



DEPARTMENT OF PUBLIC HEALTH
CITY OF CHICAGO

December 20, 2017

Steven Caudle, Terminal Manager
Watco Transloading LLC - Chicago Arrow Terminal
2926 E. 126th Street
Chicago, IL 60633

RE: Watco Transloading LLC - Chicago Arrow Terminal, 2926 E. 126th Street
Request for Variances from Air Pollution Control Rules and Regulations for Control of
Emissions from Handling and Storage of Bulk Material Piles

Dear Mr. Caudle,

The Chicago Department of Public Health ("CDPH") is in receipt of the July 31, 2017 submission from Watco Transloading LLC - Chicago Arrow Terminal ("Watco"), requesting a variance from requirements of CDPH's Rules and Regulations for Control of Emissions from the Handling and Storage of Bulk Material Piles ("Bulk Material Regulations"), and supplemental materials in support of the variance request provided by Watco dated November 13, 2017. Pursuant to the Bulk Material Regulations, CDPH accepted written comments on the variance request during a comment period which was extended, upon request of the public, to October 16, 2017, as further described below.

The variance request relates to the regulatory requirement for fugitive dust monitoring. Specifically, Watco requested a variance from Section 3.0(4) of the Bulk Material Regulations, which requires the installation, operation, and maintenance of permanent, continuous Federal Equivalent Method (FEM) real-time PM10 monitors around the perimeter of the facility in accordance with specified requirements. As an alternative method of compliance, Watco proposed conducting visible emissions testing at the boundaries of the facility and opacity testing within the interior of the facility, both in accordance with methods set forth by the U.S. Environmental Protection Agency ("EPA"). Watco further requested CDPH to remove the monitoring requirement from the two conditional variances granted to Watco's predecessor, Kinder Morgan, on May 3, 2017.

SUMMARY OF CDPH VARIANCE DETERMINATION

As set forth in greater detail in subsequent sections of this document, following is a summary of CDPH's determinations on Watco's variance request.

Fugitive Dust Monitoring: With respect to Watco's request regarding installation of dust monitors, for the reasons set forth below, CDPH finds that Watco has failed to meet the requirements set forth in Sections 8.0(2) and 8.0(3)(a) of the Bulk Material Regulations for issuance of a variance, and the variance request is therefore denied. In summary, the basis for this determination includes, but is not limited to, CDPH's finding that Watco has not demonstrated that issuance of the variance will not create a public nuisance or adversely impact the surrounding area.

Importantly, CDPH found that Watco's implementation of its current dust control measures have not ensured the suppression of fugitive dust as evidenced by two recent City inspections. Further, a 2015 EPA metals study, referenced below, found evidence of manganese-containing dust coming from Watco's facility (then operated by Kinder Morgan). While Watco argued that the EPA study did not conclusively establish that the detected manganese had come from the Watco facility, CDPH found the study compelling, especially considering the nature of Watco's operations and the recent dust issues observed at the facility. Thus, in the absence of monitoring data to the contrary, the information currently before CDPH leads to the conclusion that Watco has not established that the facility's operations do not result in off-site fugitive dust emissions. Accordingly, the monitors required by Section 3.0(4) of the Regulations must be installed within ninety (90) days from the date of this variance determination letter, consistent with the 90-day timeframe set forth in Section 6.0(2) of the Bulk Material Regulations.

DETAILED DISCUSSION

I. Requirements for Issuance of a Variance

Under Section 8.0 of the Bulk Material Regulations, the burden of proof is upon the applicant for the variance to demonstrate that issuance of the requested variance will not create a public nuisance or adversely impact the surrounding area, the surrounding environment, or

surrounding property uses. In the event that the applicant does not meet this burden, the variance request will be denied. Pursuant to Section 8.0(2), a variance request must be in writing and must set forth, in detail, all of the following (in pertinent part):¹

- a) A statement identifying the regulation or requirement from which the variance is requested;
- b) A description of the process or activity for which the variance is requested, including pertinent data on location, size, and the population and geographic area affected by, or potentially affected by, the process or activity;
- c) The quantity and types of materials used in the process or activity in connection with which the variance is requested, as appropriate;
- d) A demonstration that issuance of the variance will not create a public nuisance or adversely impact the surrounding area, surrounding environment, or surrounding property uses;
- e) A statement explaining:
 - i. Why compliance with the regulations imposes an arbitrary or unreasonable hardship;
 - ii. Why compliance cannot be accomplished during the required timeframe due to events beyond the Facility Owner or Operator's control such as permitting delays or natural disasters; or
 - iii. Why the proposed alternative measure is preferable.
- f) A description of the proposed methods to achieve compliance with the regulations and a timetable for achieving that compliance, if applicable;
- g) A discussion of alternate methods of compliance and of the factors influencing the choice of applying for a variance;
- h) A statement regarding the person's current status as related to the subject matter of the variance request[.]

¹ Because the variance requests under review do not involve a request for an extension of time for full enclosure, requirement 8.0(2)(i) is not relevant to this discussion, and is therefore omitted.

In addition, Section 8.0(3) of the Bulk Material Regulations sets forth the criteria for reviewing applications:

- a) In determining whether to grant a variance, the Commissioner [of CDPH] will consider public comments received pursuant to 8.0(4) and will evaluate the information provided in the application to meet the requirements of 8.0(2). Particular consideration will be given to the following information:
 - i. Inclusion of a definite compliance program;
 - ii. Evaluation of all reasonable alternatives for compliance;
 - iii. Demonstration that any adverse impacts will be minimal.
- b) The Commissioner may deny the variance if the application for the variance is incomplete or if the application is outside the scope of relief provided by variances.
- c) The Commissioner may grant a variance in whole or in part, and may attach reasonable conditions to the variance to ensure minimization of any adverse impacts.
- d) Issuance of a variance is at the sole discretion of the Commissioner. A variance may be revoked at any time if the Commissioner finds that operation of the Facility is creating a public nuisance or otherwise adversely impacting the surrounding area, surrounding environment, or surrounding property uses.

II. Variance Process and Public Comments

In addition to the requirement that the Commissioner of CDPH (“Commissioner”) consider public comments, as set forth in Section 8.0(3)(a) of the Bulk Material Regulations, Section 8.0(5) also provides that the Commissioner will not grant any variance until members of the public have had an opportunity to submit written comments on the variance application. This section further provides that public notice will be provided by publication in a newspaper of general circulation published within the City and by publication on the City’s website, and that the Commissioner will accept written comments for a period of not less than thirty (30) days from the date of the notice.

On August 16, 2017, public notice of Watco’s variance request was provided by publication in the Chicago Sun-Times and on the City’s website at www.cityofchicago.org/environmentalrules. This notice stated that, to be considered, written

comments must be received by CDPH on or before September 15, 2017. On September 8, 2017, a subsequent public notice was published in the same manner, notifying the public that the comment period had been extended upon request of members of the public. The new deadline for public comments was October 16, 2017. During the public comment period, CDPH received four written submissions from the public, which are posted on the website referenced above.

One comment letter, dated October 14, 2017, was submitted on behalf of the Southeast Environmental Task Force (“SETF”). One comment letter, dated October 16, 2017, was submitted on behalf of the Mom’s Clean Air Force. One comment letter, dated October 16, 2017, was submitted on behalf of S.H. Bell Company. And one comment letter, dated October 16, 2017, was submitted jointly by the Natural Resources Defense Council (“NRDC”), SETF, and the Southeast Side Coalition to Ban Petcoke (“SSCBP”) (hereafter collectively referred to as “NRDC *et al*”). All public comments were in opposition to the variance request.

