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October 2, 2017

Via E-mail
(cantello.nicole@epa.gov)
Ms. Nicole Cantello
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Re: S.H. Bell Company
EPA NOV No. EPA-5-17-IL-10

Dear Ms. Cantello:

On behalf of the S.H. Bell Company ("S.H. Bell"), I write in response to the August 7, 2017 U.S. EPA Notice of Violation ("NOV") sent to S.H. Bell, our Section 113 conference call regarding the same on September 14, 2017, and your e-mail request for additional information on September 18, 2017. This response is divided into two parts with Section I containing the requested information and Section II containing objections to the NOV.

I. Requested Information

In response to your September 18, 2017 e-mail, S.H. Bell is providing the requested barge information and a preliminary risk assessment at Attachment A and Attachment B, respectively. Attachment A, which consists of the barge information, is confidential business information ("CBI") and therefore, is not subject to public disclosure under 5 U.S.C. § 552(b)(4) and 40 C.F.R. §§ 2.105(a)(4). S.H. Bell is only providing the content of Attachment A, which has been marked as CBI, with its hard-copy mailing. The electronic transmission of this letter will have a CBI placeholder for Attachment A as is customary practice.[1]

[1] In the September 18, 2017 e-mail, U.S. EPA also requested barge information to be provided on a going forward basis with the FEM PM_{10} monitor data. S.H. Bell is willing to accommodate this request provided that additional barge information is likewise treated at CBI and, therefore, exempt from public disclosure. S.H. Bell will be sure to mark the barge information as CBI and will provide it to EPA on a

Additionally, as discussed during the September 14 conference call, the following measures are now in place at the Chicago facility:

- The Norcon truck load-out dust collector became fully operational on August 16th and the Ryerson truck load-out dust collector became fully operational on August 29th.
- Cessation of loading/unloading of barges with Affected Materials[2] during high wind events (when wind speeds exceed 15 miles per hour over two consecutive five minute intervals).
- All super sacks of Affected Materials are transported from the barge directly to storage inside a building. Super sacks of Affected Materials are not opened outdoors at the dock.
- Affected Materials are not stored outdoors.
- Addition of a door on the west-end of the Norcon building.

In terms of conducting a data driven evaluation, S.H. Bell is the only company in Chicago that has been required to install continuous and filter-based PM_{10} monitors and likewise is the only company that is required to monitor for metals in Chicago. The monitoring data through August was collected before the Ryerson and Norcon truck load baghouses became fully operational and before these additional measures had been fully implemented. S.H. Bell believes that these baghouses along with the additional measures will have a positive impact on the monitor data. We appreciate U.S. EPA's recognition during the September 14 conference call that it is fair to allow time for the monitoring data to reflect the implementation of these new practices.

II. Objections to the NOV

S.H. Bell objects to the issuance of the NOV for multiple reasons, including: (1) the six month manganese average that includes the August data is *less* than U.S. EPA's health based screening level; (2) U.S. EPA ignored that the health based screening level must be compared to at least a year's (365 days) worth of data and is using this screening level for a non-sanctioned purpose; (3) a preliminary risk assessment according to U.S. EPA's risk assessment procedures shows that there is no risk to human health at the four month manganese average cited in the NOV as well as no risk at the five and six month manganese averages; (4) U.S. EPA cannot provide a clear compliance target; (5) it is questionable as to whether U.S. EPA

CD with its hard-copy submission. S.H. Bell will not include it with its courtesy electronic submission of the data in order to prevent accidental electronic transmission.

[2] For consistency, S.H. Bell uses the same definition for manganese-containing materials, "Affected Materials" as used at S.H. Bell's East Liverpool, Ohio facility.

should proceed with the NOV before known additional control measures are operational; and (6) U.S. EPA should have considered the impact of the offsite sources on the measured ambient manganese levels especially in light of the absence of a health risk.[3] Each of these objections is discussed more fully below.

A. Current Manganese Data and Application of the Health Based Screening Standard

The monthly manganese average for August is 0.197 $\mu g/m^3$. With the August manganese data, the six month manganese average is 0.29 $\mu g/m^3$, which is less than the manganese minimal risk level ("MRL") of 0.3 $\mu g/m^3$. However, in order to properly evaluate potential public health risk, the established U.S. EPA and ATSDR protocols direct that the manganese MRL is compared to at least one year's worth (365 days) of data. Nonetheless, even in the absence of 365 days' worth of data, as discussed more in Section B of this letter, a preliminary risk assessment according to U.S. EPA's risk assessment procedures demonstrates that there is no public health threat.

Even with the preliminary risk assessment, S.H. Bell objects to U.S. EPA's use of the health based risk screening standard as a basis for the NOV because, in doing so, U.S. EPA has misapplied the science and is using it for a non-sanctioned purpose. The health based risk screening standard is only to be used to determine whether further evaluation is needed and it may not be used as a limit or action level according to ATSDR. Moreover, ATSDR has clearly stated that exposure to levels above the health based risk screening standard do not mean health effects will occur.

