information from U.S. EPA’s ECHO database describing the people who live in proximity to each of these facilities. In part, this demographic information is evidence of significant population density in the midst of or adjacent to a Chicago-designated Planned Manufacturing District. Just as importantly, this demographic information strongly suggests that exposure risks are disproportionately borne by African-American and Hispanic residents.

¹³ Horsehead Corp., *Request for Variance from the Rules and Regulations for Control of Emissions from the Handling and Storage of Bulk Solid Materials*, June 13, 2014, available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/VarReqfromHorseheadCorp2701E114thSt.pdf. Horsehead Corp. now goes by American Zinc Recycling.

¹⁴ North American Stevedoring, *Variance Application, Fugitive Dust Plan, Bulk Material Storage Rules and Regulations*, Jun 11, 2014, available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/VarReqfrmNorthAmericanStevedoring9301SKreiterAve.pdf.

¹⁵ Chicago Port Railroad – Midwest Marine Terminals, *Request for Acknowledgment of Exemption from Bulk Material Storage Rules and Regulations by reason of Preemption Doctrine*, December 1, 2014, available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/Dec192014/VarReqChicagoPortRRCoMidMarTerInc1170112201STorr.pdf.

¹⁶ See SETF-NRDC comments submitted in each of the dockets for the variance requests cited above and accompanying attachments.

¹⁷ Ex. 3, ScienceLab.com, *Material Safety Data Sheet, Alumina MSDS*, available at <http://www.csun.edu/~bavarian/Courses/MSDS%20sheets%20-%20chemicals%202014/alumina.pdf> (the MSDS for alumina was not included with previous SETF-NRDC comments).

Kinder Morgan Arrow Terminal ¹⁸	3,780 people within a 1-mile radius including 962 children, living in 1,385 households, 48.41% Hispanic and 2.59% African-American
S.H. Bell	19,988 people within a 1-mile radius including 6,367 children, living in 5,837 households, 81.66% Hispanic and 6.33% African-American
Calumet River Terminals	20,564 people within a 1-mile radius including 6,311 children, living in 6,216 households, 77.42% Hispanic and 6.81% African-American
Horsehead	4,116 people within a 1-mile radius including 1,235 children, living in 1,267 households, 73.62% Hispanic and 8.53% African-American
North American Stevedoring	12,862 people within a 1-mile radius including 4,281 children, living in 4,134 households, 59.63% Hispanic and 35.5% African-American
Chicago Port Railroad - Midwest Marine Terminals	67,679 people within a 3-mile radius including 19,121 children, living in 23,470 households, 45.86% Hispanic and 34.37% African-American

Based on the information in this comment, the organizations make the following specific requests:

1. Additional assessments must be conducted to characterize the nature and extent of the risks posed by hazardous air pollutants other than manganese, as well the cumulative risks posed by exposure to particulate matter and multiple hazardous air pollutants, along with contaminated soil and other sources of exposure to harmful substances. These additional assessments are urgently needed because of the close proximity of densely populated residential neighborhoods to the Chicago-designated Planned Manufacturing District where bulk storage facilities and other significant industrial operations are aggregated, and where new heavy industrial sources are relocating.
2. In order to protect public health, safety and welfare, the City of Chicago must address fundamental land use and environmental justice issues, while also continuing to expand its regulations for sources of particulate matter and hazardous air pollution, as well as other environmental pollution. Citywide environmental justice-based reforms are needed because of the composition of the neighborhoods in closest proximity to regulated

¹⁸ Now owned by Watco Transloading, LLC.

facilities. Citywide land use reforms are needed because Chicago's Planned Manufacturing Districts in fact exist in the midst of or immediately adjacent to neighborhoods that experience daily, direct threats to their health, safety and welfare from aggregation of industrial facilities in these districts. Acting now is critical, given that new facilities are moving or are considering moving to the Southeast Side and similar environmental justice communities as a result of the City's broader industrial corridors initiative.

3. In addition to these forward-looking steps, the City must assess past environmental burdens on the health of these communities, and provide health services and other resources to aid in identifying and rectifying the health conditions already manifest from this legacy of pollution.

HEALTH IMPACTS OF MANGANESE

With respect to the specific threat from manganese, we incorporate our prior comments on the serious neurological and other health impacts from this heavy metal.¹⁹ We further expound here as to why, in determining whether levels of manganese in the air pose an unacceptable risk to the community's health and/or whether facilities handling manganese must adopt pollution control measures, the City should not rely solely on the ATSDR's chronic inhalation minimum risk level ("MRL") of 0.30 ug/m³:

- ATSDR itself cautions that MRLs are "screening thresholds" that "**are not intended to define clean up or action levels for ATSDR or other Agencies**";²⁰
- recent community-based epidemiological research indicates that adverse impacts to children may occur at manganese levels well below the MRL; and
- residents face additional manganese exposures from contaminated soil and have faced historically much higher exposures to manganese, with reports of health conditions consistent with neurological damage due to manganese exposure from neighbors of S.H. Bell, as well as cumulative risks from a range of environmental pollutants.

At base, the MRL for manganese represents one agency's interpretation of the scientific health data at the time it was adopted, involving several different points of judgment extrapolating from workplace exposures of adult males to the general public. In cases involving other pollutants, the fine points of these judgments have little practical import because real-world, community-level exposures rarely approach the level derived. However, with manganese, that is not the case. As

¹⁹ See Comments of NRDC, SETF and SSCBP on S.H. Bell's December 2016 Variance Request, at 4-5, available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/PubCom_NatlNursesUnitedII_Com_SHBellVarReq_1-11-17.pdf; Comments of NRDC, SETF and SSCBP on Watco's July 2017 Variance Request, at 8, available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/PubCom_NRDC_SETF_SSCBP_ComWatcoVarReq_10162017.pdf.

²⁰ See Ex. 4, ATSDR, "*Minimal Risk Levels – For Professionals*," (emphasis original) ("ATSDR MRLs"), available at <https://www.atsdr.cdc.gov/mrls/index.asp>.

evidenced by monitoring data in Chicago, East Liverpool and elsewhere, communities are in fact facing exposure to manganese at levels ranging from 0.05 ug/m³ to over 0.30 ug/m³ (based on PM₁₀), the low and high end of health effect reference levels derived by state and federal agencies to date – making the choice of where to set the reference level and how to apply it in practice of significant importance to real people and their daily lives.

The MRL, moreover, has no binding legal effect, and thus the City in its regulatory role is not obligated to adopt the MRL as the sole metric of potential health impacts from manganese in the air and whether to address any such impacts. Since the MRL is “intended to serve as a screening tool to help public health professionals where to look more closely,”²¹ it should not be treated as a regulatory bright line in lieu of other actions, such as prohibiting and/or stringently controlling polluting activities. As discussed in more detail below, the City should instead take a more protective, proactive approach to manganese to ensure that the residents of the Southeast Side do not continue to face unfair burdens on their health and development, especially in light of the historic and cumulative burdens borne by the community.