In the October 14, 2017 comment letter, SETF expressed concern about the impact of Watco’s operations on the surrounding community, including two Little League fields, an elementary school with a community garden, and residential neighborhoods. In its comment letter, the Mom’s Clean Air Force expressed support for SETF, SSCBP, and NRDC and stated concern about particulate pollution from Watco.

NRDC *et al* provided extensive comments stating, among other things, that Watco’s variance request was incomplete, that Watco failed to demonstrate that issuance of a variance would not result in adverse impacts, and that Watco’s own opacity testing demonstrated that it cannot consistently control dust from the facility.

In its comment letter, S.H. Bell Company noted, among other things, that Watco and S.H. Bell have “nearly identical operations involving nearly identical materials” and that, since S.H. Bell was required to install air monitors, Watco should also be required to install monitors. S.H. Bell further noted that Watco apparently does not employ the same level of dust controls at certain loading and unloading points as S.H. Bell employs.

III. Variance Request and Determination Detailed Analysis

A. Detailed Fugitive Dust Monitoring Variance Request: Watco requested a variance from Section 3.0(4) of the Bulk Material Regulations, which requires installation and operation of permanent, continuous Federal Equivalent Method (FEM) real-time PM10 monitors

around the perimeter of all bulk material facilities. The company stated that, since it took over facility operations from Kinder Morgan, it has implemented “extensive additional measures... that have further reduced fugitive dust, including significant investments in capital improvements and equipment.” (July 31, 2017 Watco Variance Request, p.1.)

With regard to manganese-containing materials, Watco stated that such materials are stored indoors and that, “[a]lthough these solids are transferred in outdoor areas on occasion, Watco has clear Best Management Practices (BMPs) that limit the potential for these materials to become airborne, and has a parallel financial interest in not allowing these valuable materials to be lost to windborne dispersion.” *Id.* at 3. Watco provided details about its BMPs in the original variance request, in the amendment to the variance request, and in a revised Fugitive Dust Control Plan submitted to CDPH on November 13, 2017².

As part of its request, Watco also provided an analysis of an air quality monitoring study prepared by the EPA on September 10, 2015 (the “EPA Xact Metals Study,” attached as Exhibit C), which CDPH had cited in its denial of Kinder Morgan’s variance request. In the EPA Xact Metals Study, EPA conducted a “Semi-continuous Ambient Metals Investigation” in Southeast Chicago and found elevated levels of manganese. Based on an analysis of wind direction and wind speed, the report identified Kinder Morgan as the main source of manganese in the area. However, Watco argued that the EPA Xact Metals Study, in fact, supports Watco’s variance request, because 1) the manganese concentrations measured in the study “are all below the current human health standard;” 2) “a comparison of the Facility operations on days where the higher of the manganese levels measured shows that that Watco facility is not a likely source of the manganese; and 3) the available data concerning potential sources of manganese emissions in the study area shows that there are several other potential sources of manganese that could have contributed to the manganese emissions and have not been investigated.” *Id.* at 22-23.

B. Analysis of Variance Request:

i. Minimization of Adverse Impacts. Section 8.0(2)(d) of the Bulk Material Regulations requires a demonstration that issuance of a variance will not create a public nuisance or adversely impact the surrounding area, environment, or property uses. In this case, as pointed

² The Fugitive Dust Plan, which was submitted pursuant to Section 3.0(3) of the Bulk Material Regulations, is still under review by CDPH and is not addressed in this response to the variance request.

out by NRDC and SETF, more than 3,700 residents live within a one-mile radius of Watco's facility. Furthermore, densely populated residential streets and youth baseball fields are located directly to the south of the facility on the other side of 126th Street.

In its variance application, Watco described its dust suppression procedures, which include the covering of barges; minimization of drop heights during loading and unloading operations; indoor truck loading with the use of a "substantial dust collector;" and the watering of non-water-sensitive materials. *Id.* at 11-15. In addition, Watco listed a number of BMPs it employs to "contribute to the prevention and minimization of fugitive dust" including a required 8 mile-per-hour speed limit on site; the spraying of pig iron with water during loading; the immediate cleaning of any material spillage; routine sweeping and road washing by a sweeper truck and water spray truck; and the requirement that all transport vehicles "must agree to not leave the Facility without covering or enclosing bulk material," as well as the inspection of all trucks to ensure they do not track dust-producing material. *Id.* at 16.

In addition, Watco provided information about the nature of pig iron and aggregate material stored on site, with an explanation as to why the materials are "uniquely dust resistant." *Id.* at 17. In supplemental materials dated November 13, 2017, Watco described further improvements to the site. These improvements include installation of a new weather station that notifies personnel of high wind speeds and resurfacing of the dock area and roadways. Watco also noted that it plans to install a new dry fogger system and a new overhead door for one of its storage buildings.

However, notwithstanding the expenditures Watco has made, and the procedures it has outlined in its BMPs, Watco has not demonstrated that its dust control methods are effective to prevent fugitive dust from leaving the site. In fact, recent inspections found that several of the BMPs were not being implemented.

On September 1, 2017, CDPH conducted a joint inspection with the EPA and observed fugitive dust emissions at several points throughout the facility. As documented in the inspection report (attached as Exhibit A), City inspectors:

"observed heavy particulate and fugitive dust emissions from building F - material loading station (please see photo log). The particulate dust plume opacity was 100 percent from the loaded truck inside building F, and the dust was escaping into the environment through the exit doors (see photo #s 1, 2 & 4)." [See Exhibit A.]

The inspection report goes on to note that the “particulate dust emissions plume was dispersed from one end of the building to another (see photo #s 6 & 9). The dust was escaping from both entrances and spanned the whole length of building F (see photo #s 6, 7 & 9).” *Id.*

In addition to the dust observed in the truck loading building, the inspectors observed dust from the truck itself: “Particulate dust emissions from the material loaded into a truck that was not covered, driving through and dispersing the dust (see photo #11).” *Id.* Further, during the loading process, “the front end loader dumped the material and it spilled on the body and wheels of the truck (see photo #s 2, 3, 4 & 5).” *Id.*

As explained in the inspection report, the inspectors were told by the facility manager that the dust collection system was not working because it “was not being operated properly by the staff.” *Id.* In its November 13, 2017 letter, Watco noted that: “Following a site visit by Department personnel on September 1, 2017, Facility employees received re-training on the operation of the dust collector during loading and unloading operations. (Watco supplemental materials, p. 5).