As stated in the NOV Findings of Fact, Paragraph 8, and as noted in Table 1 of the EPA Dose-Response Assessment for Assessing Health Risks Associated with Exposure to Hazardous Air Pollutants webpage[4], U.S. EPA has adopted its chronic health based risk screening level for manganese of 0.3 $\mu g/m^3$ from ATSDR's minimum risk level ("MRL") for manganese. In fact, U.S. EPA has gone a step further and recognized in rulemaking that its previous screening level for manganese, the 1993 IRIS RfC, was outdated and that U.S. EPA policy dictates that the agency use ATSDR's MRL for manganese as it is based on updated dose response modeling

[3] S.H. Bell also has concerns about U.S. EPA's ability to enforce the Illinois SIP provision cited in the NOV, which were outlined in S.H. Bell's opposition to the United States' motion for summary judgment in *United States v. S.H. Bell Company*, No. 16-7955 (N.D. Illinois) and are hereby incorporated by reference as if set forth fully herein. S.H. Bell also reserves any and all legal arguments it may have if the NOV.

[4] *See* EPA Dose-Response Assessment for Assessing Health Risks Associated with Exposure to Hazardous Air Pollutants, Tables 1 and 2, *available at* https://www.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants. Risk-based screening thresholds are referenced as a matter of convenience.

methodology and considered recent pharmacokinetic findings. *See* 79 Fed. Reg. 60238, 60247 (Oct. 6, 2014); 80 Fed. Reg. 37366, 37375 (June 30, 2015).

A visual representation of how the manganese MRL is used to assess potential health risk can be summarized in the following two equations:

- Chronic (year+ avg.) PM_{10} manganese $\leq 0.3\ \mu g/m^3$ → no health risk
- Chronic (year+ avg.) PM_{10} manganese $> 0.3\ \mu g/m^3$ → further evaluation needed

ATSDR's manganese MRL of $0.3\ \mu g/m^3$ is used to assess whether there is a potential (not automatic) health risk from inhaled manganese by comparing "**chronic**" inhalation exposure to "**respirable**" manganese concentrations in the air. *See ATSDR Toxicological Profile for Manganese,* at p. 22.[5]

"**Respirable**" manganese refers to the very small size of particles that can be inhaled into the deep lungs and is conservatively represented by particulate matter that is 10 microns or less (PM_{10}). *See ATSDR Toxicological Profile for Manganese,* at p. 22. "**Chronic**" under the manganese MRL means only exposure to long-term averages of PM_{10} manganese concentrations **of at least a year or more (365 days or more)** can be compared to the manganese MRL. *Id.* U.S. EPA has also specifically recognized that, at a minimum, the manganese MRL is based on exposure over a year or more as it specifically stated in an official peer-reviewed publication that the manganese MRL was developed as "an estimate of a chronic inhalation exposure that is likely to be without appreciable risk of adverse non-cancer effects **during a lifetime**." *See* U.S. EPA Report on the Environment, Manganese Concentrations in Region 5 (2015), at p. 2.[6] Thus, according to both U.S. EPA and ATSDR, the manganese MRL must be compared to at least a yearly average of PM_{10} manganese concentrations. Accordingly, comparison of daily, monthly, or quarterly averages of PM_{10} manganese concentrations to the manganese MRL is premature and is not scientifically supportable. Accordingly, in issuing the NOV based only on a four month manganese average instead of an average based on at least a year (365 days or more) of data and in insinuating that there is a public health hazard when there is not, U.S. EPA has clearly misapplied the science and purpose underlying the manganese MRL.

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[5] *Available at https://www.atsdr.cdc.gov/toxprofiles/tp151.pdf.*

[6] *Available at https://cfpub.epa.gov/roe/indicator_pdf.cfm?i=6.* U.S. EPA's 2015 Report on the Environment was prepared by the National Center for Environmental Assessment within U.S. EPA's Office of Research and Development, working in collaboration with U.S. EPA's Program and Regional offices. The Report on the Environment was additionally peer-reviewed by U.S. EPA's Science Advisory Board in July 2014 prior to publication of the final report. *See* 80 Fed. Reg. 44104 (July 24, 2015).

A comment made by U.S. EPA during the September 14 conference call suggesting that certain populations are at risk at an inhalation exposure less than the manganese MRL is not scientifically accurate and likewise is further evidence that U.S. EPA is misapplying the science behind the MRL in issuing the NOV. ATSDR specifically derives MRLs in a manner such that the MRL is set below the level of chronic exposure that might cause adverse health effects in the people most sensitive to such chemical-induced effects. *See ATSDR Toxicological Profile for Manganese,* at p. A-1. Additionally, ATSDR has also clearly stated that "**[e]xposure to a level above the MRL does not mean that adverse health effects will occur.**" *Id.* In deriving MRLs, ATSDR also uses "a conservative (i.e., protective) approach to address uncertainty" due to the "lack of precise toxicological information on the people who might be most sensitive (e.g., infants, elderly, nutritionally or immunologically compromised)" in order to be "consistent with the public health principle of prevention." *Id.* at p. A-2. Notably for the manganese MRL, ATSDR specifically built in an uncertainty factor "for human variability including possibly enhanced susceptibility of the elderly, infants, and children; individuals with chronic liver disease or parenteral nutrition; and females and individuals with iron deficiency." *Id.* at Appendix A. The manganese MRL and the uncertainty factor that ATSDR used in the derivation of the same are based upon two published and peer reviewed physiologically-based pharmacokinetic models ("PBPK models") for manganese that were developed at U.S. EPA's request, namely Schroeter et al. 2011[7] and Yoon, et al. 2011.[8] *See id.*