Setting and Applying Health Effects Reference Levels

Generally speaking, agencies set health effects reference levels by determining a low or no effect level starting point (also known as a “point of departure”) based on available data from scientific research on animals and humans, then applying uncertainty factors to translate that starting point to community-level exposures of even highly vulnerable individuals, like children and the elderly. The result is an exposure level that is intended to be protective of the general public. Within this overall framework, different agencies employ different models and policies/guidelines in setting their health effects reference levels, and in practice come to different scientific judgments about where to set the threshold.

ATSDR’s MRL

The ATSDR’s MRL for chronic (long-term) inhalation of manganese uses as its basis a 1992 study of adult male manganese exposure in the workplace. From the data in this study, ATSDR in 2012 picked a point of departure, adjusted this figure to a continuous exposure, and applied an overall uncertainty factor of 100 to derive an MRL of 0.30 ug/m³ for chronic (365-day) inhalation exposure, based on manganese in the PM₁₀ fraction of particles.

ATSDR declined to select an acute (or short-term) MRL because (a) the existing human data on acute exposures “lack[ed] quantitative exposure values,” and (b) an acute MRL calculated based on the animal data “would be lower than the proposed chronic-duration inhalation MRL that is based on effects observed in humans.”²² It did *not* conclude that shorter-term exposures do not

²¹ See *id.*

²² Ex. 5, ATSDR, *Toxicological Profile for Manganese*, September 2012, at p22, available at <https://www.atsdr.cdc.gov/toxprofiles/tp151.pdf>.

pose a risk of health impacts.²³ Notably, the state of California has adopted an 8-hour Reference Exposure Level for manganese of 0.17 ug/m³ in the respirable fraction of particulate matter.²⁴

Community Study on Manganese Impacts to Child IQ

While MRLs are intended to represent “an estimate of daily human exposure to a substance that is likely to be without an appreciable risk of adverse effects (noncarcinogenic) over a specified duration of exposure,”²⁵ there is recent community-based scientific research indicating that the MRL for manganese, which as described above was based on workplace data, may not sufficiently protect against adverse health effects from inhaling this neurotoxin. A December 2017 study of community level exposures to manganese near S.H. Bell’s East Liverpool, Ohio, facility found decreases in child IQ associated with higher hair manganese concentrations, where PM10 manganese concentrations at the monitor closest to S.H. Bell’s facility averaged 0.14 ug/m³ during the 18-month study period.²⁶ Thus, this study indicates that adverse impacts to children from manganese inhalation may occur at levels well below the current MRL. Other studies have reported neurological health effects at similar levels of airborne manganese, as discussed in this East Liverpool study.

Notably, by comparison, the monitor placed at S.H. Bell in Chicago had a mean PM10 manganese value of 0.18 µm/m³ for March 2017 to March 2018. This value is comparable to and slightly higher than the mean value found in East Liverpool, indicating that the Southeast Side community abutting S.H. Bell’s facility faced significant risk from manganese over this period.

Past and Current Cumulative Exposure to Air and Soil Contamination

Finally, the City should take an aggressive, proactive approach to minimize or eliminate manganese exposures moving forward because of the historic manganese exposures and cumulative burdens on this community. While S.H. Bell and other manganese-handling facilities claim to have added significant controls to their facilities since the original dust rules were adopted, implicit in these claims is the fact that the facilities were NOT controlling their dust previously. Monitoring of manganese at S.H. Bell in 2017 brought to light disturbing levels during the spring and summer months, resulting in U.S. EPA’s August 2017 Notice of

²³ Further discussion of the evidence of acute impacts to health considered by ATSDR is provided in our comments on Watco’s July 2017 Variance Request, at p8.

²⁴ Ex. 7, California Office of Environmental Health Hazard Assessment, *TSD for Noncancer RELS*, Appendix D. Individual Acute, 8-hour, and Chronic Reference Exposure Levels Summaries, at p459-462, available at <https://oehha.ca.gov/media/downloads/crn/appendixd1final.pdf>.

²⁵ See ATSDR MRLs.

²⁶ Ex. 7, E.N. Haynes, et al. *Impact of air manganese on child neurodevelopment in East Liverpool, Ohio, Neurotoxicology* (2017), <http://dx.doi.org/10.1016/j.neuro.2017.09.001>; Ex. 8, U.S. EPA, “East Liverpool, Ohio, and Glasgow Borough, Pennsylvania – Air Monitoring Data,” available at <https://www.epa.gov/oh/east-liverpool-ohio-and-glasgow-borough-pennsylvania-air-monitoring-data#charts-graphs> and Ex. 9, U.S. EPA, “Water Treatment Plant, East Liverpool, Ohio, Monthly PM10 Average Manganese Concentrations,” available at <https://www.epa.gov/sites/production/files/2018-03/documents/eliverpool-oh-wtp-mn-monthly-pm10.pdf>. East Liverpool PM10 manganese values also are available for part of 2009, part of 2011, and all of 2012 to 2013. The mean for all available PM10 manganese values prior to and through the study end date of June 2014 is 0.16 µg/m³.

Violation.²⁷ These levels occurred even though S.H. Bell claimed in its December 2016 variance request to have implemented “extensive” dust controls “[c]ommencing in 2014.”²⁸ This monitoring data and control history strongly suggest that manganese levels near S.H. Bell prior to last spring – and prior to 2014 in particular – were well above those high levels from the summer of 2017. In addition, as discussed below, residents face exposure to manganese not only via their breathing the air outside their homes, but also from the disturbingly high levels of manganese that have accumulated in the soil from past and current sources. These exposures may already be manifesting in identifiable manganese-related conditions in the community next to S.H. Bell: at the May 10 public meeting regarding the City’s soil sampling, a woman who lives across the street from S.H. Bell reported that her husband, who is in his forties, experiences hand tremors. Given that cumulative exposure to manganese appears to be connected to the severity of symptoms, these historic and current cumulative exposures weigh in favor of CDPH aggressively addressing manganese now, beyond simply maintaining ambient levels at or below the MRL. Similarly, simply maintaining manganese levels at or below the MRL is inappropriate given that the community also faces exposure to a range of environmental pollutants from various facilities, as discussed above.

In sum, given ATSDR’s own cautions about the proper use of screening thresholds; the new and emerging research on community-level exposures to manganese that indicate health impacts may occur at levels below the MRL; and threats to health from historic and current manganese contamination in the air and soil along with a range of other harmful substances impacting the Southeast Side, the City should refrain from treating the MRL as a regulatory bright line for gauging unacceptable levels of manganese and instead take a more proactive, protective approach to minimize manganese exposure moving forward.