A week later, on September 8, 2017, CDPH conducted another inspection, which again revealed dust problems at the facility. As documented in the inspection report, the inspectors again observed “particulate and fugitive dust emissions at building F (material loading station).” (See Exhibit B, attached hereto.) Further, they observed “[h]eavy particulate dust emissions from the material loaded into a truck that was not immediately covered, driving through and dispersing the dust (see photo #s 1, 2 & 6).” *Id.*

The inspection report goes on to note that some of the internal roads were not paved, and that these roads were “very dry and dusty (see photo #s 4, 5, 8, 9, & 11).” *Id.* The inspectors observed both a front end loader and a truck driving through, picking up, and dispersing particulate dust. *Id.* They also noted that “no wheel wash or rumble strips or other means of cleaning trucks, was observed on site.” *Id.*

Finally, the inspectors observed that the previously mentioned loaded and untarped truck that was driving along dusty roads was exceeding the 8-mile-per-hour posted speed limit on site. The report notes that the truck was “driving at speed approximately 20 miles/hr., dispersing dust (see photo #s (1, & 2).” *Id.*

Notably, the above-described observations suggest non-compliance with several of the Bulk Material Regulations, including, but not limited to, Section 3.0(14), which requires all

internal roads to be paved; Section 3.0(9)(a), which requires truck trailers to be immediately covered before leaving the facility; Section 3.0(8)(a), which mandates a speed limit of 8 miles per hour; and Section 3.0(8)(d), which requires outgoing trucks to pass through a wheel wash station and over rumble strips unless an approved dust plan specifies other measures to ensure trucks will not cause track-out. Importantly, these observations also indicate non-compliance with the facility's own BMPs. This is significant, because so much of Watco's plan to control dust relies on operational practices that are not failsafe.

For example, in its supplement to the variance request, Watco stated that:

"Watco does not currently have a tarping requirement for transport vehicles moving pig iron and aggregate within the Watco Facility. This is because the 8-mph speed limit enforced within the Facility is adequate to prevent these materials from generating significant amounts of fugitive dust." [Watco supplemental materials, p. 6.]

However, based on the September 8, 2017 inspection report, it is apparent that the speed limit is not always enforced.

In addition, as mentioned in the denial of Kinder Morgan's variance request on May 3, 2017, the EPA study referenced above concluded that manganese emissions detected downwind of Kinder Morgan's facility from December 12, 2014 to July 23, 2015 were at least partly attributable to that facility. While Watco has made some changes to the facility since it took ownership in early 2017, the operations are largely the same. Watco has not provided evidence to show that the facility improvements will ensure no off-site dust.

In addition, CDPH is not persuaded by Watco's criticisms of the EPA study. With regard to Watco's assertion that EPA cited an outdated health risk standard, CDPH notes that the Kinder Morgan variance denial did not claim that Kinder Morgan had violated a health standard. Rather, CDPH pointed to the EPA study as evidence that manganese-containing dust was in fact emitted from the facility, in spite of Kinder Morgan's efforts to control fugitive dust. While there are other potential sources of manganese in the area, and while current overall particulate emissions are down, this does not negate the study's conclusion that: "Peak Mn levels correspond to wind direction from the area of the Kinder Morgan facility." (EPA Xact Metals Study, p. 13.) In particular, the study cited 34 hours when manganese was more than ten times the average concentration and noted that "the majority of these peak periods had winds

emanating from the area of Kinder Morgan.” Indeed, according to Table 3 in the study, 23 of the 34 peak hours occurred when the wind direction was from Watco. (*Id.* at p. 11.)

In its variance request, Watco attested that it was not in operation for three of the 34 peak hours. (July 31, 2017 Watco Variance Request, Exhibit L). However, two of the three identified hours were during periods when the wind was not blowing from the direction of Watco anyway. Excluding those three hours of non-operation still results in 22 peak periods when wind *was* blowing from the direction of Watco.

Thus, contrary to Watco’s assertion that the EPA study supports its variance request, the study actually provides a strong indication that fugitive manganese-containing dust did leave the facility’s property on a number of occasions. Whether conditions have changed since then—as well as the amount of actual dust emissions—cannot be known without the installation of fenceline monitors.

ii. Alternative Compliance Program. Section 8.0(2)(g) of the Bulk Material Regulations requires applicants to describe alternate methods of compliance. In this case, instead of installing air monitors, Watco stated that it would evaluate the effectiveness of its control measures using USEPA Method 9 and Method 22 visible emissions observations by trained and certified readers. The opacity measurements would be conducted by a “trained/certified employee or contractor,” and the findings would be “documented in an Opacity Monitoring Log, which will be available for inspection by the Department upon request.” (July 31, 2017 Watco Variance Request, p. 35.) After noting that the Bulk Material Rules require facilities to conduct opacity testing under EPA Method 9 on “at least” a quarterly basis, Watco offered that it “is willing to conform to a conditional variance requiring that Methods 9 and 22 testing be conducted monthly.” *Id.*

Watco further stated that its proposal to conduct visible emissions testing in accordance with EPA Method 22 and opacity testing in accordance with EPA Method 9 “provide a similar level of protection” as continuous monitoring systems, considering the site-specific conditions at the Watco facility. *Id.* at 8. Specifically, Watco noted:

“Those conditions include the fact that only dense materials (pig iron and aggregates) are stored outdoors, and the significant commitments of money and effort towards reducing the potential of those materials to become airborne. These efforts have included the use of dust suppression equipment

at transfer stations, the wetting of outdoor materials during times of low humidity and high wind, and the use of BMPs during transfer operations.”
[*Id.*]

However, in spite of Watco’s best intentions, the existence of written BMPs have not ensured that dust is being suppressed to an extent that will ensure compliance with the Bulk Material Regulations. As detailed above, City inspectors observed a lack of dust control during two recent inspections. In addition, the site-specific conditions at Watco tend to support a variance denial, rather than an approval, given the nature of the materials handled at Watco. In particular, manganese-containing materials are of special concern given that manganese is a neurotoxin when inhaled at elevated levels.

As stated in Section 3.0(4) of the Bulk Material Regulations, installation of the specified monitors is required “[u]nless, pursuant to the Variance procedure set forth in 8.0 below, the Facility Owner or Operator establishes that the Facility’s operations do not result in off-site fugitive dust emissions.” In this case, the information submitted in support of the variance application did not include such evidence.

Further, CDPH notes that the Bulk Material Regulations require both perimeter air monitors and quarterly opacity and visibility observations. (See Section 3.0(f)(ii) of the Bulk Material Regulations.) Routine visible monitoring is important in order to ensure that dust controls are working on a localized level. However, it does not take the place of permanent fence line monitors which operate continuously, regardless of weather conditions or the hour of the day or night.

As expressed in CDPH’s Official Response to Public Comments on the Proposed Bulk Material Regulations, on March 13, 2014:

The requirement for fugitive dust monitoring is a critical component of the regulations to ensure that the facility’s dust control measures are working. City inspectors cannot observe facility operations on a daily basis. And facility workers who are occupied in doing their jobs may not always realize when there is a dust problem. Therefore, the PM monitors are important for alerting facility operators when there might be an issue with their dust control systems. They are also important to ensure compliance with the fugitive dust prohibition, as well as to give neighbors a level of comfort in knowing that the air is being monitored.
[p. 23.]

Thus, Watco's proposal to rely solely on visible monitoring is not an adequate substitute for permanent dust monitors.

C. CDPH Determination:

For the reasons set forth above, with respect to its request not to be required to install continuous FEM PM10 dust monitors, CDPH finds that Watco has failed to meet the requirements set forth in Sections 8.0(2) and 8.0(3)(a) of the Bulk Material Regulations for issuance of a variance, and the variance request is therefore denied. Accordingly, Watco must submit a dust monitoring plan to CDPH, and install dust monitors in accordance with the requirements of Section 3.0(4) of the Bulk Material Regulations, within ninety (90) days from the date of this variance determination letter, consistent with the 90-day timeframe set forth in Section 6.0(2) of the Bulk Material Regulations.

