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AZR AMERICAN ZINC RECYCLING
Delivering a Sustainable Future

August 19, 2019

Dr. Allison Arwady
Acting Commissioner
Department of Public Health
Pollution Prevention Unit
333 South State Street, Room 200
Chicago, Illinois, 60604

Re: Response to Public Comments - AZR Variance Request
Rules and Regulations for Control of Emissions from the Handling and Storage of Bulk Solid Materials - Part D.

Dear Acting Commissioner Arwady,

On April 25th, 2019, American Zinc Recycling Corp. ("AZR") filed a variance petition (the Petition) pursuant to Section 10.0 of the Rules and Regulations for Control of Emissions from the Handling and Storage of Bulk Solid Materials (the "BSM Rules"). The Petition presented the Department with evidence showing that the enclosure requirement in Section 5.0 of the BSM Rules would be arbitrarily harsh as applied to the "Iron Rich Material" ("IRM") manufactured and stored at AZR's facility along the Grand Calumet River in Chicago Illinois (the "Chicago Facility" or the "Facility").

On June 28th, 2019, attorneys representing the Southeast Environmental Task Force, the Natural Resources Defense Council, and the Southeast Site Coalition to Ban Petcoke, (the "Public Commenters" or "Commenters") jointly filed comments on the Petition. The Public Commenters are in opposition to every one of the variance petitions that the Department has received seeking relief from the new amendments to the BSM rules concerning manganese. AZR, however, is not in the business of selling, handling, or manufacturing manganese.

The Public Commenters insist that the Petition is inadequate and argue that it is an appropriate hardship to require AZR to spend over $13.5 million dollars to construct an enclosure for IRM material that is highly resistant to dispersion and contains only a minor amount of manganese-bearing minerals. But the Commenters have responded to the facts presented in AZR's Petition with speculation, misstatements of relevant law, and a blind eye towards the growing mountain of monitoring data confirming what AZR has represented—that IRM is not a threat to public health or the environment.

A. AZR Did Not Fail to Describe the "Population and Geographic Area Affected by or Potentially Affected by, the Process or Activity."

Section 10.0 of the BSM Rules outlines information that should be presented in a variance request, including "pertinent data on . . . the population and geographic area affected by, or potentially affected by, the process or activity." Rule 10.0(b). Whether to deny a variance because of a failure to include information described in Rule 10.0(2) is left to the reasonable discretion of the Commissioner. Rule 10.0(3)(b).

As stated in its Petition, AZR's manufacturing operations do not affect the surrounding population beyond the normal effect of any ongoing manufacturing operation within a community, such as the presence of truck traffic entering and exiting the Facility. Since filing, AZR's position has gained added support from new, CDPH-ordered, particulate monitoring that shows that particulate levels at the Facility's boundaries are below the emissions standards set to protect human health and the environment. Additionally, the monitors have shown frequent occurrences of emissions from neighboring facilities passing over the Facility.

The Public Commenters concede that AZR's petition provides an accurate description of the industrial character of the area surrounding the Facility. They insist, however, that AZR should have identified all individuals living within one mile of the Facility as part of the "potentially affected" population. But, as described in more detail below, the Commenters have provided no evidence that airborne manganese-bearing particulate matter leaves the Facility in meaningful quantities. In fact, the available data strongly suggest that it does not. And, even if such emissions did leave the property, the Public Commenters offer no reasons for believing that it can affect a property or an individual one mile away. (Comments, at p. 1) The Public Commenters simply, and arbitrarily, picked a one-mile radius because the U.S. EPA ECHO database uses one mile as a default radius.

The Public Commenters also allege a threat to the environment. But many of the signatories to the Public Comments participated in the Department's rulemaking process for the 2019 Amendments to the BSM Rules, and none of them identified the effects of manganese on the natural environment as a reason for adopting heightened restrictions on manganese handling.[1] The natural areas identified by the commenters—Indian Ridge Marsh and Big Marsh—border the Lake Calumet Cluster Superfund Site and the Paxton I and II Superfund Sites, both of which have impacted groundwater from past waste disposal practices. That, combined with the marshes' long history as repositories for slag waste (much of it still there) and dredged sediment from Calumet Harbor, pose a much more urgent threat to those areas. The Commenters present no evidence whatsoever that airborne IRM from AZR is reaching the marshes.[2]

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[1] https://www.chicago.gov/content/dam/city/depts/cdph/environmental_health_and_food/Com_NRDC_SETF_SSCBP_etal_6132018.pdf.

[2] The marshes had previously served as habitat for an endangered species, the Black-Crowned Night Heron. But their colonies recently relocated to Lincoln Park. Erratic changes in water levels caused the migration from Big Marsh, and are suspected to have been the motivator in Indian Ridge Marsh as well. See https://www.wbez.org/shows/wbez-news/endangered-herons-make-themselves-at-home-in-lincoln-park/a954d66e-4f8e-4475-90ea-ac09bde778ba

But, in addition to providing no evidence that AZR's IRM output has caused manganese contamination in those natural resource areas, the Public Commenters provide no evidence that there even *is* manganese contamination there. Both Lake Calumet and the Calumet River appear on the state's 2018 303(d) list of impaired waterways, but neither are listed for manganese.[3] Ongoing restoration efforts at the marshes have focused on removing invasive species and simulating natural hydrologic conditions.[4] The materials AZR has reviewed (the Public Commenters offer none of their own now, and offered none when the Manganese Amendments were drafted) make no mention of manganese as a contaminant.

Finally, the Public Comments muse that, despite being located in an industrial area, manganese emissions could adversely impact people using the natural areas for recreation or even individuals that drive on Torrence Avenue for a few minutes. The Commenters have been involved in South Side manganese issues for some time, but none of their prior comments to the Department mentioned these improbable vectors for meaningful exposure to manganese. And, as AZR stressed in its Variance Petition and reemphasizes herein, there is no evidence that meaningful quantities of manganese are leaving the Facility.

B. The Public Comments Fail to Grasp IRM's Low Potential for Becoming Airborne.

1. IRM is too dense to become airborne in large quantities.

As noted in AZR's initial variance request, IRM is known to have a high density relative to the other two specific materials regulated by the CDPH Bulk Solid Material Rules (namely, coal and coke) and forms a crust when exposed to the atmosphere.[5] Equally important in the properties of IRM relative to its handling emissions potential is its density—100 pounds per cubic-foot (this reaches up to 115 pounds per cubic-foot if the IRM is packed). Metallurgical coke, for comparison, has a density of only ~55 pounds per cubic-foot. The higher density of IRM will be reflected in a higher aerodynamic particle size, which results in a lower predictive handling emissions potential than other materials with a lower density. Specifically, aerodynamic particle size is a variable, used in U.S. EPA's fugitive emission material handling calculations,[6] which is a function of the density: "*Diameter of a sphere of unit density, which behaves aerodynamically as a particle with different sizes, shapes, and densities."*[7] Both *AP-42* and Western Regional Air Partnership's (WRAP) *Fugitive Dust Handbook* take into account the particle size multiplier, which is dependent on the aerodynamic particle size range, and therefore, the density. *"The particle size multiplier in the equation, k, varies with aerodynamic particle size range*."[8] Per *AP-42*, the friction velocity

[3] https://www2.illinois.gov/epa/Documents/iepa/water-quality/watershed-management/tmdls/2018/303d-list/appendix-a-2.pdf
[4] https://www.lrc.usace.army.mil/Missions/Civil-Works-Projects/Indian-Ridge-Marsh/
[5] June 13, 2014 letter from Horsehead Corporation (now AZR), to City of Chicago Department of Public Health.
[6] See U.S. EPA AP-42 document (Fifth Edition, Compilation of Air Pollutant Emissions Factors), Section 13.2.4.3, Equation 1, which includes the use of the particle size multiplier in the predictive emissions equation for aggregate handling operations, like IRM handling. Available at https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors
[7] WRAP *Fugitive Dust Handbook* – Glossary. https://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf
[8] WRAP *Fugitive Dust Handbook* – pg. 4-3.

must be greater than the threshold friction velocity for airborne emissions to result. The threshold friction velocity is also a function of the aerodynamic particle size, and therefore, the density.[9]

The density of a material factors into air emissions another way: The wind's force (or forces from handling or disturbing material storage piles) must be enough to overcome the forces that work to keep the particles stationary (*i.e.*, gravity, pressure, and viscosity) for airborne emissions to occur. The gravity forces acting on the particles depend on the diameter of the material and the material's mass.[10] For example, when completing a particulate deposition analysis using the AMS/EPA Regulatory Model (AERMOD), both the density and particle size are taken into account.[11] Larger particles and particles with higher density increase the settling velocity and decreases the amount of emissions traveling offsite. Even though density is not directly used to calculate fugitive air emissions, increased density of a material will result in decreased air emissions offsite through both reduced air emissions and increased settling rates. Thus, IRM, with a high density relative to other aggregate materials, has less emissions potential.