BAN ON HANDLING MANGANESE NEAR RESIDENTIAL NEIGHBORHOODS

Given the likelihood that negative impacts from manganese happen at levels well below the MRL and the inability of industrial sources to stringently and consistently control their manganese dust pollution, the only way to truly protect public health of Chicagoans is to issue a ban on all handling of manganese adjacent to residential communities. We already know that the Southeast Side of Chicago has been unduly burdened with the environmental harms of industry located in close proximity to residents. The groups involved in these comments have brought concerns about manganese to the City and U.S. EPA’s attention many years ago. Past experience

²⁷ See Ex. 10, U.S. EPA, *Notice of Violation, EPA-5-17-IL-10*, August 7, 2017, available at <https://www.epa.gov/sites/production/files/2017-08/documents/sh-bell-chicago-nov-20170807-5pp.pdf>; see also Ex. 11, U.S. EPA, *Filter-based Monitor (S4) Data from the FRM Monitor (data through April 2018)* (“S.H. Bell Manganese Data”), available at <https://www.epa.gov/il/sh-bell-chicago-air-monitoring-data>.

²⁸ See S.H. Bell, *Request for Variation from 90 Day Compliance with Section 3.0(4) of the Air Pollution Control Rules and Regulations for Control of Emissions from the Handling and Storage of Bulk Material Piles*, December 2, 2016 (“S.H. Bell December 2016 Variance Request”), at 4, available at <https://www.cityofchicago.org/content/dam/city/depts/cdpH/general/VarianceRequestfromS.H.BellCo. 10218S.Ave. O 12-2-2016.pdf>.

with facilities on the Southeast Side and in other communities shows that companies have not been able to consistently control their manganese dust emissions—even when they are supervised closely pursuant to environmental enforcement orders and/or settlements. And as discussed above, the levels to which they have been able to bring their manganese dust on a more consistent basis are likely still harmful to human health. Monitoring and soil sampling to date on the Southeast Side of Chicago reinforces the urgent and immediate need for a ban on manganese handling to prevent further exposure in the community. CDPH should work with other City departments and the City Council to develop a ban that will prevent further exposure to this harmful neurotoxin in the community. Companies can continue to handle other materials, assuming they can do so in a way that does not pose threats to the community. In the interim, CDPH should use its authority to order the abatement of existing nuisances created by individual facilities.

The Southeast Side community has been unjustly burdened by environmental harm resulting from the siting of industry in close proximity to densely populated residential areas. As we detail above, many of these facilities handle hazardous air pollutants, as defined under the Clean Air Act. Historic data from air monitors in the community—including the Washington High School monitor and the Rowan Park monitor—shows that manganese is not a new problem in the community.²⁹ The Xact Metals Study notes quite potently, “[h]istoric concentrations of manganese (Mn) have exceeded health comparison values and multiple industrial sources are potentially contributing Mn emissions.”³⁰ Moreover, as early as 2012, members of the SETF began questioning the manganese data associated with these monitors. In 2014, SETF and NRDC raised concerns about manganese and S.H. Bell’s operations in the context of opposing S.H. Bell’s variance request.³¹ With regard to specific Southeast Side facilities, S.H. Bell’s operations should have been flagged as a matter of concern by U.S. EPA even sooner because the company’s Ohio facility has been under active investigation by the agency since at least 2008 for the same issue.

Experience shows that problematic levels of (manganese) dust happen even *with* enclosure. Enclosures inherently have vents and doors, and so dust control is dependent on proper operation of baghouses, negative pressure and door opening/closing, etc., which leaves significant room for operator error and malfunctions. As CDPH is only too aware, for instance, Watco was not properly running the dust collector system on its truck load-out building during two inspections a week apart, the second time despite reassurances during the first inspection that the problem was

²⁹ Ex. 12, ATSDR/EPA, *Xact Metals Study: Southeast Chicago (September 2015)*, available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/AINRDCSupComKin derMorganVarReq_3102017.pdf; see also data for the Washington High School monitor available on U.S. EPA’s website “*Monitor Value Report – Hazardous Air Pollutants*,” <https://www.epa.gov/outdoor-air-quality-data/monitor-values-report-hazardous-air-pollutants>.

³⁰ *Id.*

³¹ Comments of SETF and NRDC on S.H. Bell’s June 2014 variance request, September 2, 2014, available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/PetCoke_Public_Comments/PubCom_NRDCSETF_ComSHBellVariReq_922014.pdf.

an isolated occurrence.³² In East Liverpool, monitoring at S.H. Bell's facility shows that manganese emissions increased substantially between the periods from 2013 to 2014 and 2015 to 2016, even when the facility was under significant control obligations including enclosure.³³ Even where operators are being diligent, malfunctions can occur that result in significant dust. And significantly, no government agency or company has offered a solution for controlling manganese dust from barge loading and unloading.

In addition to the air monitoring results, soil sampling in the vicinity of S.H. Bell shows alarming levels of manganese in the top six inches. According to the Site Assessment Report for the East Side Neighborhood, prepared for the City of Chicago by Tetra Tech, Inc., manganese exceeded the EPA removal management level, also known as a time-critical removal threshold, of 5,500 ppm at 3 residential properties. Manganese also exceeded the Tiered Approach to Corrective Action Objectives (TACO) Tier 1 soil remediation objectives level of 1,600 ppm or greater for residential properties at 19 residential properties.³⁴ In other words, of the 27 properties tested, only 5 properties had manganese levels that tested below levels that U.S. EPA and/or the Illinois Environmental Protection Agency have used at other contaminated hazardous sites, and 3 samples exceeded the U.S. EPA's time-critical removal threshold level. The presence of high levels of manganese in the soil, in a pattern with the highest concentrations found closest to the S.H. Bell, further confirms the history of manganese air pollution and provides urgency for preventing any additional air deposition of this neurotoxic material due to active nearby operations.

Meanwhile, manganese dust emissions continue at S.H. Bell³⁵, in all likelihood adding to the high levels of manganese already present in the soil. Watco has only recently begun monitoring particulate matter and has not yet installed metals monitors that will evaluate manganese levels; it is very likely that neighboring residents continue to be exposed to this neurotoxin in the air, especially given Watco's poor record of control that was in part the basis of CDPH's denial of a variance to the company, and agencies to date have not tested the soil in the neighborhood closest to Watco.³⁶ The same can be said for North American Stevedoring, a company that claimed robust control of its manganese dust in a renewed variance request to CDPH dated

³² See CDPH Variance Determination, Watco Transloading LLC, available at

https://www.cityofchicago.org/city/en/depts/cdph/supp_info/inspections---permitting/watco-transloading-llc.html.