CONCLUSION

CDPH's determination regarding Watco's variance request will be effective as of the date of this letter, and will be posted, along with appendices and supporting materials, on CDPH's website at www.cityofchicago.org/environmentalrules. Please be advised that if Watco fails to comply with the Bulk Material Regulations within the timeframe provided above, Watco will be subject to enforcement action including daily fines in the amount of \$1,000 to \$5,000 per violation as provided by Section 11-4-810(a)(7) of the Chicago Municipal Code. Furthermore, CDPH may issue a summary abatement order pursuant to Section 11-4-025(c) of the Chicago Municipal Code, requiring Watco to correct any violations within a timeframe prescribed by the Commissioner.

Please contact Assistant Commissioner Dave Graham at (312) 745-4034 if you have any questions regarding the above.

Sincerely,

A handwritten signature in dark ink, appearing to read "Julie Morita", is written over a horizontal line.

Julie Morita, M.D.
Commissioner

cc: Mort Ames, DOL

Attachments

Exhibit A - CDPH inspection report, September 1, 2017

Exhibit B - CDPH inspection report, September 8, 2017

Exhibit C – EPA Study (“Xact Metals Study: Southeast Chicago), September 10, 2015

EXHIBIT A



CITY OF CHICAGO
DEPARTMENT OF PUBLIC HEALTH
PERMITTING AND ENFORCEMENT

NARRATIVE EVALUATION

INSPECTION DATE: 09/01/2017
SITE NAME: WATCO COMPANIES
SITE ADDRESS: 2926 E 126TH ST, CHICAGO, IL 60633
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME: 11:45 am
EMPLOYEE: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297

SUMMARY

I carried out a joint inspection of Watco Terminal & Port Services, with USEPA Region 5. Patrick Miller (Environmental Engineer USEPA Region 5), and Molly Smith (Environmental Scientist USEPA Region 5). Also, Michael Todd (CDPH Environmental Investigator) was also with me for this inspection. Upon arrival we met Messrs. Steve Caudle (The Facility Terminal Manager) and Chuck Shaffer (Operations Manager), they both took us around the facility for today's inspection, after a brief meeting. Summary of the facility PROCESS DESCRIPTION, according to Steve: The Chicago Watco Terminal & Port Services Facility is a specialty warehouse and Marine loading/unloading terminal that receives, stores, and loads dry-bulk material for the iron and steel industry. The products are: Ferrous Alloy, FeSi, SiMn, HCFM (high carbon manganese), Iron ore slag magnesite, HCFC (high carbon ferrous chrome), and pig iron. Products are received by the Terminal; by barge, truck, and rail. Processing operations include crushing, screening, packaging and bagging of customer products.

Today's inspection revealed the following:

- 1) I observed heavy particulate and fugitive dust emissions from building F - material loading station (please see photo log). The particulate dust plume opacity was 100 percent from the loaded truck inside building F, and the dust was escaping into the environment through the exit doors (see photo #s 1, 2 & 4).
- 2) The particulate dust emissions plume was dispersed from one end of the building to another (see photo #s 6 & 9). The dust was escaping from both entrances and spanned the whole length of building F (see photo #s 6, 7 & 9).
- 3) Particulate dust emissions from the material loaded into a truck that was not immediately covered, driving through and dispersing the dust (see photo #11).
- 4) Front end loader was used to transfer the materials into trucks, the front end loader dumped the material and it spilled on the body and wheels of the truck (see photo #s 2, 3, 4 & 5).
- 5) No wheel wash or rumble strips, or other means of cleaning trucks, was observed on site.

I asked Steve Caudle what type of material the facility was loading into the truck and why there was so much dust during this loading operations. He said that he does not know what material was being loaded into the truck. Steve explained that the reason why there was such level of dust in the building was because the dust collector control system was not being operated properly by the staff. I asked him if there is any protocol in place, that will stop loading operations when such problem occurs (not waiting until inspectors arrived site), he said there is nothing like that and that it was an isolated problem, which he told me will not occur again. See the attachments.

REPORT COMPLETED? ☒ YES ☒ NO
INVESTIGATION COMPLETED? ☒ YES ☐ NO

NOV ISSUED? ☐ YES ☒ NO
ATTACHMENTS? ☒ YES ☐ NO

I, EMMANUEL ADESANYA, an employee of the City of Chicago, Department of Public Health, declare that I have conducted an inspection of the above mentioned property on the date indicated. I further declare that the observations set forth on the report are true and accurate.

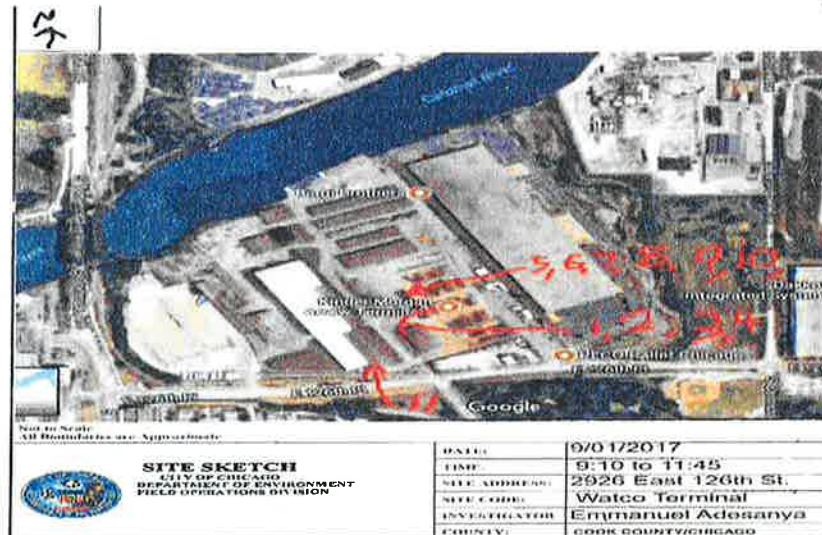
82

STAR #

SIGNATURE
Page 1 of 7

DATE:
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME:
INSPECTOR:
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297



COMMENTS:

DATE:
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME:
INSPECTOR:
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297



COMMENTS: Photo#1 Direction: NW Comments: Particulate Dust Emissions(100% opacity. Baghouse not functioning properly.

DATE:
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

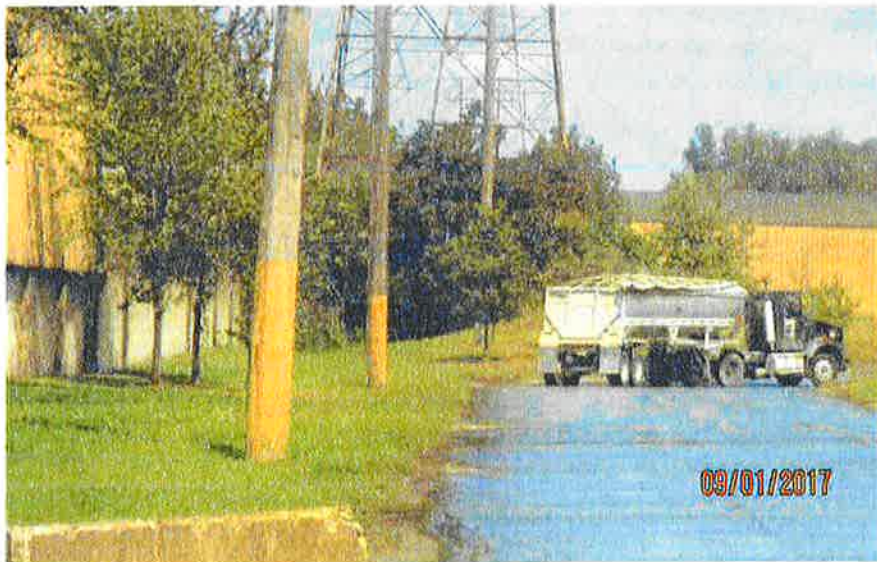
TIME:
INSPECTOR:
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297



COMMENTS: Photo#10 Direction: West Comments: Particulate dust operation from material loading operations.