2. Crusting is a major factor in evaluating the fugitive dust potential of bulk solids, and IRM forms crusts of significant strength.

As noted in AZR's initial variance request, IRM will form a crust 4-5 inches thick when stored outside. This crusting happens naturally over time but the length of time for a crust to form is reduced by wetting the material, as AZR does. As a matter of routine, AZR handlers move "new" IRM before "old" IRM. IRM at the Facility has a mean residence time of about six months, and approximately 50% of exposed IRM on site has enough of a crust to prevent wind erosion. And because AZR personnel generally keep IRM piles as consolidated as practicable, the vast majority of IRM at the Facility is not exposed; most of the IRM is under large quantities of other crusted material, and have zero erosive potential in that state.

This crusted IRM is very hard preventing fugitive dust emissions from IRM storage piles. Federal regulators have long recognized this: From AP-42, Chapter 13: Miscellaneous Sources – Industrial Wind Erosion, "*Emissions generated by wind erosion are also dependent on the frequency of disturbance of the erodible surface because each time that a surface is disturbed, its erosion potential is restored. A disturbance is defined as an action that results in the exposure of*

[9] Unfortunately, although *AP-42* and the *WRAP Handbook* take into account the particle size multiplier, the values used in the predictive emissions equations are considered constants based on WRAP testing completed on different types of soil samples and road dust, and do not reflect the higher density of IRM (and hence the lower emissions potential per the aggregate handling emissions equation. *See Analysis of Fine Fraction of Particulate Matter in Fugitive Dust.* https://www3.epa.gov/ttn/chief/ap42/ch13/related/mri_final_fine_fraction_dust_report.pdf.

[10] Nebojša Topić and Matjaž Žitnik (2012). *Fugitive Dust Emissions from a Coal-, Iron Ore- and Hydrated Alumina Stockpile, Air Pollution - Monitoring, Modelling and Health, available from*: http://www.intechopen.com/books/air-pollution-monitoring-modelling-andhealth/fugitive-dust-emissions-from-a-coal-iron-ore-and-hydrated-alumina-stockpile

[11] *User's Guide for the AMS/EPA Regulatory Model* (AERMOD), Section 3.3.4. AERMOD is a refined, steady-state, multiple source, Gaussian dispersion model and is the preferred model for use by industrial sources for air quality dispersion analysis.

fresh surface material."[12] When there are no mechanical disturbances of the IRM, the formed crust is maintained, resulting in lowered fugitive emissions.

And as the WRAP *Fugitive Dust Handbook* notes: "*The surface crust acts to hold in soil moisture and resist erosion*."[13] The *Handbook* goes on to state that the degree of protection provided by the crust is dependent on the hardness and thickness of the crust and that suspended particulate emissions show a weak dependence on wind speed when a crust is present. AP-42 Section 13.2.5 also comments on how even a thin shell of crusted material can cause a material pile to lose most or all of its erosion potential. Per EPA Document 450/3-88-008[14], "*any natural crusting of the surface binds erodible material, thereby reducing the erosion potential.*" Aggregate storage pile surfaces "*have a finite availability of erodible material (mass/area)."* [15] "*If the crust is more than 0.6 cm thick and not easily crumbled between the fingers (modulus of rupture >1 bar), then the soil may be considered non-erodible. If the crust thickness is less than 0.6 cm or is easily crumbled, then the surface should be treated as having a limited reservoir of erodible particles* [16] One study showed that watering of iron ore resulted in nine times less mass loss during wind tunnel studies than sieved iron ore material and one watering is sufficient enough to immobilize the pile as long as the crust remains intact.[17] This is due to the agglomeration of iron oxide particles and hydrogen bonding. Because the IRM outside storage pile crust is 4-5 inches thick and cannot be broken with a shovel, there is a high degree of protection from fugitive emissions and is considered non-erodible material per EPA fugitive dust guidance. [18]

C. The Public Comments Repeatedly Invoke Site Conditions Unrelated to IRM or Manganese.

1. The 2014 Notice of Violation

The Commenters insist that material, unresolved compliance issues identified by the U.S. EPA somehow undermine AZR's Variance Petition. (Comments, at p.2) These contentions are based on misrepresentations of the underlying facts, do not bear in any respect upon the Variance Petition, and are undercut by Commenters' own specific statements concerning the alleged compliance considerations.

U.S. EPA conducted an investigation of the Facility in 2014. It identified certain questions related to that inspection, and thereafter issued to AZR's predecessor corporation, Horsehead Corporation ("Horsehead"), a Notice of Violation (the "U.S. EPA NOV"). By its express terms, the U.S. EPA NOV states that U.S. EPA had not reached any specific determination of

[12] US EPA AP-42 13.2.5.2-2. Industrial Wind Erosion – Emissions and Correction Parameters. https://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s0205.pdf
[13] WRAP *Fugitive Dust Handbook* – pg. 1-6. https://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf
[14] EPA Document EPA 450/3-88-008, Control of Open Fugitive Dust Sources, Page 4-4, September 1988
[15] EPA Document EPA 450/3-88-008, Control of Open Fugitive Dust Sources, Page 4-4, September 1988
[16] EPA Document EPA 450/3-88-008, Control of Open Fugitive Dust Sources, Page 6-2, September 1988
[17] Nebojša Topić and Matjaž Žitnik (2012). *Fugitive Dust Emissions from a Coal-, Iron Ore- and Hydrated Alumina Stockpile, Air Pollution - Monitoring, Modelling and Health, available from*: http://www.intechopen.com/books/air-pollution-monitoring-modelling-andhealth/fugitive-dust-emissions-from-a-coal-iron-ore-and-hydrated-alumina-stockpile
[18] EPA Document EPA 450/3-88-008, Control of Open Fugitive Dust Sources, Page 6-2, September 1988

noncompliance at the Facility, but instead identified issues of potential noncompliance, and requested that Horsehead provide information related to the allegations in an effort to resolve the claims. AZR has worked cooperatively with U.S. EPA to address questions and issues raised by the U.S. EPA NOV.

While AZR's actions show that it takes the violations alleged by U.S. EPA very seriously, the NOV has no relevance to whether AZR should be forced to spend nearly $15 million dollars to enclose its IRM product. In fact, the NOV barely mentions IRM at all. After conducting a full investigation of the Facility in 2014, the U.S. EPA's sole observation regarding IRM was that the Facility lacked a permit for its IRM Storage Pile. There is no allegation, nor even a suggestion, that the IRM Storage Pile was producing manganese emissions that might violate the Clean Air Act.

It is also important to emphasize that almost all of the violations alleged by U.S. EPA do not concern substantive emissions violations. The NOV focuses primarily on allegations that Horsehead was not complying with certain recordkeeping and maintenance requirements. (Comments, Exhibit 2, at ¶¶53-57)[19]

The IRM Storage Pile violations were no exception—the U.S. EPA faulted Horsehead for failing to include the IRM Storage Piles in the CAAPP permit application. (Id., at ¶59) Consequently, the lack of an operating permit for the IRM Storage Pile produced a second violation. (Id., at ¶60) The Public Commenters concede that the CAAPP permit has since been revised to regulate the IRM Storage Pile (and other IRM transfer areas), but they offer no explanation for why the portions of the NOV discussing IRM have any relevance to the Variance Petition now before the Department.

Lacking any explanation for why the 2014 NOV is relevant to enclosing the IRM piles, the Public Comments repeatedly insist that the document has a freestanding importance as it is "still pending and has not been resolved." (Comments, at pp. 2-3) But the reality is that, while AZR reserves all claims and defenses with respect to the U.S. EPA's allegations, the NOV has been overtaken by events on the ground.

The issues expressly identified by Commenters related to this comment have generally been resolved by AZR. AZR has worked with the Illinois Environmental Protection Agency ("IEPA") to ensure that current particulate matter contingency measures plan and fugitive particulate matter control plan for the Facility have been submitted to and reviewed by IEPA. In addition, since issuance of the U.S. EPA NOV, IEPA has issued an updated CAAPP air quality operating permit for the Facility, identifying all emission sources determined by IEPA as necessary and appropriate for inclusion in the permit.