³³ See, e.g., our prior comments on S.H. Bell's December 2016 variance request, at 6-8, available at

https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/PubCom_NatlNursesUnitedII_Com_SHBellVarReq_1-11-17.pdf, and associated exhibits.

³⁴ See Tetra Tech, Inc., *Site Assessment Report East Side Neighborhood, Chicago, Illinois*, Prepared for the City of Chicago, May 23, 2018, at p6-8, available at

https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/SoilSamplingSiteAssesRep_ESN_05232018.pdf.

³⁵ See S.H. Bell Manganese Data.

³⁶ Manganese testing results from a home near Watco, taken in 2016, support the need for CDPH and U.S. EPA to sample this area as well. See Ex. 13, Gabriel Environmental results for samples collected March 9, 2016 and map of testing location.

February 2018 asking to be relieved of monitoring requirements, only to be witnessed causing clouds of brown dust, including at the property line, on May 2, 2018.³⁷

CDPH has the authority under the City of Chicago Code to order the cessation and abatement of a public nuisance caused by an individual facility's operations:

The commissioner is hereby authorized to issue an emergency cessation order to any person who the commissioner concludes is (i) causing, creating or contributing to any activity or condition that poses an imminent and substantial risk to the public health or safety or to the environment;³⁸

The Code defines "imminent and substantial risk to the public health or safety or to the environment" to include "a threat to human health or safety or to the environment that is expected to occur within a reasonably short time, or that is present now, although the impact of the threat may not be felt until later."³⁹ Cessation can involve bringing "an end to a particular course of action of conduct" and "closure of any business or part of any business."⁴⁰

Precedent exists for eliminating the handling of a material that poses significant health risks due to fugitive dust: S.H. Bell has discontinued handling DRI fines due to concerns about health impacts from this material.⁴¹ If CDPH orders cessation of handling of manganese, the handlers can continue their operations and handle other, less hazardous and dusty materials—if they can do so in a way that complies with the existing Rules. Alternatively, they can move their operations to a more remote area if it can be demonstrated that it will not adversely impact public health or the environment.

COMMENTS ON PROPOSED CHANGES TO BULK MATERIAL RULES

Summary of the Proposed Changes

The proposed changes to the bulk material rules fall into two categories: (a) modifications of the existing air quality monitoring requirements for all covered facilities, and (b) new provisions regarding handling of manganese.

In the first category, CDPH proposes to dial back the requirement that all covered facilities employ federal equivalent method (FEM) PM10 monitors to apply solely to facilities that are not

³⁷ See NASCO's Request for Reconsideration on the Chicago Department of Public Health's Determination on its Request for Variance, February 28, 2018, available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/NAStevedoringReqVarReconsideration_Feb282018.pdf; Ex. 14, photos of NASCO taken on May 2, 2018.

³⁸ Chicago Municipal Code, § 11-4-025(b)(1).

³⁹ Chicago Municipal Code at § 11-4-025(a)(1).

⁴⁰ Chicago Municipal Code at § 11-4-025(a)(1).

⁴¹ See S.H. Bell December 2016 Variance Request, at 4.

“completely enclosed, including all storage and transfer of bulk materials.”⁴² CDPH also adds a provision giving the Commissioner the express discretion to require one federal reference method (FRM) PM10 monitor for assessing metals where the FEM PM10 monitoring “does not provide sufficient information regarding fugitive dust for the Commissioner to adequately assess health impacts of such emissions.”⁴³

With respect to manganese, CDPH creates a set of unsatisfying options. Facilities handling “non-packaged” manganese bulk materials must EITHER fully enclose their operations, maintaining all such materials in “fully enclosed structures,”⁴⁴ OR install one FRM metals monitor “in lieu of enclosure.”⁴⁵ The manganese enclosure requirement applies to all “piles, conveyors, Transfer Points, and Processing areas” at facilities handling non-packaged manganese.⁴⁶ Other changes are proposed to implement these requirements, including new definitions for “manganese-bearing bulk material,” manganese-bearing bulk material facility,” and “non-packaged,” and a revised compliance schedule.

Below, we provide comment first on the provisions that apply generally to bulk material handling facilities, and then take up the manganese-specific provisions.

Comments on Proposed Changes Regarding All Covered Materials/Facilities

As a general matter, we believe that experience with monitors to date shows that air quality monitoring on Chicago’s Southeast Side--and similarly industrialized areas throughout the city--needs to be strengthened, not weakened. Monitors for particulate matter, including metals monitors, have provided critical information for characterizing air quality problems and their sources, both verifying community concerns and the need to take action, and helping agencies and companies identify the specific sources of problems within facilities. Moreover, to date monitoring requirements have not thrown facilities over the brink of economic viability or otherwise imposed an unreasonable hardship.⁴⁷ Thus, we fully support CDPH implementing a robust air-quality monitoring program to protect Southeast Side residents and their families.

⁴² See Proposed Section 3.0(4). It appears from the enclosure requirements for petcoke and manganese that CDPH intends for this proposed new provision to require full enclosure of a facility’s operations, and not necessarily full enclosure of the entire site, as the current language may be read to entail. CDPH should make clarifying edits to this proposed language.

⁴³ See Proposed Section 3.0(5).

⁴⁴ See Proposed Part D, Section 5.0.

⁴⁵ See Proposed Part D, Section 6.0.

⁴⁶ See Proposed Part D, Section 5.0(1). We note that while the requirement to submit a plan for total enclosure of these specific operations is clear, and should be read in context as giving further specificity to the duty to “maintain” covered manganese materials in fully enclosed structures, the proposed enclosure requirement could be strengthened by adding the list of operations to the duty to maintain language in the paragraph preceding Section 5.0(1) as well. This could be achieved by adding a sentence after the duty to maintain that states that the operations covered by the full enclosure requirement include, but are not limited to, all piles, conveyors, transfer points, and processing areas.

⁴⁷ In its December 2016 variance request, S.H. Bell submitted data to CDPH regarding the cost of adding an FRM metals monitor to its FEM monitors. See S.H. December 2016 Variance Request, at p2-3 and Exhibit A. While it is difficult to line up S.H. Bell’s description of the costs and their breakdown, in particular annual operating costs, with the provided estimate, it appears that the total cost of a metals monitor is about \$40,000. Actual costs are likely

FEM PM10 Exemption for Completely Enclosed Facilities (Proposed Part B, Section 3.0(4)). For these general reasons, and for reasons set forth in more detail below with respect to the manganese-specific proposed provisions, we strongly oppose CDPH's creation of a carve out from the FEM PM10 monitoring requirement for completely enclosed sites. In addition, such a carve-out is not needed as a practical matter for two reasons. First, it is unclear that any facility within the City to date has or could completely enclose its bulk material handling operations, including vehicle transfers. Second, to the extent that a facility does seek to meet this bar, the bulk material rules already contain a variance process by which completely enclosed facilities can seek relief from the FEM PM10 monitoring requirement. The proposed change would in effect create a special carve out from the variance process for facilities that purport to be completely enclosed, insulating such claims from scrutiny by the public by relegating them to consideration only under CDPH's fugitive dust plan evaluation, which itself is not currently subject to public comment under the rules.⁴⁸ We object to this weakening of the rules.