DATE:
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME:
INSPECTOR:
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297



COMMENTS: Photo#11 Direction: North Comments: Particulate dust emissions from truck from loading station (building F) to weighing station.

DATE:
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME:
INSPECTOR:
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297



COMMENTS: Photo#2 Direction: NW Comments: Particulate Dust Emissions(100% opacity). Faulty Baghouse/dust collection system operations.

DATE:
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME:
INSPECTOR:
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297



COMMENTS: Photo#3 Direction: NW Comments: Particulate dust emissions,(100% opacity). Faulty baghouse/dust collections system operations.

DATE:
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

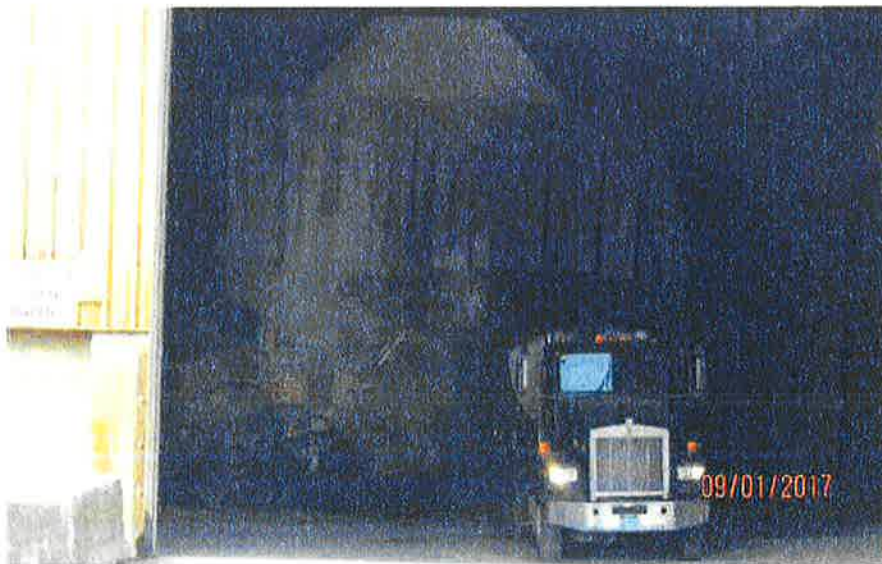
TIME:
INSPECTOR:
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297



COMMENTS: Photo#4 Direction: NW Comments: Particulate dust emissions,(100% opacity). Faulty baghouse/dust collections system operations.

DATE:
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME:
INSPECTOR:
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297



COMMENTS: Photo#5 Direction: West Comments: Particulate dust emissions, released outside through the exit door.

DATE:
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME:
INSPECTOR:
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297



COMMENTS: Photo#6 Direction: West Comments: Particulate dust emissions, released through the exit doors, from material loading station.

DATE:
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME:
INSPECTOR:
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297



COMMENTS: Photo#7 Direction: West Comments: Particulate dust emissions, released through the exit doors, from material loading station.

DATE:
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME:
INSPECTOR:
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297



COMMENTS: Photo#8 Direction: West Comments: Particulate dust emissions, released through the exit doors, from material loading station.

DATE:
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME:
INSPECTOR:
COUNTY: COOK / CHICAGO
INSPECTION #: 1036297



COMMENTS: Photo#9 Direction: West Comments: Particulate dust emissions, released through the exit doors, from material loading station.

EXHIBIT B



CITY OF CHICAGO
DEPARTMENT OF PUBLIC HEALTH
PERMITTING AND ENFORCEMENT

NARRATIVE EVALUATION

INSPECTION DATE: 09/08/2017

SITE NAME: WATCO COMPANIES

SITE ADDRESS: 2926 E 126TH ST, CHICAGO, IL 60633

SITE CODE: WATCO COMPANIES

PERMIT #: ENVAIR113986

TIME: 1:15 pm

EMPLOYEE: EMMANUEL ADESANYA

COUNTY: COOK / CHICAGO

INSPECTION #: 1152579

SUMMARY

I carried out the routine inspection of Watco Terminal & Port Services. Kenneth Scott (CDPH senior environmental inspector) was with me during this inspection. Today was mostly cloudy, temperature: high 67 degree F, low 55 degree F, wind: West at 11 mph according to The Weather Channel. Upon arrival we met Messrs. Steve Caudle (The Facility Terminal Manager) and Chuck Shaffer (Operations Manager), they both took us around the facility for today's inspection, after a brief meeting. Summary of the facility PROCESS DESCRIPTION, according to Steve: The Chicago Watco Terminal & Port Services Facility is a specialty warehouse and Marine loading/unloading terminal that receives, stores, and loads dry-bulk material for the iron and steel industry. The products are: Ferrous Alloy, FeSi, SiMn, HCFM (high carbon manganese), Iron ore slag magnesite, HCFC (high carbon ferrous chrome), and pig iron. Products are received by the Terminal by barge, truck, and rail. Processing operations include crushing, screening, packaging and bagging of customer products.

Today's inspection revealed the following:

- 1) I observed a truck loaded with material driving at speed approximately 20 miles/hr., dispersing dust (see photo #s (1, & 2).
- 2) I observed particulate and fugitive dust emissions at building F (material loading station) and roads (see photo #s 1, 2, 3, 4, 5, 6 & 7).
- 3) Part of the internal roads was not paved, very dry and dusty (see photo #s 4, 5, 8, 9, & 11).
- 4) Heavy particulate dust emissions from the material loaded into a truck that was not immediately covered, driving through and dispersing the dust (see photo #s 1, 2 & 6).
- 5) I saw front end loader wheels driving through, picking up and dispersing particulate dust (see photo #s 7 & 10).
- 6) I also observed truck wheels driving through, picking up and dispersing dust (see photo #s 9 & 11).
- 7) There is no berm at the river edge or anything else, to protect material from falling into the river, during loading and unloading operations.
- 8) No wheel wash or rumble strips or other means of cleaning trucks, was observed on site.

I asked Steve Caudle why part of the internal roads was not paved and truck wheels driving through, picking up and dispersing dust, he told me he is going to block that part of the internal roads immediately and that no truck will be allowed to pass the place any longer. See the attachments.

REPORT COMPLETED?

☒ YES

☒ NO

NOV ISSUED?

☐ YES

☒ NO

INVESTIGATION COMPLETED?

☒ YES

☐ NO

ATTACHMENTS?

☒ YES

☐ NO

I, EMMANUEL ADESANYA, an employee of the City of Chicago, Department of Public Health, declare that I have conducted an inspection of the above mentioned property on the date indicated. I further declare that the observations set forth on the report are true and accurate.