U.S. EPA is also using the manganese MRL for a non-sanctioned purpose in listing an exceedance of the manganese MRL as one of the alleged violations in the NOV. U.S. EPA's press release on the NOV makes it even clearer that this is an intended separate violation. As U.S. EPA is well aware, however, the manganese MRL is not an emission limitation that has been developed under the Clean Air Act nor is it an applicable requirement or limit in the facility's air permits. Moreover, ATSDR has clearly stated that "**MRLs are not intended to define clean-up or action levels**," but instead "are intended only to serve as a screening tool to help public health professionals decide where to look more closely." *See ATSDR Toxicological Profile for Manganese,* at p. A-1. Thus, the manganese MRL itself cannot be used in a manner that suggests that it is an actionable standard or an emissions limitation. To do otherwise is clearly a non-sanctioned use of the MRL and only serves as improper insinuation where there has been no demonstrated public health threat.

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[7] Schroeter, JD; Nong, A; Yoon, M; Taylor, MD; Dorman, DC; Andersen, ME; Clewell, HJ III. 2011, "Analysis of manganese tracer kinetics and target tissue dosimetry in monkeys and humans with multiroute physiologically based pharmacokinetic models." Toxicol. Sci. 120(2):481-498. Doi:10.1093/toxsci/kfq389 (Schroeter et al. 2011).

[8] Yoon, M; Schroeter, JD; Nong, A; Taylor, MD; Dorman, DC; Andersen, ME; Clewell, HJ III. 2011, "Physiologically Based Pharmacokinetic Modeling of Fetal and Neonatal Manganese Exposure in Humans: Describing Manganese Homeostasis during Development." Toxicol. Sci. 122(2):297-316. Doi:10.1093/toxsci/kfr141 (Yoon et al. 2011).

B. Preliminary Risk Assessment

S.H. Bell engaged experts in manganese toxicology and in human health risk assessment (including a former Chief of Air Toxics Staff for U.S. EPA Region I) from Gradient to conduct a preliminary risk assessment of the potential risk to human health from the measured manganese levels. A copy of the preliminary risk assessment is provided at Attachment B. As was expressed during the September 14 conference call, we appreciate U.S. EPA's willingness to consider this preliminary risk assessment as part of our response to the NOV.

The preliminary risk assessment was conducted pursuant to U.S. EPA's well established guidance for conducting risk assessments. In this case, the risk assessment is preliminary because a full year's worth of data from the fence line ambient monitors at the facility, which is needed to appropriately assess the conservative chronic inhalation exposure to manganese,[9] is not yet available. Nonetheless, Gradient conducted the preliminary risk assessment using averages of the manganese data for three time periods: from March through June 2017, March through July 2017, and March through August 2017. Gradient concludes that there is no risk to human health from the inhalation of manganese in the vicinity at the S.H. Bell facility for each of the three time periods and thus, there is no evidence that manganese in the ambient air near the S.H. Bell facility causes adverse health effects in the nearby community.

As an aside, S.H. Bell is unclear as to what U.S. EPA meant by an "alternate hazard index" for the risk assessment in the September 18, 2017 e-mail. The preliminary risk assessment prepared by Gradient does not rely on any alternative or alternate hazard index. Gradient's conclusions are based on the standard Hazard Index used in U.S. EPA risk assessment procedures where a Hazard Index value of one or less indicates that no adverse human health effects (non-cancer) are expected to occur. It is important to recognize that it is unquestionably routine and well-established practice for experienced risk assessors, both inside and outside of U.S. EPA, to round the calculated hazard index to the nearest one significant figure.[10]

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[9] However, note that U.S. EPA has specifically recognized that "[a] monitor placed at the fence line of an emissions source would not be considered to represent community exposures, even though there might be residences abutting that fence line." Guidance for Network Design and Optimum Site Exposure for $PM_{2.5}$ and PM_{10}, U.S. EPA Office of Air Quality and Planning Standards, December 1997, at p. 2-13, *available at https://www3.epa.gov/ttn/amtic/files/ambient/pm25/network/r-99-022.pdf*. Thus, any metals concentrations detected in the FRM PM_{10} monitors are not reflective of actual exposure to the community for these metals as the monitors are located on S.H. Bell property.

[10] In fact, U.S. EPA's risk assessment guidance has recognized that hazard indices should be reported as one significant figure since 1989. *See* Risk Assessment Guidance for Superfund (RAGS). Volume I: Human Health Evaluation Manual (Part A) (Interim final), U.S. EPA Office of Emergency and Remedial Response (December 1989), at Exhibit 8-3 ("All hazard indices and hazard quotients should be expressed as one significant figure."), *available at https://www.epa.gov/sites/production/files/2015-09/documents/rags_a.pdf*. U.S. EPA has also recognized that hazard indices are rounded to the nearest one significant figure in human health risk assessments specifically related to air emissions. *See* U.S. EPA Human Health Risk Assessment Protocol Hazardous Waste Combustion Facilities, U.S. EPA