Additionally, in the wake of the 2014 NOV, U.S. EPA and AZR discussed the possibility that use at the Facility of petroleum coke as a carbon source for process operations may contribute

[19] The sole emissions violation identified in the NOV concerned the emissions coming from bag collectors. (Id., at ¶58) While the emissions alleged in the NOV would contain some manganese, none of these emissions came from the IRM Storage Piles, which do not have a bag house.

to increased hazardous emissions. Subsequently, AZR voluntarily agreed to limit the use of petroleum coke as a carbon source, and has spent over $2.5 million dollars constructing an enclosure for the metallurgical coke at the Facility.

Similarly, in the context of its discussions with U.S. EPA related to Facility operations implicating particulate matter emissions, AZR has voluntarily implemented multiple additional control measures to further enhance emission controls at the Facility. These control measures, which go beyond the baseline requirements set by the BSM Rules, include storing surfactant on-site, securing a second water truck for dust-suppression operations, and the purchase of a "Dust Boss" misting cannon for additional dust control. What's more, AZR installed multiple emission control systems including fugitive baghouse "BC-D" and replaced the fugitive baghouse BC-2 unit. It also implemented additional enhancements to the C&B Building recommended by a ventilation consultant, and commissioned a third-party to perform recurrent system evaluation, maintenance, and repair—all at significant cost.

For the foregoing reasons, the issues related to the U.S. EPA NOV identified by Commenters as theoretically relevant to the pending Variance Petition (the fugitive particulate matter control plan, the contingency measures plan and the inclusion of relevant sources in an updated air quality operating permit for the Facility) have, directly contrary to the assertions in the Comments, been fully resolved. Further, in the context of the subsequent discussions between AZR and U.S. EPA, AZR has instituted multiple voluntary measures to further enhance emission control measures at the Facility.

2. The May 2019 CDPH Inspection Report

The Facility's May 2019 Inspection Report, while raising issues significant enough to prompt AZR to take action, does not discuss any compliance issues related to fugitive dust from the Facility's IRM storage piles.

Also, AZR wants to emphasize that the conditions found in the May 2019 Inspection Report do not represent any sort of loosening of compliance practices by its personnel. As documented in the Petition, AZR's commitment to preventing fugitive dust, whether expressed in man-hours or capital expenditures, has only increased over time.

The Inspection Report outlines 6 "observations," but only one of these concerns IRM. Observations 1 and 6 explicitly refer to coke materials. Observation 4 refers explicitly to "WOX" (Waelz Oxide) dust. And although Observations 2 and 3 do not identify the material involved, the photographs clearly show a light grey dust, which is not consistent with IRM's red-brown coloring.

Observation 5 relates to IRM being placed too close to the Calumet River. AZR disputes this allegation that the material was within 50 feet of the Grand Calumet River. But even taking the allegation as true, this has nothing to do with the IRM pile's resistance to producing fugitive dust. The 50-foot requirement (Section 7.0(3) of the BSM Rules) is, on its own terms, there for

the "Protection of Waterways" and not air quality. AZR is not asking for relief from the requirements of Section 7.0(3). [20]

In any event, even though much of this Report does not relate to IRM, the Department should know that AZR has taken all steps within its power to correct the issues identified. The IRM alleged to be too close to the waterway was pushed further away while the May Inspection was ongoing. All loose material on the ground and on the sides of the "BC #3" and "BC #10" buildings has been cleaned by power-washing equipment. The coke material pictured in photograph #1 of the Inspection Report has also been removed from the roof and re-attached ductwork. Approximately 1,200 square-feet of siding on building BC #10 has been replaced. Two new gaskets were installed on the cambelt covers between BC#3 and BC #10. Also, the gaps that were identified between the building walls and utility piping have now been sealed. On June 27, 2019, the CDPH completed another Facility inspection that found no violations at the Facility. (Attached as Exhibit A)

Exhibit B to this Response shows side-by-side comparisons of the photographs taken by the CDPH Inspector and the Facility conditions today.

The May 2019 Inspection Report observation regarding the coke enclosure building (Observation 6) concerns a matter that AZR cannot entirely control. As AZR made clear in its Petition, it has done everything in its power to obtain permission from the City to use the enclosure that it paid $2.5 million dollars to construct in 2017. In furtherance of that goal, on July 9, 2019, AZR and Department personnel met with representatives from the Chicago Department of Water to discuss modifications to the enclosure that would enable AZR to begin storing metallurgical coke in the facility. (This meeting was described in AZR's July 2019 Enclosure Report, a copy of which is attached as Exhibit C.)

In sum, the Commenters assign undue relevance to the May 2019 Inspection Report. The Report has no direct relevance to AZR's request to prevent windborne dispersal of IRM through means other than enclosure. Additionally, AZR has rapidly responded to the issues raised by the Department and will do so if problems are identified in the future.

D. The AZR Facility's Monitoring Data Supports the Granting of its Variance Request.

1. The Department's denial of AZR's request for a variance from the BSM Rules' PM_{10} Monitoring Requirements is not a basis on which to deny the current request.

On September 14, 2018, the Department rejected AZR's prior request for a variance from the BSM Rules' PM_{10} monitoring requirements. Consequently, AZR spent $170,000 to install four, permanent, continuous, Federal Equivalent Method real-time PM_{10} monitors at the Facility and

[20] AZR further protects the waterway through the use of a containment berm and stormwater retention. The Department's September 2018 variance determination recognized the effectiveness of that system in protecting the waterway from spilled-materials or runoff and granted a variance from the requirements of Section 8.0(2) and 8.0(3)(a) regarding pooled water.

began collecting monitoring data on February 22nd, 2019 (and has incurred approximately $25,000 in additional, routine operational costs thus far).

The Commenters now accuse AZR's enclosure variance request as a "repackaging" of the evidence presented in the prior monitoring variance request. (Comments, at p. 5) But, as described in further detail in Section D.2, the monitoring data that the Department required not only provide new evidence of IRM's low potential for generating fugitive dust, but also strengthens the evidence that the Department previously found insufficient. As noted in the pending Variance Petition, the Department was previously unconvinced that the PM_{10} data from the Rockwood Facility could predict PM_{10} emissions from the Chicago Facility—the new data shows that the two facilities *both* have low PM emissions profiles. (Petition, at pp. 11-12) Similarly, the Department's determination expressed concern that AZR's crushing/screening operations carried an excessive risk of producing fugitive dust despite the dust-suppression measures required by the Facility's CAAPP permit. The Department wanted that assumption demonstrated by hard evidence, and AZR has now (at considerable expense) provided that evidence. It will continue to provide new evidence as required by the BSM Rules.[21]

2. The Public Commenters Misadvise the Department on How to Evaluate AZR's Monitoring Data.

AZR maintains that its collection and dissemination of air monitoring data is an effective alternative to the BSM Rules' Enclosure Requirement. The Public Commenters, however, have badly misinterpreted the results of this air monitoring, and consequently now misadvise the Department as to the significance of the data. When viewed under the standards used to protect public health at the state and federal level, AZR's monitoring data show that the Facility does not pose a threat to public health or the environment.

The U.S. EPA establishes National Ambient Air Quality Standards (NAAQS) to protect human health and the environment, through primary standards (providing public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly), and secondary standards (providing public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings). The primary and secondary NAAQS for PM_{10} is 150 micrograms per cubic-meter (µg/m3), calculated *on a 24-hour average concentration*.[22] (The Commenters misdescribe this as an hour-to-hour standard.) This standard is attained when the expected number of exceedances per year at a monitored site is less than or equal to one. An exceedance of the PM_{10} NAAQS is defined as the daily value (calculated or measured from midnight to midnight) that is above the level of the 24-hour standard after rounding to the nearest 10 $\mu g/m^3$ (values ending in 5 or greater are to be rounded up).[23]

[21] On February 25th, 2019, AZR submitted a Metals Monitoring Plan to the Department asking for approval to install a Reference Method Sampler (FRM) for the purpose of assessing airborne emissions of manganese. On July 29th, 2019, the Department requested additional information and a modification to the proposed location of the FRM. AZR is working to respond to the Department's requests.

[22] 40 C.F.R. § 50.6 – National primary and secondary ambient air quality standards for PM_{10}.

[23] Per 40 C.F.R. Part 50, Appendix K, Section 1.0 (b).

Beside the NAAQS, U.S. EPA has also established an index for reporting daily air quality known as the Air Quality Index (AQI).[24] This tool establishes categories of air quality, which correspond with different levels of health concern. Below is a listing of the AQI levels of health concern and the corresponding 24-hour PM_{10} concentrations as calculated using the AQI Calculator:

- Good air quality conditions – 0 to 54 µg/m^3.
- Moderate air quality conditions – 55 to 154 µg/m^3.
- Unhealthy for Sensitive Groups – 155 to 254 µg/m^3.
- Unhealthy air quality conditions – 255 to 354 µg/m^3.
- Very Unhealthy air quality conditions – 355 to 424 µg/m^3.
- Hazardous air quality conditions – 425 µg/m^3 and above.