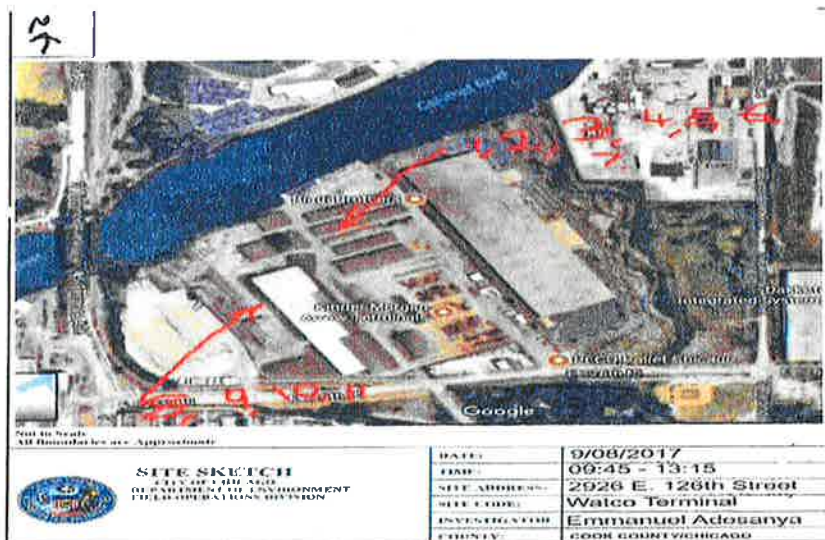
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STAR #

SIGNATURE

Page 1 of 7

TIME: 1:15 pm
INSPECTOR: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1152579



COMMENTS:

DATE: 09/08/2017
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME: 1:15 pm
INSPECTOR: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1152579



COMMENTS: Photo#1 Direction: SW Comments: Particulate dust emissions from a truck without tarp. The truck was coming from building F(material loading station) to the weighing/scale, before exiting the facility.

DATE: 09/08/2017
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME: 1:15 pm
INSPECTOR: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1152579



COMMENTS: Photo#10 Direction: NE Comments: Particulate dust emissions from unpaved access road and very dry material and very dry road.

DATE: 09/08/2017
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME: 1:15 pm
INSPECTOR: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1152579



COMMENTS: Photo#11 Direction: NE Comments: Particulate dust emissions from unpaved access road and very dry material and very dry road.

DATE: 09/08/2017
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME: 1:15 pm
INSPECTOR: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1152579



COMMENTS: Photo#2 Direction: SW Comments: Particulate dust emissions from a truck without tarp. The truck was coming from building F(material loading station) to the weighing/scale, before exiting the facility.

DATE: 09/08/2017
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME: 1:15 pm
INSPECTOR: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1152579



COMMENTS: Photo#3 Direction: SW Comments: Particulate dust emissions from building F (material load-out station) and a truck without tarp. The truck was coming from building F(material loading station) to the weighing/scale, before exiting the facility.

DATE: 09/08/2017
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME: 1:15 pm
INSPECTOR: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1152579



COMMENTS: Photo#4 Direction: SW Comments: Particulate dust emissions from building F (material load-out station) and a truck without tarp. The truck was coming from building F(material loading station) to the weighing/scale, before exiting the facility.

DATE: 09/08/2017
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME: 1:15 pm
INSPECTOR: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1152579



COMMENTS: Photo#5 Direction: SW Comments: Particulate dust emissions from Building F material load-out station.

DATE: 09/08/2017
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME: 1:15 pm
INSPECTOR: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1152579



COMMENTS: Photo#6 Direction: SW Comments: Particulate dust emissions from Building F material load-out station.
Also from truck without a tarp going to weighing station.

DATE: 09/08/2017
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME: 1:15 pm
INSPECTOR: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1152579



COMMENTS: Photo#7 Direction: SW Comments: Particulate dust emissions from Building F material load-out station.
Also from truck without a tarp going to weighing station.

DATE: 09/08/2017
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME: 1:15 pm
INSPECTOR: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1152579



COMMENTS: Photo#8 Direction: NE Comments: Particulate dust emissions from unpaved access road and very dry material and very dry road.

DATE: 09/08/2017
SITE: 2926 E 126TH ST
SITE CODE: WATCO COMPANIES
PERMIT #: ENVAIR113986

TIME: 1:15 pm
INSPECTOR: EMMANUEL ADESANYA
COUNTY: COOK / CHICAGO
INSPECTION #: 1152579



COMMENTS: Photo#9 Direction: NE Comments: Particulate dust emissions from unpaved access road and very dry material and very dry road.

EXHIBIT C

Xact Metals Study: Southeast Chicago

Report Prepared by:

Motria Caudill
Region 5 Air and Radiation Division

Field Work Conducted by:

Scott Hamilton, Chad McEvoy, Bilal Qazzaz, & Anthony Ross
Region 5 Air and Radiation Division

Field monitoring requested by:

Enforcement and Compliance Branch
Region 5 Air and Radiation Division

Dates of field monitoring:

December 12, 2014 to July 23, 2015

Report Authorized by:

Michael Compher, Chief
Air Monitoring and Analysis Section
Region 5 Air and Radiation Division

Date

Southeast Chicago, Illinois, Semi-continuous Ambient Metals Investigation

Principal Investigator, Motria Caudill, PhD

September 10, 2015

Executive Summary and Background

The main objective of this study was to determine whether residents of the South Deering neighborhood are potentially exposed to lead (Pb) above the National Ambient Air Quality Standard (NAAQS) or toxic metals above acute and chronic health comparison levels. There is a long-term Pb and toxic metals monitor operated by Illinois EPA at Washington High School in this community. The station has shown that Pb concentrations are well below the NAAQS. Historic concentrations of manganese (Mn) have exceeded health comparison values and multiple industrial sources are potentially contributing Mn emissions.

The EPA metals trailer was deployed at Rowan Park, directly south of Washington High School, from December 12, 2014 to July 23, 2015. Pb concentrations during the study averaged 16 ng/m³, which is well below the NAAQS. Arsenic (As) was measured with a peak 8-hour concentration of 15 ng/m³, which is equal to California EPA's Reference Exposure Level (REL). The full-study As concentration was below the chronic health benchmark. It does not appear that As is a significant issue in this area.

Measured Mn concentrations were double the health comparison value previously used by EPA (108 ng/m³ as compared with the Reference Concentration of 50 ng/m³). However Mn was below the ATSDR Minimal Risk Level of 300 ng/m³ currently recommended by EPA. Follow-up monitoring closer to the fenceline of the main Mn-contributing facility (Kinder Morgan) may be useful to characterize the maximum exposure level in the community. There are residences and a park immediately south of Kinder Morgan that may be experiencing metals concentrations significantly higher than what was measured in this study.