This preliminary risk assessment from Gradient, which concludes there is no risk from manganese inhalation is also consistent with the ultimate conclusion in ATSDR's August 22, 2016 Health Consultation: Review of Analysis of Particulate Matter and Metal Exposure in the Air KCBX (AKA, "Chicago Petroleum Coke" Sites). As such, S.H. Bell strongly objects to U.S. EPA's gross and irresponsible mischaracterization of the ultimate conclusion in the ATSDR report in Paragraph 9 of the NOV. Although not the model of clarity or organization in many respects, the August 22, 2016 ATSDR report clearly ultimately concludes that there is **not** an elevated non-cancer risk to the community from any metal, including manganese, nor combination of metals based on the calculated hazard indices after target organ segregation, which ATSDR did, and correctly stated was warranted, pursuant to U.S. EPA's own risk assessment procedures.[11]

C. Lack of a Clear Compliance Target

We were concerned to hear during the September 14 conference call that U.S. EPA could not provide S.H. Bell with a clear compliance standard with respect to the ambient manganese levels being measured at the PM_{10} FRM monitors installed at northeast corner of S.H. Bell's Chicago facility, especially since the ambient manganese levels are the basis for the NOV even though there has been no demonstration of a public health threat. In the NOV Findings of Fact Paragraphs 8 and 15, U.S. EPA states that the health based screening level for manganese is ATSDR's MRL of 0.3 $\mu g/m^3$ and that the four month average of manganese PM_{10} data collected from the fence line monitors at the Chicago facility was 0.32 $\mu g/m^3$. S.H. Bell does not dispute either of these Findings of Fact, but does dispute the alleged "Violation" in Paragraph 16 (in addition to Paragraph 17) that "EPA has found manganese levels that exceed the health-based standard screening level" because as discussed above, the manganese MRL is clearly and unequivocally only comparable to at least one full year (365 days or more) of data. Not only is it a non-sanctioned use of the MRL as discussed above in Section A of this letter, but it also clearly begs the question as to what is the facility's compliance target.

Office of Solid Waste and Emergency Response, September 2005, at p. 7-2 – 7-3 ("Standard rules for rounding apply which will commonly lead to an answer of one significant figure in both risk and hazard estimates. For presentation purposes, hazard quotients (and hazard indices) and cancer risk estimates are usually reported as one significant figure. We recommend rounding only the final reported results, not the intermediate calculations."), *available at* *https://rais.ornl.gov/documents/2005_HHRAP.pdf*

[11] *See* ATSDR's August 22, 2016 Health Consultation: Review of Analysis of Particulate Matter and Metal Exposure in the Air KCBX (AKA, "Chicago Petroleum Coke" Sites), at p. 21-22 ("If this risk exceeds a hazard index (HI) of 1, **then a more detailed assessment of "target organ" risk calculations is warranted (U.S. EPA, 1989)** . . . If we were to move on to a target organ risk assessment for these metals, **manganese would not contribute to respiratory non-cancer risks** like many of the other pollutants such as nickel and zinc, because it is a neurotoxin and affects brain function. Thus, **the overall HI** for respiratory effects would be **less than 1 for the mean and 95% UCL** for respiratory non-cancer effects as well as **for neurological effects at both sampling sites**.") (emphasis added).

In response to Scott Dismukes' question during the September 14 conference call raising this issue and asking whether an exceedance of the MRL on a daily, monthly, or some other timeframe basis would constitute a violation according to U.S. EPA, U.S. EPA noted that there is no bright line or clear standard and suggested it based its decision to issue the NOV on its perception of a health risk and in order to err on the side of being protective while noting that the agency did not think it needed a years' worth of manganese data to find a health risk or a violation. In addition to the potential due process concerns raised because S.H. Bell does not have fair notice of what constitutes required or prohibited conduct, U.S. EPA had no scientific basis for its perception of health risk according to U.S. EPA's and ATSDR's own best available science and U.S. EPA's own risk assessment procedures as discussed more fully above in Sections A and B of this letter. S.H. Bell is committed to ensuring a safe environment for the community and its employees. However, the company cannot be held to an unclear subjective and arbitrary standard where there is no demonstrated public health threat.

D. The NOV was Issued Before Known Additional Control Measures were Operational

We have a substantial question as to whether EPA should be proceeding with the NOV not only because it is not scientifically justified and there is no demonstrated public health threat, but also because it was issued before known additional control measures were installed and operational. Specifically, the monitoring data does not yet reflect the installation and operation of the baghouses on the Norcon and Ryerson truck load-outs. The Norcon truck load-out dust collector became fully operational on August 16th and the Ryerson truck load-out dust collector became fully operational on August 29th.

U.S. EPA has been well aware of the planned installation of these truck load-out baghouses for some time. Notably, S.H. Bell committed to installing these baghouses in a letter to U.S. EPA dated October 27, 2014. Even though S.H. Bell almost immediately started the process to install the baghouses after its October 27, 2014 letter, there were many long delays outside of S.H. Bell's control. For example, on November 4, 2014, S.H. Bell sought approval from Com-Ed for new and upgraded electric services to accommodate the baghouses. It took Com-Ed almost a year (until September 2015) for it to complete the final connection for the new services needed for the baghouses. It additionally took City of Chicago eight months to grant building permits for the baghouses. At a minimum, U.S. EPA should not have issued the NOV alleging a violation of the Illinois SIP provision as referenced in Paragraph 17 of the NOV until after the monitoring data could reflect the operation of these additional control measures, which were known to U.S. EPA.