These two thresholds, the NAAQS for PM_{10}, and the AQI for PM_{10}, are the appropriate thresholds to be used for comparison of the PM_{10} monitored data collected to date at AZR.[25] The Commenters, on the other hand, insist on using an hour-by-hour assessment of emissions that arbitrarily ignores the generally accepted 24-hour standard. (Comments, at p.11) The Department should apply the NAAQS and AQI standards, not the new standard invented by the Commenters.

Table 1 presents the PM_{10} monitoring summary for each of the four PM_{10} monitors since monitoring began on February 22 through June 30, 2019. The table provides a summary of the maximum daily concentration, data capture rate, and the number of "good", "moderate", and "unhealthy" air quality days as measured by AZR's monitoring network. As shown in Table 1, the AZR Facility is not causing an exceedance of health standard levels, as established by the NAAQS, and has not contributed to unhealthy air, as established by the AQI. Since monitoring began on February 22, 2019, only one monitor has measured a daily concentration above 155 µg/m^3. (1 day out of 128 monitored days or 0.8% of the monitored days). The elevated concentration was observed at the North PM_{10} monitoring site and was due to kiln cleanout activities on March 19, 2019 (these kiln cleanout events are discussed further below).

[24] U.S. EPA AirNow – Air Quality Index (AQI) Basics - https://airnow.gov/index.cfm?action=aqibasics.aqi

[25] By comparison, the Respirable Dust permissible exposure limit (PEL) established both by the Occupational Safety and Health Administration (OSHA) and the California Division of Occupation Safety and Health (Cal/OSHA) is 5,000 µg/m^3 (8-hour time weighted average). This Respirable Dust PEL would include PM_{10}. None of the AZR PM_{10} monitored concentrations, even on a 1-hour basis, have approached this PEL.

Table 1 AZR Network PM_{10} Monitoring Statistics - February 22, through June 30, 2019

Statistic	North	East	West	South
Maximum daily concentration[a]	185.7	62.3	52.4	100.3
Valid 24-hour concentration days	128	128	116	128
Possible number of days	128	128	128	128
Data capture rate[b]	100%	100%	91%	100%
Number of days with **24-hour** concentration above 150 µg/m^3 (PM_{10} NAAQS)	1	0	0	0
Exceeding PM_{10} NAAQS?[c]	No	No	No	No
Number of days with **24-hour** concentration above 155 µg/m^3 ("unhealthy" air quality, per the AQI index) PM_{10} NAAQS)	1	0	0	0
Percentage of monitored days with **24-hour** concentration above 155 µg/m^3 ("unhealthy" air quality, per the AQI index)	0.8%	0%	0%	0%
Number of days with **24-hour** concentration below 55 µg/m^3 ("good" air quality, per the AQI index)	96	126	128	126
Percentage of days with **24-hour** concentration below 55 µg/m^3 ("good" air quality, per the AQI index)	75.0%	98.4%	100%	98.4%
Number of days with **24-hour** concentration below 155 µg/m^3 ("good" or "moderate" air quality, per the AQI index)	127	128	128	128
Percentage of days with **24-hour** concentration below 155 µg/m^3 ("good" or "moderate" air quality, per the AQI index)	99.2%	100%	100%	100%

[a] Since monitoring began.
[b] Calculated as the number of valid 24-hour concentrations divided by number of possible days.
[c] The PM_{10} NAAQS is attained when the expected number of exceedances per year at a monitored site is less than or equal to one.

Table 2 presents the dates between February 22 through June 30, 2019, when at least one AZR monitor was at or above the AQI "good" concentration level, or recording a **24-hour** concentration between 55 and 154 µg/m^3. These dates are shaded in yellow and orange. Table 2 shows that out of the 128 days since the network was established, there were 33 days in which one of the monitors had "moderate" or above air quality conditions. However, on many of these 33 days, there is a contribution of PM_{10} being recorded at AZR's monitors that clearly originates off-site. To illustrate this better, the "net" daily concentration was calculated by subtracting the lowest AZR monitored PM_{10} concentration for the day from the highest AZR monitored PM_{10}

concentration. Doing this, the AZR monitored PM_{10} network showed only 15 days that would qualify as "moderate" per the AQI, shaded in green, increasing the net percentage of "good" air quality, per the AQI index, to 88.3%.

Table 2 AZR PM_{10} Concentrations on "Moderate" AQI Dates, and "Net Impact"

Date	North	East	West	South	Net Daily Concentration
02/23/2019	69.3	29.3	28.5	30.4	40.8
02/24/2019	76.3	46.0	12.6	10.00	66.3
03/04/2019	61.9	44.4	15.9	13.5	48.4
03/05/2019	56.3	62.3	14.3	17.2	48.0
03/06/2019	58.9	26.1	16.8	17.4	42.1
03/09/2019	89.3	40.8	26.3	23.5	65.8
03/12/2019	65.0	33.8	28.0	36.4	37.0
03/13/2019	66.3	15.7	13.1	16.8	53.2
03/14/2019	61.5	15.1	11.9	12.7	49.6
03/19/2019	185.7	34.8	20.5	24.6	165.2
03/27/2019	146.4	53.2	22.0	100.3	124.4
04/01/2019	82.9	20.8	12.7	12.5	70.4
04/02/2019	81.3	27.4	21.0	24.8	60.3
04/08/2019	60.4	32.7	31.0	34.0	29.4
04/12/2019	59.8	23.6	17.2	15.5	44.3
04/17/2019[b]	75.3	41.2	N/A [a]	49.4	34.1
04/21/2019	82.7	14.5	14.3	14.1	68.6
04/22/2019	122.8	47.9	27.5	36.0	95.3
05/14/2019	56.1	42.0	39.5	41.6	16.6
05/15/2019[b]	54.4	54.8	50.3	56.2	5.9
05/16/2019	85.2	30.1	23.5	26.5	61.7
05/19/2019	65.7	12.8	N/A [a]	9.8	55.9
05/22/2019	74.9	56.8	N/A [a]	38.2	36.7
05/25/2019	55.4	12.0	11.0	10.5	44.9
05/31/2019	61.8	21.1	16.8	19.0	45.0
06/04/2019	110.6	54.8	28.0	31.8	82.6
06/11/2019	71.0	39.3	27.8	36.3	43.2
06/12/2019[c]	76.5	44.9	18.6	37.1	57.9
06/14/2019	133.3	31.1	23.0	25.9	110.3
06/15/2019	78.1	14.1	10.3	18.0	67.8
06/24/2019	64.1	11.6	N/A [a]	9.8	54.3
06/25/2019	126.6	20.5	17.3	19.3	109.3
06/26/2019	56.7	37.5	N/A [a]	40.4	19.2

[a] Daily concentrations were not valid on this date due an insufficient number of hourly averages.
[b] On these particular days, AZR observed visible smoke and dust from the scrap yard operations directly to the east of AZR, across the Calumet River.
[c] On this particular day, AZR observed backhoe digging/associated railroad track work on property immediately south of AZR, just south of the South PM_{10} monitoring site.

A kiln cleanout was associated with the elevated PM_{10} event on March 19, 2019.[26] Kiln cleanout activities are a recurring, periodic, process at AZR wherein buildup on the interior of the kiln is removed. Kiln cleanouts are done on an as needed basis, starting approximately 24 hours after the kiln has ceased operation, so that the kiln can cool down. A kiln cleanout will last between 18-36 hours depending on the extent of the built-up material. In a kiln cleanout, a robot enters the kiln to initiate the buildup removal, and then exits the kiln. The kiln is then slightly rotated to remove the debris/cleanout material. The robot then reenters the kiln, and the process alternates (robotic cleaning, debris removal) until complete.

As described in the Petition, after the Facility determined that its kiln cleanout activities had contributed to Reportable Action Level event, it immediately changed its kiln cleanout procedures to include dust suppression measures similar to those used to suppress dust at the crushing-screening operations in the IRM Storage Piles. (Petition, at p.15) The effectiveness of that procedural change quickly became apparent from subsequent PM_{10} monitoring showing no spikes in PM_{10} monitoring results during subsequent kiln cleanouts.