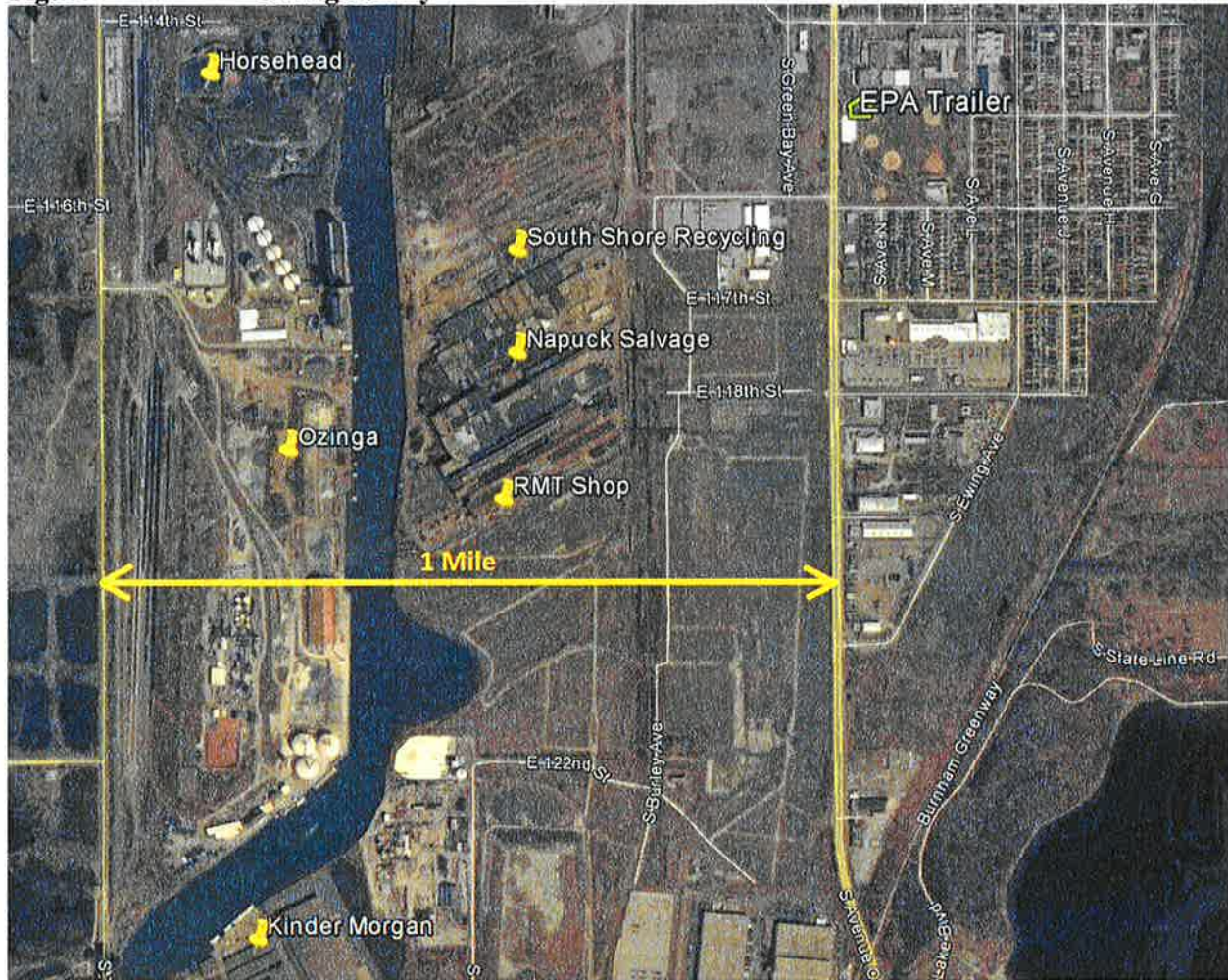
Study Design

Study background and methodology are documented in the Quality Assurance Project Plan "Southeast Chicago, Illinois, Semi-continuous Ambient Metals Investigation" version 1.0 dated December 11, 2014. The EPA trailer was deployed on Chicago Park District property in Rowan Park. See map on Figure 1. Several metallurgic industries and bulk storage facilities are located between 0.5 and 1.5 miles west, southwest, and northwest of the monitoring station.

Quality Assurance Review

Metals measurements were of sufficient quantity and quality for project objectives. Results from each individual sample hour were quality-checked according to the EPA Xact Standard Operating Procedures and study QAPP. Specific quality assurance criteria and findings are described below.

Figure 1. Southeast Chicago Study Area



1) Data completeness should be $\geq 75\%$, or 1620-2160 samples, over a 90 day period;

- The EPA metals trailer operated from December 12, 2014 through July 23, 2015. There were 15 hours of data invalidated because the sample flow rate was below acceptable limits. The metals monitor was offline briefly during routine field visits for equipment maintenance and due to occasional technical issues. No data were collected between March 20 and May 12, 2015 because of an electrical problem that was subsequently corrected. A total of 3932 valid samples were collected over a period of 223 days or 5344 possible samples. Completeness was $3932/5344 * 100\% = 73.6\%$.

2) The lowest non-zero values reported in this study should be equal to or lower than the detection limits (DLs) specified in the instrument manual. DLs and lowest reported values are shown below on Table 1.

- Lead and toxic metals were measured well below expected DLs during this study.

Table 1. Metals DLs and lowest reported concentration of toxic metals in Chicago study, ng/m³

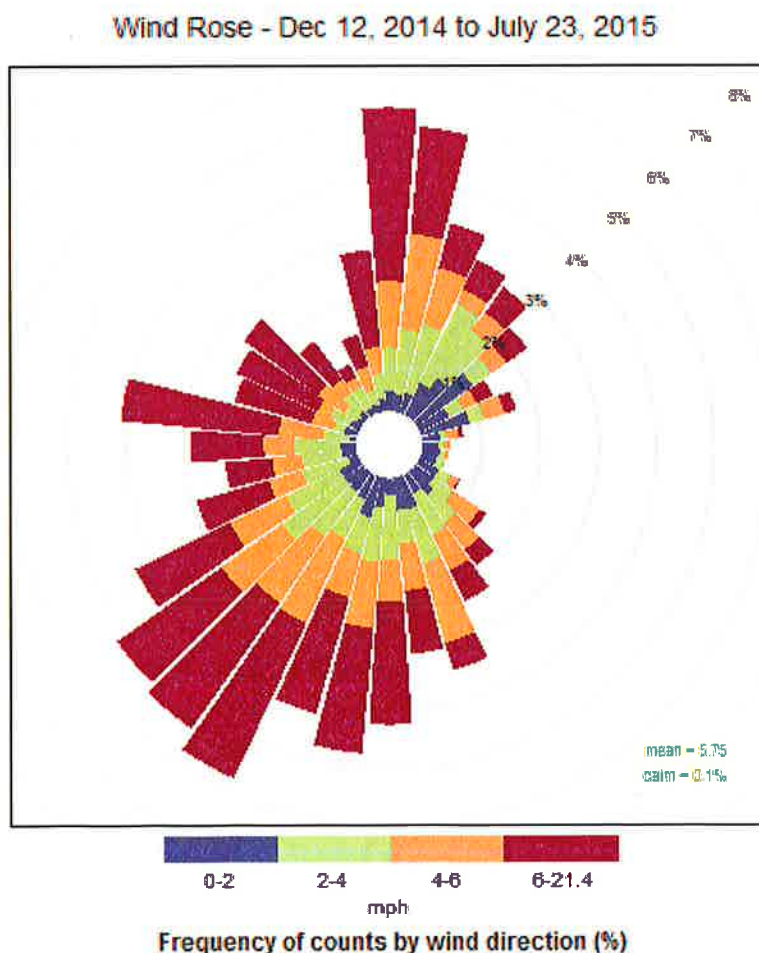
Metal	DL	Lowest Reported
Arsenic	0.051	0.001
Lead	0.099	0.547*
Manganese	0.077	0.219
Nickel	0.083	0.001
Chromium	0.092	0.003
Cadmium	1.138	0.049
Mercury	0.0912	0.001

* There were no nondetects for Pb in this study.

3) Sufficient samples should be collected when the predominant wind direction is from the target source(s).