Filter-Based Metals Monitoring (Proposed Part B, Section 3.0(5)). At the same time, we strongly support CDPH's proposal to include explicitly metals monitoring as a requirement for bulk material facilities.⁴⁹ However, the proposed rules should require metals monitoring as a baseline requirement for all included facilities, rather than affording the Commissioner discretion to decide when metals monitoring is needed. As with the FEM PM10 requirement, facilities can seek a variance if they believe that their operations do not pose a significant risk of heavy metal air pollution. In addition, CDPH should not presumptively limit the requirement to one FRM monitor, as proposed, but should afford CDPH the express authority to require as many FRM monitors as are needed to characterize the metals from a facility and their impact on public health.

Heavy metals pose a very serious threat to public health, especially the health and development of children. Exposure to heavy metals can have a lasting and profound impact on the health of individuals and communities. As with dust emissions in general, characterization and control of heavy metals from fugitive sources has long gone under-addressed, to the detriment of communities like the Southeast Side. Another significant hurdle in identifying and characterizing potential heavy metal fugitive dust problems in particular is the lack of publicly available information on materials handled at facilities. While the dust rules currently require facilities to include a site map and description of operations along with a list of all bulk solid materials handled in their dust plans,⁵⁰ these requirements do not include quantities of materials; to date,

lower, given that this estimate is a single bid for new monitors submitted in support of the company's variance request.

⁴⁸ If CDPH demonstrates that such a carve out is needed, it can address this transparency concern by amending the rules to subject fugitive dust plans to public comment as well. We appreciate that CDPH to date has welcomed input from our groups on proposed fugitive dust plans, and do not believe that public comment on the plans would create an unwarranted additional administrative burden.

⁴⁹ CDPH already has the general authority to require metals monitoring of a facility under its police powers, as recognized in Section 3.0(1) of the dust rules.

⁵⁰ See Section 3.0(3)(a) and (b).

the dust plans that we have reviewed provide relatively vague descriptions of facilities' inventory and operations. We are also concerned that, as proposed, there is no formal mechanism for the public to weigh in on the need for metals monitoring.

In addition, the location of facilities in relation to potentially impacted communities and the variability of winds in the area may call for more than one metals monitor to characterize a facility's impacts on its surroundings. For instance, as set forth in our October 2017 comments on Watco's variance request, the direction and strength of winds around the facility vary significantly over the course of the year, qualifying several different communities as potentially impacted by dust pollution from the facility.⁵¹ This variability may warrant installation of more than one metals monitor to assess impacts to surrounding communities. Indeed, the consent decree between U.S. EPA and S.H. Bell over the company's East Liverpool, Ohio, facility calls for several metals monitors around the facility perimeter.⁵² While the Commissioner has the implicit authority to require more than one metals monitor, CDPH should amend the proposed rule to make express that site-specific considerations, including wind direction and location of potentially impacted communities, may warrant additional metals monitors.

For these reasons, metals monitoring should be required upfront of all facilities subject to the Rules, with both the metals and PM10 monitoring data made public on a timely basis on CDPH's website to help ensure that problems are proactively identified and addressed. With regards to providing the data on CDPH's website, we note that public access to similar monitoring data on U.S. EPA's website has been extremely helpful to us in assessing the facilities' impacts over time, and raising concerns when problems arise. Again, facilities can seek a variance from a metals monitoring requirement, using information they already should be providing in their dust plans, along with other information necessary to meet the variance standard.⁵³

The proposed rules also should do the following:

- Expressly recognize the Commissioner's authority to require digital videotaping of certain operations as part of a facility's dust plan, and mandate digital videotaping of unenclosed vehicle transfer points and other points of concern. Experience in East Liverpool shows that fenceline monitoring alone may not be adequate to identify and

⁵¹ Comments of NRDC, SETF, and SSCBP on Watco's July 2017 Variance Request, October 16, 2017, p16-17, available at

https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/PubCom_NRDC_SETF_SSCBP_ComWatcoVarReq_10162017.pdf.

⁵² See Ex. 15, *United States of America v. S.H. Bell Co.*, No. 4:17-cv-00131-BYP, Consent Decree (N.D. Ohio, Feb. 14, 2018) ("East Liverpool CD"), at Appendix A, par. 1, "PM10 Monitors," available at

https://www.epa.gov/sites/production/files/2018-03/documents/consent_decree_sh_bell_entered.pdf.

⁵³ If CDPH insists on retaining metals monitoring as a discretionary requirement, it should at minimum require facilities to include a detailed analysis of their potential for metals emissions in relation to potentially impacted communities in their dust plans; require the Commissioner to make a determination regarding the potential for metals emissions in approving or rejecting a dust plan, and recognize the discretion to require more than one metals monitor; and amend the rules to subject dust plans to public comment and a decision deadline, along with a petition process for the public to request metals monitoring if subsequent conditions arise that warrant monitoring.

address the sources of PM and metals pollution in particular, and the East Liverpool consent decree recognizes that videotaping operations of concern is another valuable technology for helping to ensure control of problem sources.⁵⁴

- Expressly recognize the Commissioner’s authority to set preventive and emergency action levels for metals based on monitoring data, similar to the Reportable Action Level currently required for PM10. For instance, the East Liverpool consent decree includes monthly and annual action levels for manganese.⁵⁵ Given the many justifications for minimizing manganese emissions in this community set forth above, if CDPH in fact sets action levels for manganese, it should use a more protective approach than the MRL-based action levels in the East Liverpool consent decree.

Comments on Proposed Manganese-Specific Changes

While CDPH is taking a needed step forward in addressing the threat posed by neurotoxic manganese dust, its proposal should be strengthened in a number of ways in order to protect the community, if the City does not adopt a ban on handling manganese. As summarized above, CDPH proposes to require facilities handling non-packaged manganese-bearing materials to maintain all such material in fully enclosed structures, unless a facility agrees to install a single FRM metals monitor. CDPH does not propose to require any additional new control measures for facilities that fully enclose, beyond the basic enclosure requirements borrowed from the petcoke and coal enclosure provision, or for those that simply operate a metals monitor. CDPH also proposes a definition of “manganese-bearing bulk material” that sets a content threshold of 1% manganese by weight.