As Table 2 shows, outside of the March 19th event, only one other kiln cleanout event resulted in a PM_{10} concentration which would be characterized as contributing to "moderate" air quality per the AQI (that being on May 22, 2019, when the North PM_{10} monitoring site concentration was 74.9 $\mu g/m^3$). **But**, the data presented in Table 3, shows that the South PM_{10} monitor on this same day recorded a PM_{10} concentration of 38.2 $\mu g/m^3$. Subtracting this value from the North monitor PM_{10} concentration from this same day demonstrates that AZR's contribution to air quality during this kiln cleanout event was only 36.2 $\mu g/m^3$ (in the range of "good" PM_{10} air quality, per the AQI). Thus, the data presented in Table 3 shows that routine kiln cleanout events at AZR, now conducted with improved dust suppression measures, do not cause even "moderate" PM_{10} air quality, per the AQI.

[26] AZR provided the CDPH an initial notification of the event, and then followed up with a second notification, detailing the results of the detailed additional investigation that AZR completed following the March 19th event.

Table 3 Kiln Cleanout Dates and 24-hour PM_{10} Monitored Concentrations

Cleanout Date	Affected kiln	Affected monitor (monitor likely affected based on wind during event)	24-hour concentration at affected monitor ($\mu g/m^3$)	Wind Direction during kiln cleanout event (degrees)
03/15/2019	K1	North	20.5	235-260
03/16/2019	K1	East	18.5	295
03/18/2019	K2	North	33.3	211
03/19/2019	K2	North	185.7	160-220
04/04/2019	K1	North	37.3	116-130
		South	34.1	79-83
04/05/2019	K1	West	35.1	91
04/26/2019	K2	East	42.5	312
04/27/2019	K2	West	28.8	75
05/22/2019	K1	North	74.9	181-186
05/23/2019	K1	North	18.5	207
06/21/2019	K1	South	26.8	35
06/22/2019	K1	North	20.8	135

AZR asks that the Department keep the Facility's response to the March Reportable Action Level event in mind when evaluating the strength of the alternative compliance measures proposed in its Petition. The effectiveness of the new dust-suppression measures (water truck spray) at the kilns makes it reasonable to assume that these same measures are effective in suppressing dust at the crushing-screening operation. And this episode shows that the implementation of PM_{10} monitoring gives the Department a powerful tool to conduct ongoing supervision of AZR's operations and require the implementation and continuation of control processes that are of comparable effectiveness to total enclosure. The Public Commenters fail to provide any evidence calling the efficacy of this system into doubt.

3. The monitoring data shows the influence of off-site emissions sources

The Commenters have cited specific events which, in their words, "reveals that the highest PM_{10} readings are consistently detected at downwind fence line monitors . . . ." (Comments, at p. 11) Twelve events were cited, but further analysis by AZR of these events shows other, non-AZR sources are contributing to elevated PM_{10} concentrations recorded at AZR's monitors. AZR owns and operates a meteorological station that collects wind speed and direction data. This wind data was paired with corresponding hourly PM_{10} data to illustrate the origin of monitored PM_{10} concentrations relative to the ambient monitors.

a. Further Discussion of Specific Events Cited by Commenters - Elevated Particulate Event - March 4, 2019

March 4, 2019 was characterized by westerly winds with the wind speed averaging 10.2 miles per hour (mph) for the day and peak wind gusts of 25.1 mph. Figure 1 presents tabulated hourly wind direction and PM_{10} data from each of the monitoring sites. The figure shows predominant wind flow out of the west with elevated concentrations observed at the North PM_{10} monitoring site. Directly west of the North PM_{10} monitoring site is 114th Street. 114th Street is unpaved.

There are no IRM storage or IRM-related operations west of the North PM_{10} monitoring site that would contribute to elevated concentrations observed on this date. The 24-hour PM_{10} concentration observed at the North PM_{10} monitoring site for March 4th was 61.9 µg/m^3, whereas the West PM_{10} monitoring site had 24-hour concentration of 15.9 µg/m^3. The net difference between the two is 46.0 µg/m^3 which, in the case of a predominant west wind, is directly attributable to the unpaved 114th Street to the west of the North PM_{10} monitoring site. (As of 2019, all roads within the Facility are paved.)

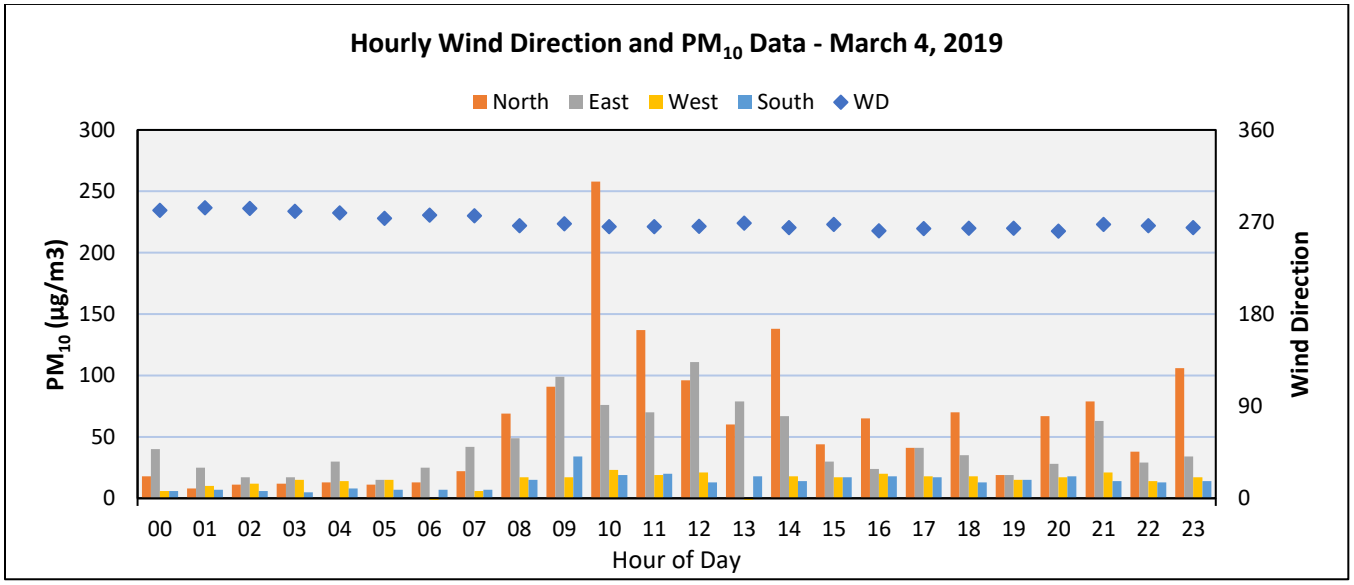

Figure 1 - AZR Wind Direction and PM_{10} Data - March 4, 2019

b. Further Discussion of Specific Events Cited by Commenters - Elevated Particulate Event - March 6, 2019

March 6, 2019 provides a model for non-IRM related sources leading to "moderate" air quality conditions observed at the North PM_{10} monitoring site. The date was characterized by westerly and west-southwesterly winds. The average wind speed for the day was 8.0 mph with a peak wind gust of 22.7 mph. Figure 2 presents tabulated hourly wind direction and PM_{10} data from each of the monitoring sites on March 6th. The figure shows predominant wind flow out of the west with elevated concentrations observed at the North PM_{10} monitoring site. There are no IRM storage areas or IRM-handling operations in an upwind (west) direction. As with the March 4th

event, wind transport shows the elevated PM_{10} concentrations did not originate from the IRM storage area or IRM-related operations at the AZR facility.