E. Offsite Source Impacts

As U.S. EPA is aware, the FRM PM_{10} ambient air monitors at the Chicago facility are designed to measure concentrations generally in the air and not from any one particular source or facility because these monitors draw in and measure the particulate in the air from all directions. As U.S. EPA has noted, $PM_{2.5}$ and PM_{10}, both of which are measured by the FRM PM_{10} ambient air monitors at the facility, can travel in distances up to thousands of kilometers and tens of

kilometers, respectively. *See* U.S. EPA Integrated Science Assessment for Particulate Matter, December 2009, Table 3-1, at p. 3-4.[12]

An evaluation of the data suggests that offsite factors actually cause or contribute to the relatively higher daily levels of manganese measured by the FRM PM_{10} monitors. S.H. Bell analyzed the days where manganese levels of greater than 0.3 $\mu g/m^3$ were measured by the FRM PM_{10} monitors. This evaluation shows that on the majority, if not all, of these days, offsite manganese sources were clearly contributing to the higher manganese levels measured on these days. While S.H. Bell has implemented measures that it expects to reduce its manganese emissions as discussed above, S.H. Bell has no control over offsite manganese sources. Accordingly, consideration and evaluation of these offsite factors is critical as part of a data driven evaluation. In other words, it would be completely irrational and illogical for U.S. EPA to continue to selectively target S.H. Bell in spite of data showing that offsite sources are contributing to the higher measured manganese levels and that S.H. Bell's additional measures are having a positive impact on the data.

In this regard, a preliminary statistical analysis of the metals concentration data from the monitors shows a moderate correlation between the measured manganese concentrations at the monitor and both cadmium ($r^2 = 0.30$) and lead ($r^2 = 0.29$) concentrations.[13] This result suggests that approximately one-third of the measured variation in manganese concentrations aligns with the variations in cadmium and lead concentrations. And in both cases, the P-values are well below 0.01, affirming that the correlation between observed manganese levels and both cadmium and lead levels is statistically significant. As S.H. Bell does not handle any bulk materials at the Chicago facility that contain cadmium or lead, the data and the correlations suggest that manganese originates from multiple sources including offsite sources emitting cadmium and lead. While there may be other sources, U.S. EPA has identified likely sources of lead, cadmium, *and* manganese emissions in the prevailing upwind south/southwest direction of the S.H. Bell facility. *See* U.S. EPA Xact Metals Study: Southeast Chicago, September 10, 2015.[14]

Evaluation of March Data

In evaluating the manganese data and the meteorological data from March 2017, S.H. Bell noticed that there were three days where the manganese concentrations were very likely

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[12] *Available at https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=216546.*

[13] The preliminary statistical analysis is for the metals data collected from the filter-based PM_{10} monitors from April 1, 2017 through July 30, 2017. The March data was not used because the laboratory method detection limit was not available and the August data was not available at the time that the calculations were made.

[14] *Available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/A1NRDCSupComKinderMorganVarReq_3102017.pdf.*

impacted by manganese emissions from off-site sources, namely, March 2, 8, and 20. For example, on March 2, the winds were consistently from the Northwest direction suggesting an off-site source of manganese, especially since S.H. Bell's production records confirmed that no operations with materials containing manganese occurred at the Northwest portion of the facility. *See* March 2, 2017 wind rose (Attachment C).

On March 8, the winds were coming from the typical Southwest/West direction across the facility. *See* March 8, 2017 wind rose (Attachment D). However, high PM_{10} hourly readings from that day correlated with visible dust observed originating from the Skyway Cement facility that is directly across the river from the S.H. Bell facility. *See* March 8 Photos of Skyway Cement Facility (Attachment E). Skyway Cement processes steel slag to make its cement and it is well known that steel slag contains manganese. Accordingly, since the manganese levels on March 8 are much higher than the other days in March where winds were coming from the typical Southwest/West direction, it is very likely that Skyway Cement's manganese emissions were picked up by S.H. Bell's monitor. Finally, on March 20, the winds were consistently coming from the North suggesting an off-site source of manganese. *See* March 20, 2017 wind rose (Attachment F). S.H. Bell notes that North American Stevedoring Company is less than a mile north of its facility and that its bulk materials variance application with City of Chicago specifies that it handles ferromanganese (which is one of the same materials that S.H. Bell handles).

The data also suggests that there is a background concentration of manganese in the area because the data set includes three weekend days (March 5, 11, and 26) that had detectable levels of PM_{10} manganese-days when neither S.H. Bell nor many other companies operate. It is well known that urban areas have ambient manganese background concentrations, some of which could come from the use of manganese as an additive in gasoline. *See e.g., ATSDR Toxicological Profile for Manganese, at* p. 40-41, 391-392, 398-400.

Evaluation of April Data

In evaluating the manganese data and the meteorological data from April 2017, S.H. Bell noticed that there were days where the manganese readings were potentially impacted by emissions from off-site sources, namely, April 10th and April 13th.

On April 10, the winds were consistently from the south/southwest. *See* April 10, 2017 wind rose (Attachment G). Cadmium, lead, and nickel were also detected on April 10. S.H. Bell does not handle any materials containing cadmium or lead and did not handle or process any materials containing nickel on this day. Accordingly, even though the winds were blowing across the facility to the PM_{10} FRM monitors on this day, the detection of cadmium, lead, and nickel on this day suggests that metal emissions from an offsite source were being blown onto S.H. Bell's property. As further support for this suggestion, S.H. Bell reviewed the April FEM PM_{10} data from the monitors located in the four cardinal directions at the facility. This data shows that a high amount of PM_{10} was being blown onto S.H. Bell's property on April 10.