Metals Monitoring AND Full Enclosure. Rather than adopt regulations that allow metals monitoring in lieu of full enclosure, CDPH should require facilities that handle non-packaged manganese-bearing materials to fully enclose their facilities AND monitor for metals including manganese. If CDPH will not ban or halt the handling of this neurotoxin in close proximity to dense residential communities, it must use best available options for controlling manganese plus metals monitoring to ensure the controls are effective at minimizing manganese to the greatest extent feasible on a continuous basis. Monitoring here is NOT an acceptable regulatory alternative to controls.⁵⁶ As we have previously stated, this does not necessarily mean that metals monitoring will be required for all times, but that monitoring is needed upfront to help ensure that the selected controls in fact are reliable over time. Facilities can then seek a variance to remove the obligation.

⁵⁴ See East Liverpool CD, at par. 12, “Digital Video Recordings.”

⁵⁵ See *id.*, at par. 7 (definitions of “exceptional action level,” “preventive action level,” and “response action level”) and 18-22.

⁵⁶ At least one resident living adjacent to S.H. Bell expressed concern at the May 10 community meeting on soil sample results that companies can and S.H. Bell has interfered with the monitors and/or weather stations. While we have not confirmed whether such interference has in fact occurred, it is a risk posed by relying solely on monitors, and is further reason why CDPH should require extensive enclosure and other controls along with metals monitoring.

A primary problem with the proposed manganese provisions is the either-or approach between full enclosure and metals monitoring. The existing Section 3.0 does not require enclosure of operations involving any material other than petcoke or coal. For instance, current Section 3.0(7), which applies as a default where the Rules do not require other, more stringent material-specific measures⁵⁷, lists “total enclosure” as only one of four different options for controlling dust at transfer points. Even conveyors – a relatively easily enclosed piece of equipment – may be “covered or enclosed.”⁵⁸ Under proposed Section 6.0, a facility must install an FRM monitor “[u]nless all Non-Packaged Manganese-Bearing Bulk Material is maintained in fully enclosed structures as set forth in [proposed Section 5.0].” A facility thus may avoid ANY enclosure of ANY manganese-handling operations if it installs a single fenceline metals monitor.

This approach is unacceptable because it creates an incentive for a company to avoid any and all enclosure of manganese-handling operations – even where enclosure of certain operations can be achieved through readily available and non-cost-prohibitive means – and instead run the risk that a facility can keep its manganese emissions below a triggering threshold at a solitary fenceline monitor. Thus, this approach will likely result in greater overall manganese emissions than a more protective approach that mandates specific enclosure and control measures as a baseline, and employs monitoring to ensure that these controls are effective at minimizing emissions and that emissions from any operations do not pose a threat to public health. In particular, we are concerned that many, if not all sites, will claim that they cannot enclose their barge/ship and rail loading/unloading operations, and the default across the area will be a single metals monitor per facility and little (enforceable) enclosure of manganese-handling operations. Harm to the community is even more likely to continue under this approach if the City applies only the inadequately protective annual MRL for manganese, discussed above, for assessing data from that solitary monitor.

Establishing monitoring as an alternative to control is also unacceptable because experience shows that problematic levels of (manganese) dust happen even *with* enclosure, as discussed above in reference to a ban and abatement orders. Monitoring thus is necessary to identify when these shortfalls in operation occur and the extent of resulting air pollution, and hold companies accountable (such as through the action levels discussed above). Moreover, mandatory metals monitoring in addition to enclosure is necessary for CDPH and the Chicago Department of Planning and Development comply with their duty under the City’s new zoning ordinance to assess fully, in conjunction with throughput reporting data and other relevant information, the

⁵⁷ While it is clear from the structure of the Rules that Part B, Section 3.0 requirements apply where CDPH has not adopted other material-specific requirements such as those in Part C for petcoke and coal and those in proposed new Part D for manganese, Section 3.0 does contain several references to requirements for facilities that handle petcoke and coal. For instance, 3.0(11) and 3.0(12) regarding truck and railcar loading and unloading describe requirements for such operations in the context of “enclosed Coke or Coal Bulk Material storage piles.” We strongly recommend that CDPH remove all material-specific requirements in Section 3.0 and instead include such requirements in Parts C and proposed Part D, with clear explanation in particular as to the robust enclosure requirements for transfer points associated with vehicle loading/unloading when dealing with petcoke, coal, and manganese.

⁵⁸ Section 3.0(6).

overall threat to public health and welfare of continuing to allow these facilities near residences.⁵⁹

Finally, CDPH in practice has required ongoing monitoring of the pollutant of concern even after a facility has removed outdoor piles and purportedly is complying with the Rules' petcoke and coal enclosure provisions. Specifically, to our knowledge CDPH continues to require PM10 monitoring at the KCBX South Terminal. Thus, precedent supports an ongoing monitoring requirement as a means for assessing the ongoing effectiveness of aggressive controls.

Proposed definition of "manganese-bearing bulk materials." CDPH should also remove 1% threshold from the definition of "manganese-bearing bulk materials." It is not clear why such a threshold is necessary or carves out a *de minimis* source of manganese dust: relatively low-manganese-content materials can be a problem if handled in larger quantities and with less care. The East Liverpool consent decree does not include such a threshold, but applies its requirements to all manganese-bearing materials regardless of % content.⁶⁰

Metals Monitoring, proposed Section 6.0. In addition to the above comments on metals monitoring in general, CDPH should require monitoring of manganese in Total Suspended Particulate ("TSP") as well as in PM10. Large particles of manganese greater than 10 microns in diameter are of critical concern from a neurological impact perspective, as these particles can enter the nose and go straight to the brain. Thus, for purposes of fully assessing impacts to public health, CDPH should require manganese-bearing bulk material facilities to collect metals data in both PM10 and TSP, until it can better understand how these measurements correlate with each other. CDPH should also determine whether particles larger than 10 microns in diameter of other materials pose specific health threats, and if CDPH determines such risks exist, similarly require TSP monitoring for any facilities handling such other materials.

Along with the above changes, CDPH should adopt at least the following additional control requirements for manganese:

1. Sweeping of aisles and watering of doorways of indoor storage facilities, with such activities required at least once per shift when the indoor facility is in use for handling/processing, and once per operating day when in use solely for storage, accompanied by recordkeeping and reporting requirements. (East Liverpool CD paragraphs 13.a(1) and (2))
2. Tarping of trucks in areas adjacent to truck load-out sheds immediately after load-out (East Liverpool CD paragraph 13.e), instead of requiring trucks to "be immediately covered before leaving the Facility," as Section 3.0(10) currently states.