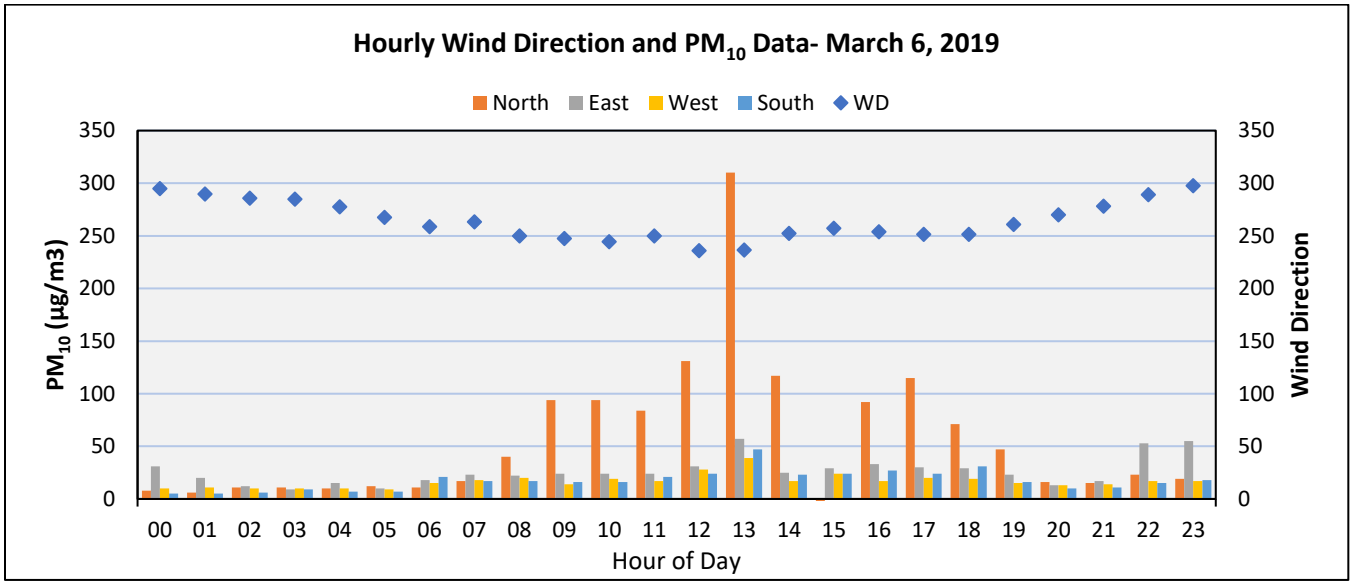

Figure 2 - AZR Wind Direction and PM_{10} Data - March 6, 2019

c. Further Discussion of Specific Events Cited by Commenters - Elevated Particulate Event - March 9, 2019

On March 9, 2019, winds were primarily out of the east-southeast and southeast. Figure 3 presents tabulated hourly wind direction and PM_{10} data from each of the monitoring sites for the day and show elevated PM_{10} concentrations at the East and North PM_{10} monitoring sites between 08:00 and 13:00 Local Standard Time (LST). During this period, winds were out of the east-southeast, which points to elevated PM_{10} originating from offsite emission sources located across the Calumet River east of the AZR facility. Secondly, the chart confirms that elevated concentrations did not originate from IRM storage areas or IRM-related operations at AZR, as there are no such IRM operations in an upwind direction (east-southeast) of the North and East PM_{10} monitoring sites. On March 9th, the North PM_{10} monitoring site had a 24-hour concentration of 89.3 µg/m^3, and the East PM_{10} monitoring site had a 24-hour concentration of 80.8 µg/m^3. Without offsite source contributions, the net PM_{10} concentration for the day would have been 48.5 µg/m^3, which is considered a "good" air quality condition.

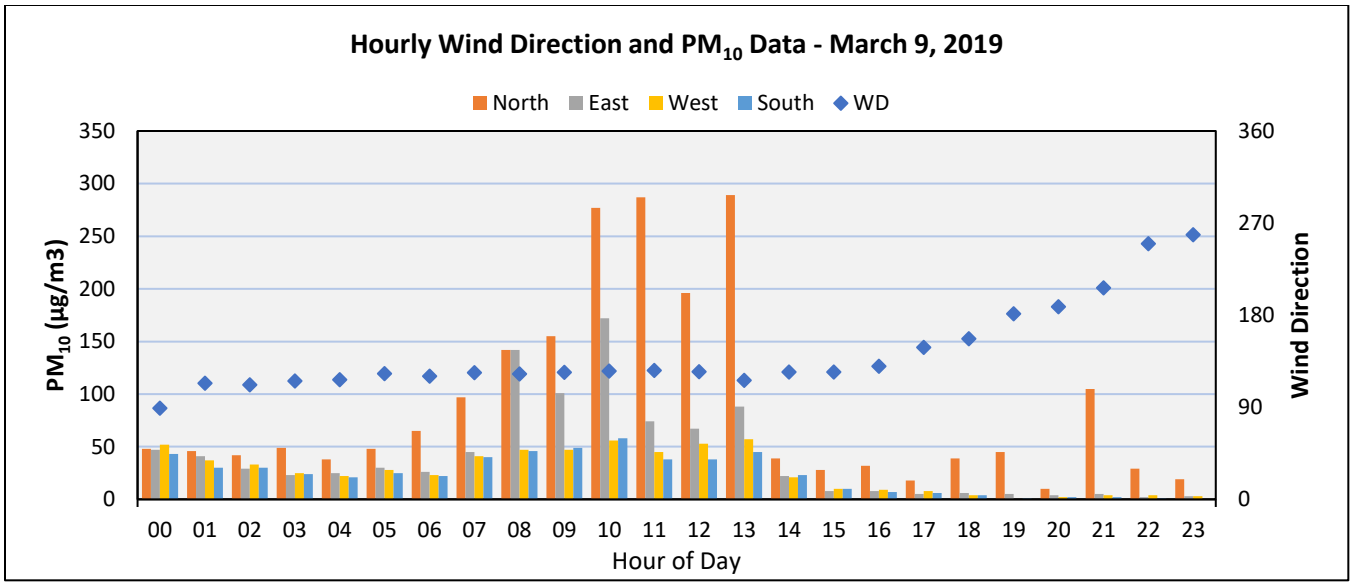

Figure 3 - AZR Wind Direction and PM_{10} Data - March 6, 2019

d. Further Discussion of Specific Events Cited by Commenters - Elevated Particulate Event - March 27, 2019

The second highest concentration measured at the AZR monitoring network was 146.4 µg/m^3 at the North PM_{10} monitoring site on March 27, 2019. As shown in Table 2, both the East and West PM_{10} monitoring sites had 24-hour concentrations that were considered "good" air quality conditions on this date per the AQI. But both the North and South PM_{10} monitoring sites had 24-hour concentrations that were within the "moderate" index range on this date, with the South PM_{10} monitoring site measuring a 24-hour concentration of 100.3 µg/m^3.

Tabulated hourly concentration and wind direction data from March 27, 2019, collected at the meteorological station and each of the PM_{10} monitoring sites were used to generate a daily chart presented in Figure 4. The figure shows winds were predominantly out of the south throughout the day and the South PM_{10} monitoring site had greater concentrations than those measured at the North PM_{10} monitoring site from 07:00 to 14:00 LST, with the exception of 12:00 LST. The highest concentrations were observed between 07:00 and 15:00 LST, again when winds were out of the south. The East PM_{10} monitoring site also showed elevated concentrations but to a lesser extent. The North PM_{10} monitoring site had a 24-hour concentration for this date of 146.4 µg/m^3, the South PM_{10} monitoring site had a corresponding 24-hour concentration of 100.3 µg/m^3. Given the large impact the concentrations during the period between 07:00 and 15:00 LST had on the daily 24-hour concentration—and the predominant south wind direction during that time—offsite source contributions were a major factor for PM_{10} concentration for this day.

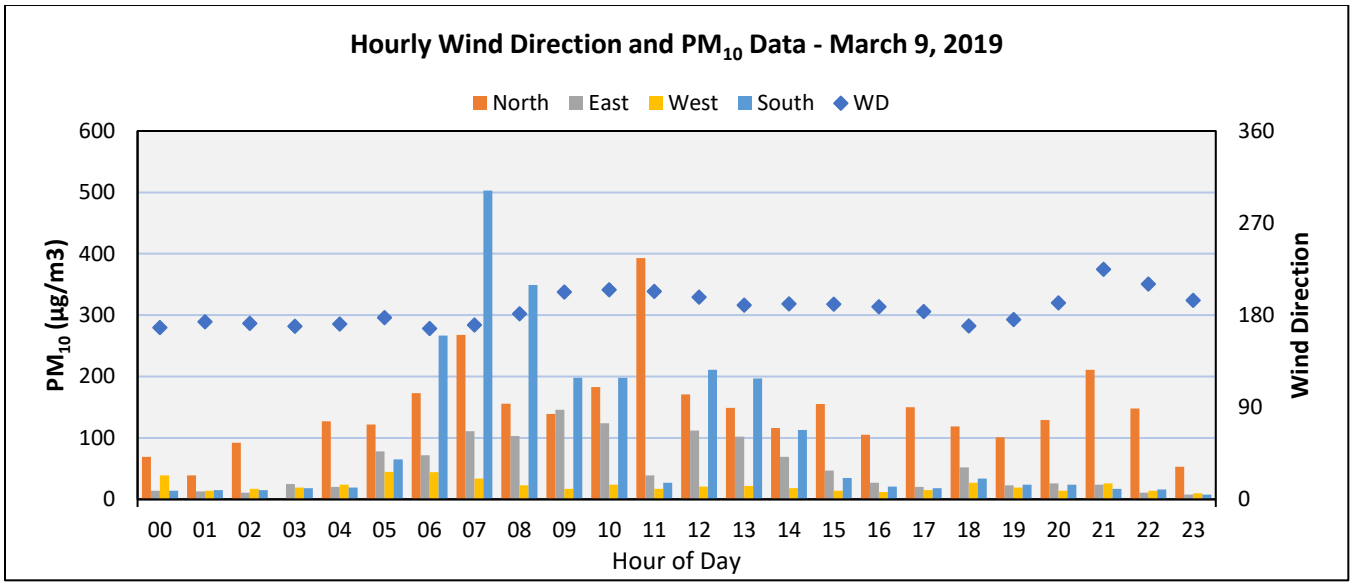

Figure 4 AZR Wind Direction and PM_{10} Data – March 27, 2019

E. AZR Reduced the Number of IRM Transfer Points After Filing the Variance Petition.

AZR's Petition assured the Department that capital projects were underway to reduce the number of IRM transfer points. (Petition, at 6 n.12) Specifically, AZR planned to deactivate the "3-4 Building" and the conveyor belts that transport IRM there. Instead, all IRM leaving the Kilns would be consolidated at the "8-9 Building" before being taken to other parts of the Facility.