A review of the limited information in the EPA Toxics Release Inventory ("TRI") database shows that there is at least one source that is south/southwest of the S.H. Bell facility that emits metals, including cadmium, lead, nickel, and manganese. Additionally, EPA's XACT Metals Study for Southeast Chicago identifies several facilities to the south/southwest of the S.H. Bell facility that emit cadmium, lead, nickel, and manganese. *See* U.S. EPA's XACT Metals Study: Southeast Chicago, dated September 10, 2015, at p. 6-12.[15] Accordingly, it is not an unreasonable supposition that the offsite metals emissions that were blown onto S.H. Bell's property on April 10 included manganese in addition to the known offsite metals emissions of cadmium, lead, and nickel.

The April manganese data also clearly shows that there is a source of manganese to the northeast of the facility. On April 13, the manganese level was 0.254 $\mu g/m^3$ when the winds were solely out of the east/northeast direction and thus, blowing towards the facility and the PM_{10} FRM monitors for a full twenty four hours. Accordingly, the manganese level and the levels of the other metals measured on April 13 are not from the S.H. Bell facility and reflect a one hundred percent off-site contribution from another source or sources.

The data also suggests that there is a continuing source of background concentration of manganese in the area as noted in our previous letter because the data set includes three weekend days (April 1, 16, and 22) that had detectable levels of PM_{10} manganese days when neither S.H. Bell nor many other companies operate.

Evaluation of May Data

In evaluating the manganese data and the meteorological data from May 2017, S.H. Bell noticed that there were days where the manganese readings were potentially impacted by emissions from off-site sources, namely, May 1st, May 16th, May 22nd, and May 31st.

On both May 16 and May 22, the winds were consistently from the south/southwest. *See* May 16, 2017 wind rose and May 22, 2017 wind rose (Attachments H and I, respectively). As noted in the May PM_{10} FRM Data, arsenic, cadmium, lead, nickel, and vanadium were also detected on May 16 and May 22. S.H. Bell does not handle any materials containing arsenic, cadmium or lead and did not handle or process any materials containing nickel or vanadium on these days. Additionally, it is worth noting that arsenic, cadmium, lead, nickel, and vanadium were detected in relatively higher concentrations on these days than observed in previous monitor data. Accordingly, even though the winds were blowing across the facility to the PM_{10} FRM monitors on these days, the detection of arsenic, cadmium, lead, nickel, and vanadium suggests that metal emissions, including manganese, from an offsite source(s) were being blown onto S.H. Bell's property.

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[15] *Available at https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/A1NRDCSupComKinderMorganVarReq_3102017.pdf.*

As further support for this suggestion, S.H. Bell reviewed the May FEM PM_{10} data from the monitors located in the four cardinal directions at the facility. This data shows that a high amount of PM_{10} was being blown onto S.H. Bell's property on May 22. The FEM PM_{10} monitors were down for maintenance on May 16. May 16, however, was a relatively windy day in Chicago where the 14:00 to 15:00 hours had average wind speeds over 15 mph and maximum wind gusts during this time were 30-33 mph. The average wind speeds and maximum wind gusts on May 16 were greater than measured on May 22 when a high amount of PM_{10} was recorded being blown onto S.H. Bell's property. Accordingly, it is very likely that a high amount of PM_{10} was being blown onto S.H. Bell's property on May 16 as well.

As noted previously, there are sources that have been identified to the south/southwest of the S.H. Bell facility that emit arsenic, cadmium, lead, nickel, and manganese. Accordingly, it is not an unreasonable supposition that the offsite metals emissions that were blown onto S.H. Bell's property on May 16 and May 22 included manganese in addition to the known offsite metals emissions of arsenic, cadmium, lead, nickel, and vanadium. Likewise this supposition is not unreasonable for May 1, where the winds were consistently from the south/southwest as well even though the May FEM PM_{10} data was relatively consistent across all monitors. Offsite metals emissions, including cadmium, lead, nickel, and vanadium were detected at the monitor. S.H. Bell did not handle or process any materials containing nickel or vanadium on this day and, as noted previously, it does not handle any bulk materials containing cadmium and lead. Accordingly, it is reasonable to assume that some amount of manganese was being blown onto S.H. Bell's property on May 1 along with the metals that clearly did not originate from S.H. Bell from the identified sources to the southwest of the facility that emit manganese and these other metals.

On May 31, the winds were predominantly from the west. *See* May 31, 2017 Wind Rose (Attachment J). The May PM_{10} FRM Data shows arsenic, lead, nickel, and vanadium were also detected on May 16 and May 22. S.H. Bell does not handle any bulk materials containing arsenic or lead and did not handle or process any materials containing nickel or vanadium on this day, which suggests that offsite metals emissions that were blown onto S.H. Bell's property.

The data also suggests that there is a continuing source of background concentration of manganese in the area as noted in our previous letter because the data set includes three weekend days (May 7, 13, and 28) that had detectable levels of PM_{10} manganese days when neither S.H. Bell nor many other companies operate.