⁵⁹ See Chicago Municipal Code 17-9-0117-D(5), directing the Commissioner to "on at least a quarterly basis, compare the reports to any complaints, inspection reports, *monitoring data*, and other relevant information, and provide recommendations to the commissioner of planning and development" (emphasis added), who may then issue administrative orders limiting throughput and daily amounts held of manganese.

⁶⁰ See East Liverpool CD, at par. 7, definition of "Affected Materials." If CDPH believes that such a threshold is warranted, it must fully support this carve out.

3. Heightened requirements for vacuum and sweeper truck filters, with operators required to change vacuum and sweeper truck filters in keeping with manufacturer specifications, using only the highest commercially available efficiency for specific model vacuum/sweeper truck (East Liverpool CD paragraph 13(f)).
4. Only rolling doors permitted on indoor storage buildings, with their opening allowed only by terminal foremen “as necessary,” with required documentation of door opening and closing.
5. Mandatory Root Cause Analyses and Corrective Action steps, employing Preventive and Exceptional Action Level concepts similar to the Reportable Action Level concept for PM10 currently contained in Sections 2.0 and 3.0 of the Rules (East Liverpool CD paragraphs 18-22).
6. All baghouses to be equipped with continuous pressure drop monitoring and recording systems (East Liverpool CD paragraph 15).

COMMENTS ON OTHER NEEDED CHANGES TO BULK MATERIAL RULES

Remove Exemption of Construction and Demolition Materials

CDPH should remove the exemption for “Construction and Demolition Materials” from the definition of regulated “bulk solid material,”⁶¹ and subject facilities handling such materials to the same rigorous standards as other bulk material handlers. As community members living adjacent to facilities handling construction and demolition (“C&D”) materials know only too well, these materials create significant amounts of dust, not otherwise controlled by other rules. Moreover, some forms of dust from C&D materials are recognized carcinogens. U.S. EPA has sought to address the threats to air quality and health from C&D material facilities in Chicago via recent enforcement actions. At the same time, as the City recognized in adopting the dust rules in the first place, the existing state and federal regulations that apply or have been applied to date to fugitive dust are inadequate.

For these reasons, the CDPH should move swiftly to amend its rules to address fugitive dust from facilities handling C&D materials. Such action is especially needed now: the Southeast and South Side communities face further concentration of these facilities due to relocation from Northside neighborhoods as the City moves to revise plans and zoning in the Northside industrial corridors.

U.S. EPA has brought at least two recent enforcement actions against C&D bulk material handlers in Chicago. In one 2016 action against Ozinga Ready Mix, Inc., U.S. EPA alleged

⁶¹ Section 2.0(3).

violations of state and federal fugitive dust requirements from dusty internal roadways and vehicle activity at Ozinga’s East 103rd Street facility.⁶²

In a more recent action against Chicago Rail and Port in April 2018, U.S. EPA issued the company a notice of violation (“NOV”) based on PM10 monitoring data from neighboring S.H. Bell.⁶³ Chicago Rail and Port is a bulk material handler operating at the site previously occupied by Carmeuse Lime, just to the South of S.H. Bell along the river. The monitor at the border of these two facilities on December 4, 2017 recorded an average 24-hour PM10 level of 179 ug/m³, compared to the 24-hour PM10 NAAQS of 150 ug/m³. Notably, the NOV calls out piles of solid limestone held near the PM10 monitor at issue. Fine particles of limestone are known by another name as well: respirable silica.

Evidence exists of a silica dust problem from the S.H. Bell facility as well, given that CDPH’s inspector recorded dust problems and lax controls during S.H. Bell’s unloading of ferrous silicon on August 17, 2016.⁶⁴

Respirable silica poses a host of disturbing health impacts. It causes lung cancer, as well as silicosis, where inhaled silica damages the lungs, resulting in scar tissue and reduced lung function. Exposure to silica dust is also associated with an increased risk of lung cancer, tuberculosis, renal disease, chronic obstructive pulmonary disease (COPD), autoimmune diseases, and stroke.⁶⁵ There is a well-established dose-response relationship with respirable silica, and existing research indicates that onset of silica disease is a function of concentration of silica particles and duration of exposure. Therefore, silicosis may arise from “long duration exposures at low concentrations, from shorter exposure at higher concentrations, and very short exposure at very high concentrations.”⁶⁶ While much of the existing research focuses on

⁶² See Ex. 16, *In the Matter of Ozinga Ready Mix Concrete, Inc., No. CAA-05-2016-0032, Consent Agreement and Final Order*, June 30, 2016, available at [https://yosemite.epa.gov/OA/RHC/EPAAdmin.nsf/Filings/4E5087C89DBE3A3585257FE3001BD517/\\$File/CAA-05-2016-0032%20CAFO%206-30-2016.PDF](https://yosemite.epa.gov/OA/RHC/EPAAdmin.nsf/Filings/4E5087C89DBE3A3585257FE3001BD517/$File/CAA-05-2016-0032%20CAFO%206-30-2016.PDF).

⁶³ See Ex. 17, *In the Matter of Chicago Rail and Port, LLC, EPA-5-18-IL-10, Notice of Violation*, April 23, 2018.

⁶⁴ See Letter from Dr. Julie Morita, Commissioner, CDPH, to Kim Walberg, attorney for S.H. Bell, October 17, 2016, Exhibit A, available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/CDPHDeterVarReqSHBellCo10172016.pdf.

⁶⁵ Ex. 18, Bhagia, L. J. (2012). *Non-occupational exposure to silica dust*. *Indian Journal of Occupational and Environmental Medicine*, 16(3) (“Bhagia 2012”), 95-100, available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3683189/>; Ex. 19,

Concise International Chemical Assessment Document 24 - Crystalline Silica, Quartz(Rep.). (2000), available at <http://www.who.int/ipcs/publications/cicad/en/cicad24.pdf>;

Ex. 20, Fan, C., Graff, P., Vihlborg, P., Bryngelsson, I., & Andersson, L. (2018). *Silica exposure increases the risk of stroke but not myocardial infarction—A retrospective cohort study*. *PLOS One*, 13(2), 1-9.

doi:10.1371/journal.pone.0192840, available at <http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0192840&type=printable>.

⁶⁶ Ex. 21, Bridge, I. (2009). *Crystalline Silica: A review of the dose response relationship and environmental risk*. *Air Quality and Climate Change*, 43(1), 1-22, available at <http://www.superquarry.org.au/wp-content/uploads/2011/02/Bridge-2009-environmental-silicosis-risk045.pdf>.

occupational exposures, a handful of studies demonstrate adverse health outcomes at the community level.