The "3-4 Building" regularly sprayed the IRM material stored there before and during transfer procedures. Rather than rely on water spray trucks, the "3-4 Building" had a permanent water hookup and spray system. The spray system remained in operation at all times IRM was present in the 3-4 Building. AZR maintains that this was fully effective in limiting fugitive dust emissions.

Nonetheless, AZR has now carried out this decommissioning plan, and the consolidation of IRM at the 8-9 Building provides additional layers of protection. Like the 3-4 Building, a spray system is in operation whenever IRM material is present. Also, a consolidated pile of IRM has a smaller surface area than two piles, and thus a lower potential for producing fugitive dust. The consolidation also allows for additional supervision by Facility personnel and also allows the front-end loaders that transfer the IRM to the Process Silos to complete this with fewer "scoops." Ultimately, AZR spent approximately $250,000 dollars to complete this upgrade and consolidation.

F. The Public Comments Focus on Numbers that Are Not Relevant to Protecting Public Health

The Public Commenters discuss, at length, their process for estimating the amount (either by weight or by volume) of "manganese" handled by the Facility. (Comments, at pp. 4-5) This wheel-spinning is required by the lack of actual data supporting their claim that public health is threatened by the Facility's IRM. But the public health is not threatened by IRM *on AZR's*

property, and as discussed in Section D.1, the monitoring data collected to date shows that the Facility does not produce air emissions (from IRM or any other material) that could threaten public health. Nor do the Commenters seem to have considered the fact that only a fraction of the IRM at the Facility is even exposed to the atmosphere—most of it is buried under tons of other IRM , and often capped with a significant layer of IRM crust. The Department is given no guidance on what tonnage or volume of IRM-bound manganese the Commenters would consider "safe"—that's either because the Commenters do not have an answer or they would not believe any tonnage or volume would be "safe."

The hair-splitting over the manganese content of the Facility's IRM is another unnecessary detour. AZR's PMET study indicates that the IRM contains about 1%-2% of manganese by weight. The Commenters, citing the SDS, insist that the correct figures are 4%-6%. Even if the SDS was correct (it is likely an overestimate,) that is simply not a meaningful difference, because there is no evidence that the IRM is leaving the Facility. As discussed in Section D.2, the monitoring data collected for the express purpose of assessing whether the Facility is producing harmful emissions show that it does not. And as laid out in Section B.1, the guidelines used to evaluate the erosive potential of bulk solids indicate that the IRM is simply too heavy (even before becoming encrusted) to become windborne.

The information contained in the referenced SDS is unsuitable for the purposes that the Public Commenters demand of it. The Commenters maintain that PMET's conclusion that the IRM contains only 1%-2% manganese by weight conflicts with the SDS's 4%-6% figure. The PMET manganese concentration is the product of specific testing of AZR's IRM and identifies manganese that is present within the minerals contained in IRM. The SDS, on the other hand, reflects the potential manganese content, based on a strict elemental analysis, independent of the mineralogical composition. The SDS figures reflect general assumptions about the nature of similar (but not at all identical to IRM) High Temperature Metal Recovery (HTMR) materials that had undergone elemental analysis in the past. For this reason, the 4%-6% estimate from the IRM Safety Data Sheet (SDS) is likely an overestimate: Unlike the PMET study, which specifically analyzed the manganese content to be 1%-2%, the SDS is simply an estimated value based on a more general category of materials.

The PMET testing results suggest that the SDS overstates the risks posed by IRM in two ways. First, AZR's IRM contains significantly less manganese (1%-2% by weight) than previously thought. And second, the testing suggests that all of that manganese present in IRM is bound up in a silicate compound called Braunite (Mn_7SiO_4). This is very different from the profile incorporated in the SDS, which conservatively assumed that the IRM contained elemental manganese or manganese oxide. Given the PMET study results, AZR is in the process of conducting additional laboratory analysis for the purpose of updating the SDS.

In 1986, OSHA established the Hazardous Communication Standard ("HCS", sometimes called the "Worker Right to Know Legislation"), and one component of the HCS requires applicable industries to develop SDS's for the materials handled by their employees. Thus, the IRM SDS provides information regarding the potential risks associated with handling IRM in an enclosed area lacking ventilation, which is not a situation encountered by AZR personnel under typical conditions and certainly not by members of the general public. The SDS's assumptions

lead to a very conservative set of precautions for AZR personnel to employ, but even these precautions are generally focused on protecting workers frequent handling IRM and their exposure under confined and unventilated conditions.

The health risks posed by manganese in IRM depend on its nature and bioavailability, given its presence within identified minerals or as an element. Unlike the manganese oxide described in the SDS, Braunite is not known to be a hazardous compound. AZR is conducting additional analyses to determine the nature of manganese in IRM, especially whether it is present only within the mineral compound Braunite, or can be found in other forms. It is also working to confirm that the manganese in Braunite has a much lower bioavailability than elemental manganese or manganese oxide. The SDS for IRM will be revised based on analytical information. (AZR is currently updating SDS content for all of the materials it manufactures so that the documents conform to the Globally Harmonized System of Classification and Labelling of Chemicals.) But the results of that analysis would seem to be of relatively little use to the Department here—other data and testing already in the Department's possession indicate that airborne manganese is not leaving the Facility in meaningful quantities. By the time the SDS is updated, the Department will already be in possession of even more months' worth of data and, barring unforeseen delays, specific FRM monitoring for manganese.

H. None of AZR's Other Facilities Enclose IRM or IRM Transfer Points.

All AZR facilities that handle IRM store it outdoors. The IRM piles at AZR's Barnwell South Carolina facility are plainly visible in aerial images.

Figure 5 - Barnwell, South Carolina Facility - IRM Piles Visible to West

So are the IRM piles at the facilities in Palmerton, Pennsylvania, and Rockwood, Tennessee.

Figure 6 – Palmerton, Pennsylvania Facility – IRM Pile Locations Superimposed

Figure 7 - Rockwood, Tennessee Facility - Locations of IRM Piles Superimposed

The Mooresboro and Elwood City facilities identified by the Commenters do not generate, handle, or store IRM. Of the various governments that oversee operations at AZR facilities, none have required or recommended that IRM be stored indoors.

The Public Commenters ask that the Department press AZR for additional information about its facilities in other states. (Comments, at p. 12-13.) AZR will answer any questions the Department poses.

I. Matters Uncontested by the Public Comments

There are several, important, contentions from AZR's Petition that the Public Comments take no issue with:

Enclosing the IRM would require the construction of an enclosure that would cost at least $10 million dollars. (Petition, at p. 17)	The Public Comments do not disagree with that figure or propose a cheaper measure of enclosure.
Complying with the enclosure requirement at other parts of the Facility where IRM is transferred or deposited would cost at least $3.5 million dollars. (Petition, at p. 17)	The Public Comments do not disagree with this estimate.
CDPH should grant a variance from the Interim Fugitive Dust Plan requirement in Section 5.0(1) of the BSM Rules. (Petition, at p. 21)	The Public Comments do not object to this request.
Complying with the enclosure requirement would constitute a "hardship." (Petition, at p. 17)	The Public Comments do not dispute this, despite contesting that point in their comments on other variance petitions.
The U.S. EPA HTMR Risk Assessment and the Gradient Study provide objective evidence of the low health risks associated with IRM.	The Public Comments do not dispute the relevance or accuracy of those studies.