Evaluation of June Data

The relative consistency of the June manganese data (with the exception of June 6) is very perplexing as it does not match the variability observed in the other months. Unlike many industrial sources, the S.H. Bell facility is a batch operation and thus, any emissions from the facility will not be consistent. S.H. Bell has not identified anything with respect to its operation

or production on the days that the June FRM monitors were recording ambient concentrations that could account for the relative consistency in the manganese data for June.

Additionally, the data continues to suggest that there is a continuing significant source of background concentration of manganese in the area because the data set includes three weekend days (June 3, 18, and 24) that had detectable levels of PM_{10} manganese days when neither S.H. Bell nor many other companies operate. These weekend days, June 3, 18, and 24, also had detections of metals that S.H. Bell does not handle and had higher PM_{10} concentrations being blown on-site based on a review of the June meteorological data and FEM PM_{10} data.

Further, the evaluation of the metals data with the meteorological data from June 2017 shows that offsite and/or background sources are likely continuing to contribute to the levels at the PM_{10} FRM monitors, including the manganese readings. For example, the monthly averages for arsenic and lead significantly increased for June, with the arsenic monthly average increasing an order of magnitude (*i.e.,* approximately ten times higher) and the lead monthly average steadily increasing to more than double the monthly average for March. *See* Attachments K and L. The increase in the monthly average for arsenic and lead not only indicates that there are offsite metal contributions as S.H. Bell does not handle any bulk materials containing arsenic or lead, but also that offsite metal contributions increased significantly for this month. The June data also shows that the PM_{10} FRM monitors continue to be impacted by offsite contributions of cadmium as S.H. Bell likewise does not handle any materials containing this metal.

As noted previously, U.S. EPA's XACT Metals Study for Southeast Chicago identifies several facilities to the south/southwest of the S.H. Bell facility that emit arsenic, cadmium, lead, nickel, *and* manganese. *See* U.S. EPA's XACT Metals Study: Southeast Chicago, dated September 10, 2015, at p. 6-12.[16] The June PM_{10} FRM Data continues to show that arsenic, cadmium, and lead (in addition to manganese) are detected in the PM_{10} FRM monitors on the days (namely, June 9, 12, and 15) when the winds are persistently out of the south/southwest (especially during typical working hours) and thereby blowing from the direction of the facilities identified in the EPA XACT Metals Study for Southeast Chicago towards the S.H. Bell facility.[17] Nickel was also detected in higher than normal concentrations on June 9, 12, and 15 yet S.H. Bell did not process, handle, receive, or ship out any materials containing

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[16] *Available at* *https://www.cityofchicago.org/content/dam/city/depts/cdph/environmental_health_and_food/A1NRDCSupComKinderMorganVarReq_3102017.pdf.*

[17] The winds were also blowing from the south/southwest on June 30. However, only half the typical working day had winds blowing from this direction with majority of the other half having winds blow from the easterly directions where it has been noted previously that the data shows a significant offsite contributor of manganese to the northeast/east of the facility. Accordingly, while speculations cannot be made, it is clear that there was an offsite contribution of metals as lead, arsenic, cadmium, and nickel were detected in the PM_{10} FRM monitor this day.

nickel in the month of June. Additionally, on June 9, 12, and 15, there were high offsite contributions of PM_{10} being blown onto S.H. Bell's property during typical working hours from the south/southwest direction according to the June FEM PM_{10} data for the S.H. Bell facility. Accordingly, even though the winds were blowing across the facility to the PM_{10} FRM monitors on these days, the offsite PM_{10} contributions along with the detection of arsenic, cadmium, lead, and nickel suggests that metal emissions, including manganese, from an offsite source(s) were being blown onto S.H. Bell's property.

As noted previously, the June data also supports a significant offsite manganese contributor to the northeast/east of the facility. On June 21, the manganese level was 0.574 $\mu g/m^3$ when the winds were persistently out of the east/northeast direction and thus, blowing towards the facility. Accordingly, the manganese level and the levels of the other metals measured on June 21 are not from the S.H. Bell facility and reflect a one hundred percent off-site contribution from another source or sources.

Evaluation of July Data

The manganese average in July decreased approximately 46% from the manganese average in June, which is consistent with the percent reductions in averages in July for cadmium (46% decrease) and lead (40% decrease).

The preliminary statistical analysis, as discussed previously was run using the July data and showed a moderate correlation between the measured manganese concentrations at the monitor and both cadmium ($r^2 = 0.30$) and lead ($r^2 = 0.29$) concentrations. This correlation is useful in assessing the days in July where the manganese level was above $\mu g/m^3$.

On July 18, the winds were split between the south/southwest and the east. A review of July FEM PM_{10} data shows a high amount of PM_{10} was being blown onto S.H. Bell's property on July 18, especially when the winds blowing out of the southwest towards S.H. Bell's property. The lead, cadmium, and manganese levels were higher on July 18. Accordingly, even though the winds were blowing across the facility to the PM_{10} FRM monitors on this day, the detection of higher levels of cadmium and lead suggest that some manganese was being blown onto the property along with the cadmium and lead on this day from an offsite source(s) since higher cadmium and lead levels are likely positively correlated with higher manganese levels.