One such study is of the slate pencil industry in India, where exhaust fans used to protect workers from dust exposure ended up emitting it in the surrounding community.⁶⁷ A subsequent health risk assessment of a village 5 km away observed a non-occupational silicosis and silico-tuberculosis prevalence of 12.6% and 6.3%, respectively.⁶⁸ Similarly, a study of four villages near agate industry operations in India observed a non-occupational silicosis and silico-tuberculosis prevalence of 5.8% and 2.4%, respectively, compared to no cases in control sites.⁶⁹ Furthermore, a NIOSH assessment of 11 hydraulic fracturing sites found that workers not in contact with silica sand were still exposed and the high concentrations of respirable silica were present downwind of operations.⁷⁰ Silicosis was observed in the India cases at concentrations as low as 15.28 µg/m³. Emerging animal research has also shown that even extremely low concentrations of silica produces lung inflammation in rats.⁷¹

Given that silica dust is easily dispersed in air, these findings raise concerns for communities living near industries that produce respirable silica.⁷² Heightened attention must be given to vulnerable populations like children, who are especially at risk and more likely exposed to dust during outdoor playtime.⁷³ Specific research on health effects of respirable silica in children is limited, though one study in Japan reported asthma exacerbations and increased risk of hospitalizations for asthma in pediatric populations following exposure to fine desert dust particles, which contain crystalline silica.⁷⁴

In previous discussions about addressing dust from C&D materials, representatives of the City have referenced generally the regulation of these facilities in other portions of the code and

⁶⁷ Ex. 22, Bhagia, L. J. (2009). Non-occupational exposure to silica dust in vicinity of slate pencil industry, India. *Environmental Monitoring and Assessment*, 151, 477-482. doi:10.1007/s10661-008-0290-x

⁶⁸ Ex. 23, Tiwari, R., Bhagia, L., & Sharma, Y. (2007). *Health risk assessment and development of intervention programme in cottage industries with high risk of silicosis: A study among slate pencil workers of Mandasaur* (pp. 1-80, Rep.), available at <https://pdfs.semanticscholar.org/e381/11b751db9b1978f446aa5d8dee07eb090e56.pdf>.

⁶⁹ Ex. 24, *Prevention, Control and Treatment of Silicosis and Silico-Tuberculosis in Agate Industry. (Rep.)*. (2004). Ahmedabad, India: National Institute of Occupational Health. as cited in Bhagia 2012.

⁷⁰ Ex. 25, Worker Exposure to Silica during Hydraulic Fracturing. (2012, June), available at https://www.osha.gov/dts/hazardalerts/hydraulic_frac_hazard_alert.html.

⁷¹ Ex. 26, Borm, P. J., Fowler, P., & Kirkland, D. (2018). *An updated review of the genotoxicity of respirable crystalline silica*. *Particle and Fibre Toxicology*, 15(1), 1-17. doi:10.1186/s12989-018-0259-z, available at <https://particleandfibretoxicology.biomedcentral.com/track/pdf/10.1186/s12989-018-0259-z>.

⁷² Ex. 27, Esswein, E. J., Breitenstein, M., Snawder, J., Kiefer, M., & Sieber, W. K. (2013). *Occupational Exposures to Respirable Crystalline Silica During Hydraulic Fracturing*. *Journal of Occupational and Environmental Hygiene*, 10(7), 347-356. doi:10.1080/15459624.2013.788352.

⁷³ Ex. 28, Webb, E., Hays, J., Dyrszka, L., Rodriguez, B., Cox, C., Huffling, K., & Bushkin-Bedient, S. (2016). *Potential hazards of air pollutant emissions from unconventional oil and natural gas operations on the respiratory health of children and infants*. *Reviews on Environmental Health*, 31(2). doi:10.1515/reveh-2014-0070.

⁷⁴ Ex. 29, Kanatani, K. T., Ito, I., Al-Delaimy, W. K., Adachi, Y., Mathews, W. C., & Ramsdell, J. W. (2010). *Desert Dust Exposure Is Associated with Increased Risk of Asthma Hospitalization in Children*. *American Journal of Respiratory and Critical Care Medicine*, 182(12), 1475-1481. doi:10.1164/rccm.201002-0296oc, available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3159090/>.

regulations other than the dust rules, but these rules do not and should not create a barrier to addressing fugitive dust from C&D materials. The existing rules governing C&D facilities under Chapters 11-4 and 2-30 of the Municipal Code were adopted by the former Department of Environment and are focused on recycling, and as such address the weight and types of materials handled. They contain no measures to control dust, so present little to no administrative challenge of overlapping and potentially conflicting requirements. To the extent the City believes it must consider and potentially revise the existing C&D regulations in order to properly synchronize these requirements with the dust rules to ensure control of dust from C&D materials handling facilities, it should reopen the C&D regulations promptly for this purpose. Indeed, the rules are now over 12 years old, and thus are due for revision.

Dust Plans

Fugitive dust plans under the Rules are a critical component of the City's regulatory scheme for controlling harmful dust, and as such should be subject to public review and comment. We greatly appreciate the City's providing us with copies of submitted dust plans and considering input from our groups on a voluntary basis. However, this process should be formalized to better ensure timely and complete input on proposed plans, as well as timely and well-supported decisions to approve or reject plans. Indeed, in the past, draft dust plans have languished for almost a year, leaving in place outdated and inadequate or unapproved plans. Formalization will also ensure consistency across dust plans.

Specifically, CDPH's receipt of a proposed plan should be noticed, and CDPH should take public comment on plans for a period of not less than a month. CDPH should also adopt processes for determining the completeness of a plan and potentially denial for an incomplete submission, and a deadline for approval or denial of a submitted plan. Finally, CDPH should formalize provision of fugitive dust plan materials on its website.

Variance Process

CDPH responded to our comments on the original 2014 proposed Bulk Material Rules by adding a number of substantive and procedural safeguards that greatly strengthen the variance process. It also has appropriately issued several important variance denials. Nonetheless, the lack of a decision deadline for variances is a significant gap that dilutes not only the variance process itself, but also the protections afforded by the Rules more broadly. In practice, CDPH has taken several years to issue variance decisions on the applications received in 2014-2015, after adoption of the original rules. It appears that several years-old requests remain pending before CDPH as well. CDPH should remedy this unacceptable lagtime by adopting a deadline for variance decisions as part of the Rules.

The variance process also should include a provision for the public to petition the Commissioner for revocation of a variance, if and when evidence arises that the variance is no longer justified.

CONCLUSION

For these reasons, we urge the City of Chicago to take proactive, aggressive steps using the full extent of its authority to protect the health and welfare of the Southeast Side community, as well as other environmental justice communities like it. Swift and comprehensive action is needed given the past and current threats to health in these communities – particularly those negatively impacting the development and life prospects of the City’s children. Moreover, the City cannot continue to move at a slow, piecemeal pace given dynamics underway, including those set in motion and enabled by the City’s own zoning decisions, that are bringing more heavy industry to these already over-burdened communities.

Sincerely yours,

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