AZR respectfully submits that it has satisfied the requirements for a variance in Section 10.0 of the BSM Rules and requests that the Commissioner grant the requested variances from Part D of the BSM Rules and Section 5.0(1)(b) of the BSM Rules for the reasons described above.

Respectfully submitted,

Brad Sutek
Plant Manager

Exhibit A

DEPARTMENT OF PUBLIC HEALTH
POLLUTION PREVENTION UNIT
333 SOUTH STATE STREET, ROOM 200
CHICAGO, ILLINOIS 60604

CITY OF CHICAGO **DATE OF INSPECTION** 6/27/19

FUGITIVE EMISSION INSPECTION CHECKLIST

Part 1: FACILITY INFORMATION

NAME: AMERICAN ZINC RECYCLING PLANT NUMBER:

STREET ADDRESS 2701 E. 114TH ST **Current Certificate of Operation?** ☐ Yes ☐ No

NAME OF CONTACT: BRAD D. SUTEK PHONE: 7739339263

CONTACT EMAIL ADDRESS: BSUTEK@AZR.COM

Part 2: OUTDOOR STORAGE INFORMATION

TYPE(S) OF MATERIAL: IRM - 24,424.9 cubic yrd., METCOKE - 1107 cubic yrds

VOLUME: _____ **Cubic Yards** **HEIGHT:** _____ **Feet**

Are materials stored at least 50ft from the river? ☒ Yes ☐ No **30 ft. height marker?** ☒ Yes ☐ No

Any changes in type of material? ☐ Yes ☒ No Date change occurred: _____

Is facility subject to any variance? ☐ Yes ☒ No
If YES, list section(s):

Part 3: EMISSION POINTS

	YES	NO	N/A
Property Line			
1. Are there emissions of fugitive particulate matter that are visible by an observer looking generally toward the zenith at a point beyond the property line of the source?		X	
If YES, provide more information (including the source of the emissions):			
Storage Piles			
a) Is there any dust suppression system?	X		
If YES, describe type of dust suppression system used: WATER TRUCKS, MISTER			
b) How is runoff managed? SWPPP, RUNOFF REUSED IN THE FACILITY			

	YES	NO	N/A
c) Are all storage piles protected by a cover or sprayed with a surfactant solution or water on a regular basis or as needed, in accordance with the Fugitive Dust Plan?	X		
If NO, Identify the storage pile and provide more information, if visible emissions are observed or indicated:			
2. Are all loading/unloading operations of the storage pile utilizing spray systems, telescopic chutes, or other equivalent methods in accordance with the Fugitive Dust Plan?	X		
If NO, identify the operation and provide more information, if visible emissions are observed or indicated:			
Traffic Areas			
3. Are all normal traffic pattern roads and parking facilities paved and cleaned regularly in accordance with the Fugitive Dust Plan?	X		
Identify the area and provide more information if visible emissions are observed or indicated:			
Crushing, Screening, Conveying, Bagging, and Loading/unloading Operations			
4. Are all material processing operations, (such as crushers, screening, bagging operations, etc.) being controlled by a dust collection system in accordance with the Fugitive Dust Plan?	X		
If NO, identify the operation and provide more information if visible emissions are observed or indicated:			
5. Are all transfer points, truck loading/unloading, railcar loading/unloading, Barge loading/unloading being controlled according to the Fugitive Dust Plan?	X		
If NO, identify the operation and provide more information, if visible emissions are observed or indicated:			
Part 4: GOOD HOUSEKEEPING PRACTICES			
1. Are materials loaded into vehicles in a way that prevents leaking/spilling of material?	X		
2. Any track-out observed?		X	
3. If a vehicle leaks/spills onto a road, is the leak/spill being cleaned within an hour?	X		
4. If a vehicle leaks/spills into a waterway, is it being cleaned immediately?	X		
5. Is a street sweeper available to clean paved roads of spilled or tracked out material inside or within a quarter mile of the facility?	X		
6. Is sweeper equipped with a water spray and a vacuum system to prevent dust during street sweeping?	X		
7. Are all non-storage areas within the facility cleared of spilled or misplaced material by the end of each work shift?	X		
8. Are facility roads paved and maintained?	X		
9. Any wheel wash, rumble strips, or other means to clean outgoing trucks?	X		
10. Is runoff being managed?	X		

Part 5: MONITORING AND RECORD KEEPING			
	YES	NO	N/A
1. Is the facility maintaining the following records?			
a) Daily weather conditions, including wind speed and direction:	X		
b) Daily cleaning and street sweeping log:	X		
c) Log of fugitive dust monitoring, including any incidents where the RAL is exceeded and any response activities:	X		
d) Record of quarterly visual and opacity testing:	X		
e) Schedule and log of routine inspection, maintenance, calibration and testing activities:	X		
f) Log of application of water or chemical stabilizers:	X		
g) Log of instances when activities were suspended due to high winds:	X		
2. Records maintained for at least three years?	X		
3. Are records in compliance with Fugitive Dust Plan submitted to CDPH?	X		

Part 6: INSPECTION SUMMARY

Comments/Issues for follow-up:

OWNER/OPERATOR

INSPECTOR

Rev. 9-28-17

Exhibit B

Photograph of BC #3 from May 2019 Inspection Report

Photo of BC #3 Taken on August 13, 2019

Photograph of Coke Loading Station from May 2019 Inspection Report

Photograph of Coke Loading Station Taken on August 13, 2019

Photograph of BC #10 North Wall from May 2019 Inspection Report

Photograph of BC #10 North Wall Taken August 9, 2019

Exhibit C

BRAD SUTEK
Plant Manager

2701 E. 114TH STREET
CHICAGO, IL 60617

WWW.AZR.NET
BSUTEK@AZR.COM

P 773-933-9263
F 773-933-9272

AZR AMERICAN ZINC RECYCLING
Delivering a Sustainable Future

VIA UPS GROUND SERVICE
Tracking Number: 1Z61X7770392954322

August 15, 2019

ATTN: Environmental Inspections
Julie Morita, M.D
Commissioner
Department of Public Health & Environment
333 South State St., 2nd Floor
Chicago, IL 60604

Re: Monthly Enclosure Progress Report
American Zinc Recycling (AZR), Chicago

Dear Dr. Morita:

In accordance with Part E, Section 6.0, Subpart (7) of Article II: Air Pollution Control Rules and Regulations of City of Chicago Department of Public Health & Environment (the "City's Rules"), American Zinc Recycling Corp. ("AZR") is providing this monthly enclosure report on its Chicago plant activities to address the enclosure requirements for coke and coal as described in Section 4.0, Subpart (2) of the City's Rules. This progress report provides an update on AZR's activities since its last monthly update regarding the construction of an enclosure for coke materials in accordance with the City's Rules.

As we reported in the last monthly progress report, in early May 2018, AZR learned that the estimated cost of addressing the changes to the water supply line and fire hydrants configuration, which a city inspector previously advised AZR are necessary before the City will approve the use of the coke enclosure building, is $537,309. AZR has expended significant additional funds to purchase and install the PM_{10} monitors required under the City's Rules. AZR will continue to expend funds to maintain the PM_{10} monitors. In addition, under the amended City's Rules, AZR has incurred additional costs to prepare a metals air emissions monitoring plan, to purchase the metals air monitor and expects to expend additional funds to install and maintain this proposed, additional air monitor.

In response to AZR's request for assistance from the Department to facilitate a discussion regarding the water supply line issues, CDPH arranged a meeting among representatives of AZR, the City of Chicago Water Department and CDPH which was held on July 9, 2019. The City's representative explained what needed to be addressed to achieve a separation of the fire water supply and domestic water supply lines to address the outstanding water supply issues at AZR's facility. The City Water Department's representative could not address the other issue of whether the metcoke enclosure building can begin to be used. The CDPH's representative agreed to follow up on this issue with the City of Chicago Building Department. In the interim, AZR is

continuing to work with its contractor to address the water supply lines issue based on the information received during the July 9 meeting.

The following items have been completed regarding the enclosure building:

- The building has been completed and the Chicago Fire Department ("CFD") approved the plumbing design and configuration relating to the fire hydrants and the water supply line to those hydrants.

- The City Water Department issued the Water Construction Permit in February 2018.

- Meetings were held between the building general contractor and a plumbing contractor to review the location of water lines for water supply to fire hydrants and the pump house. Company meetings were also held to discuss work sequencing so plant interruptions during project implementation are minimized.

- Pricing information was obtained for implementing required work in accordance with the City's directive. A copy of the pricing information was provided to the City of Chicago with AZR's May 2018 monthly progress report.

If you have any questions upon your review of this progress report, please contact me at 773-933-9263.

Respectfully submitted,

Brad Sutek
Plant Manager