On July 12, the winds were persistently out of the south/southwest as well and the offsite metals, including as lead and cadmium were relatively higher as well on this day. Accordingly, even though the winds were blowing across the facility to the PM_{10} FRM monitors on this day, the detection of higher levels of cadmium and lead suggest that some manganese was being blown onto the property along with the cadmium and lead on this day from an offsite source(s) since higher cadmium and lead levels are likely positively correlated with higher manganese levels. Additionally, offsite metals emissions of arsenic, nickel, and vanadium were detected in monitor on July 12. S.H. Bell did not handle or process any materials containing nickel or vanadium on this day and, as noted previously, it does not handle any materials containing

arsenic. Therefore, it is clear that offsite metals emissions were impacting the PM_{10} FRM monitors on this day.

However, for July 12, S.H. Bell concluded that gusting winds appeared to impact the initial transfer to packaging operations at the box filling station at the facility which may have contributed to the higher measured manganese level on this day. July 12 was a very windy day with gusts over 20 mph. There have never been any documented opacity exceedances at the Facility's box filling station. Upon learning this information and after evaluating the July 12 filter analysis results, S.H. Bell began using the mobile misters during all initial transfers of material (*i.e.,* the initial drop to the hopper feeder) at the box filling station even though this operation is enclosed.

Once again, July manganese data also clearly shows that there is a source of manganese to the northeast of the facility. On July 24, the manganese level was 0.304 $\mu g/m^3$ when the winds were solely out of the northeast and thus, blowing towards the facility and the PM_{10} FRM monitors for a full twenty four hours. *See* July 24, 2017 wind rose (Attachment M). Accordingly, the manganese level and the levels of the other metals measured on July 24 are not from the S.H. Bell facility and rercent off-site contribution from another source or sources.

Further, the data continues to suggest that there is a continuing source of background concentration of manganese in the area because the data set includes three weekend days (July 9, 15, and 30) that had detectable levels of PM_{10} manganese days when neither S.H. Bell nor many other companies operate.

Evaluation of August Data

On August 2, there were two predominant wind directions, with winds coming out of the southwest about half the working day and with the winds coming out of the east direction for the other half of the day. *See* August 2, 2017 Wind Rose (Attachment N). As noted in the August PM_{10} FRM Data, offsite metals emissions of arsenic, cadmium, lead, nickel, and vanadium were also detected on August 2.[18] Accordingly, even though the winds were blowing across the facility to the PM_{10} FRM monitors for part of this day, the detection of arsenic, cadmium, lead, nickel, and vanadium on this day suggests that metal emissions from an offsite source were being blown onto S.H. Bell's property. As further support for this suggestion, S.H. Bell reviewed the August FEM PM_{10} data from the monitors located in the four cardinal directions at the facility. This data does indicate that on August 2 there were certain hours where a higher amount of PM_{10} was being blown onto S.H. Bell's property.

Additionally, S.H. Bell has previously observed higher concentrations of manganese on days, specifically April 13, June 21, and July 24, when the winds are persistently out of the northeast/east direction for the entire day such that the PM_{10} FRM monitor was only measuring offsite contributions. Accordingly, such information suggests that there is a source of

[18] S.H. Bell did not handle or process any materials containing nickel or vanadium on this day.

manganese in the east/north east direction that could have impacted the monitor when the winds were blowing from this east/northeast direction with the split in the predominant wind direction on August 2.

On August 14 and August 17, the winds were consistently from the south/southwest direction. Offsite metals emissions were detected in the monitor on both of these days.[19] Additionally, it is worth noting that the cadmium and lead were detected in relatively higher concentrations on both August 14 and August 17, which is consistent with previously discussed potential correlation between manganese, cadmium, and lead levels. Nickel was also detected at a relatively higher concentration on August 17. Accordingly, even though the winds were blowing across the facility to the PM_{10} FRM monitors on these days, the detection of offsite metals, especially cadmium and lead, suggests that metal emissions, including manganese, from an offsite source(s) were being blown onto S.H. Bell's property on both August 14 and August 17. As further support for this suggestion, S.H. Bell reviewed the August FEM PM_{10} data from the monitors located in the four cardinal directions at the facility. This data does indicate that there were certain hours where a higher amount of PM_{10} was being blown onto S.H. Bell's property on both of these days. This assessment is logical because as noted previously there are sources to the southwest of the S.H. Bell facility that have been identified as emitting metals, including cadmium, lead, nickel, *and* manganese.

The data also suggests that there is a continuing source of background concentration of manganese in the area as noted in our previous letters because the data set includes three weekend days (August 5, 20, and 26) that had detectable levels of PM_{10} manganese days when neither S.H. Bell nor many other companies operate.

In sum, this evaluation of the data suggests that offsite sources are important factors in causing or contributing to the relatively higher daily levels of manganese that have been measured by the monitors.

F. Closing

To conclude the objections, we have a substantial question as to whether the agency can proceed with the allegation that S.H. Bell is causing or contributing to "Air Pollution" in light of the objections above, especially with respect to the absence of a demonstrated public health threat. As shown through the recent data and the preliminary risk assessment, the levels of ambient manganese measured at the facility's fence line monitors are not "in sufficient quantities and of such characteristics and duration" to cause any injury to human health according to U.S. EPA's and ATSDR's own best available science.

[19] S.H. Bell did not handle or process any materials containing nickel or vanadium on this day.

ECKERT SEAMANS
ATTORNEYS AT LAW

We appreciate in advance U.S. EPA's careful consideration of the information presented in this letter. Should you have any questions, please let me know.

Very truly yours,

Scott Dismukes

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