- West, southwest, and northwest winds were the most desirable for this study because they resulted in the metals trailer being downwind of various industries along the Calumet River. A wind rose is shown on Figure 2. Winds were predominantly from the southwest, south, and north. The monitor site was directly downwind of target industries about 50% of the study period.

Figure 2. Study period wind rose



Study Findings

Concentrations for 20 metals monitored as TSP are summarized below on Table 2. These metals had nondetect rates between zero and 79%, which is acceptable for data analysis. Antimony, cobalt, and thallium had nondetect rates over 95% and thus were not included in the data analysis.

Table 2. SE Chicago, Illinois, metals data summary

Element, Symbol	Nondetect rate, %	Average, ng/m³	Health Comparison Value, ng/m³
Arsenic, As	73	0.46	2.3 ^b
Barium, Ba	10	11	
Bromine, Br	0	7.0	
Cadmium, Cd	0	4.0	5.6 ^b
Calcium, Ca	0	3665	
Chromium, Cr	11	8.9	42 ^{bc}
Copper, Cu	0	19	
Iron, Fe	0	1760	
Lead, Pb	0	16	(see NAAQS)
Manganese, Mn	0	108	300 ^d
Mercury, Hg	39	0.18	300 ^d
Molybdenum, Mo	0	22	
Nickel, Ni	2	2.4	42 ^b
Potassium, K	0	224	
Rubidium, Rb	14	0.61	
Selenium, Se	10	0.61	20,000 ^d
Strontium, Sr	0	9.8	
Thorium, Th	79	0.27	
Titanium, Ti	0	48	
Zinc, Zn	0	192	
a) Averages calculated using zeroes in place of nondetects.			
b) Concentration equivalent to 10-in-1-million excess cancer risk.			
c) Assuming 2% of chromium is in most toxic hexavalent form.			
d) Reference concentration (RfC) for noncancer health effects.			

The Pb NAAQS is violated when any 3-month rolling average is higher than 150 ng/m³ meter. EPA defines the *potential* to exceed the NAAQS as short-term monitoring or modeling with results greater than 50% of the NAAQS (75 ng/m³). For air toxics, monitoring data are compared against health screening values for long-term (full study average) and short-term (1-hour, 8-hour, 24-hour, and 14-day peaks) health effects, as described on the below EPA website “Dose-Response Assessment for Assessing Health Risks Associated With Exposure to Hazardous Air Pollutants”. Full-study averages and the long-term health comparison values are shown above in Table 2. There are a short-term health comparison values for only three toxic

metals: 1) Arsenic has California EPA Reference Exposure Levels (RELs) for 1-hour peaks (200 ng/m³) and 8-hour peaks (15 ng/m³); 2) Cadmium has an ATSDR acute Minimum Risk Level (MRL) for 1-14 days (30 ng/m³); and 3) Nickel has an intermediate MRL for 14-365 days (200 ng/m³).

<http://www2.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants>

Metals risk screening results

Lead concentrations over the full study averaged 16 ng/m³, which is notably lower than 50% of the NAAQS (75 ng/m³). According to the data reported at IEPA's adjacent Washington High School site, the highest Pb 3-month average in 2011-13 was 50 ng/m³. Also, the 24-hour averages of EPA's Pb monitoring were found to correlate well with IEPA's findings for samples collected between December 2014 and June 2015. For matching sample dates, the relative percent difference (RPD) was 39% with IEPA's results higher. This amount of discrepancy is to be expected for a pollutant with concentrations that are not much higher than the detection limits. In contrast, the RPD for Mn was 13% higher at the IEPA site during the study period.

Short-term and intermediate health comparison values were not exceeded for cadmium and nickel. The highest 24-hour cadmium average was 6 ng/m³, compared with the 30 ng/m³ MRL. The highest 14-day nickel concentration was 5 ng/m³, compared with the 200 ng/m³ MRL.

Arsenic (As) concentrations did not exceed the 1-hour REL (200 ng/m³), however there was a 1-hour measurement at 1 PM on January 27th of 93 ng/m³. When averaged over 8 hours, the concentration was 15 ng/m³, equal to the 8-hour MRL. The wind direction at this time was from the northeast. The area north and east of the monitor is not industrialized and there is no apparent explanation for the spike. Other elevated As concentrations tended to emanate from the industrial areas southwest of the monitor station.

The average manganese concentration was 108 ng/m³, which is one-third of the health comparison value currently used by EPA, the ATSDR MRL of 300 ng/m³. The manganese average is twice as high as the EPA RfC previously used for health screening (50 ng/m³). The measured levels are consistent with historic data reported at the Washington High School station.

Metals source contributions

The arsenic frequency distribution plot on Figure 3 shows the approximate location of the January spike northeast of the monitor station (in red), the less extreme values to the southwest (in yellow), and lowest values elsewhere (in blue). This type of plot displays the total contribution of a pollutant measured at the monitor site, distributed by wind direction and wind speed.

Arsenic concentrations on Figure 4 are displayed on a polar plot, where values are averaged by wind direction and wind speed. In contrast to the previous frequency plot, the polar plot is less influenced by short-term spikes and gives a more comprehensive view of the areas of pollutant contribution. The January arsenic spike area shows up as a faint yellow zone, whereas the more consistent area of arsenic emissions (in red) is the site of various recycling facilities southwest of the monitor.

Figure 3. Arsenic frequency plot, percent contribution binned by wind direction and speed

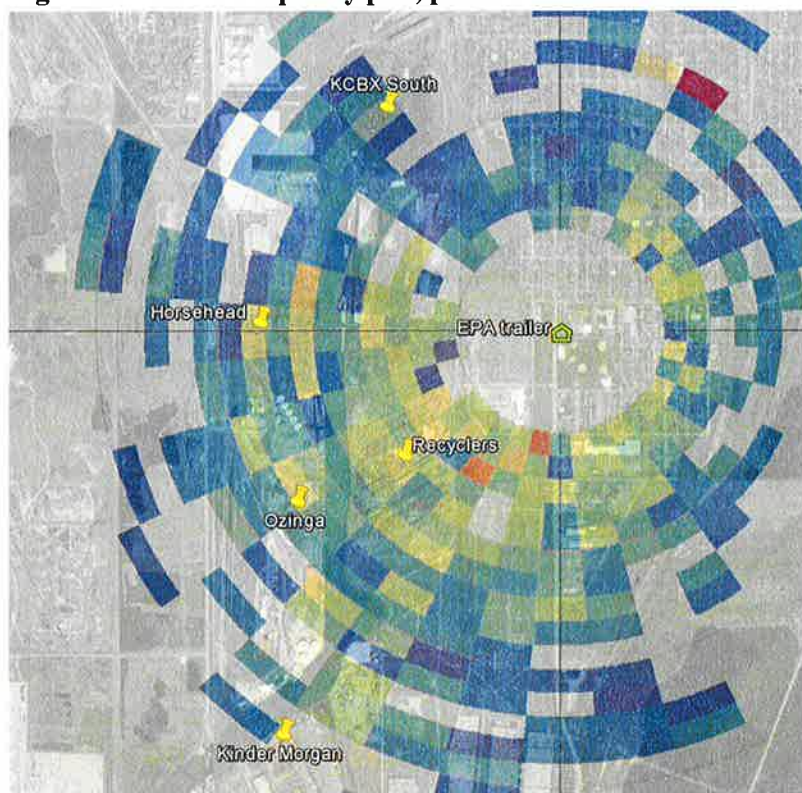
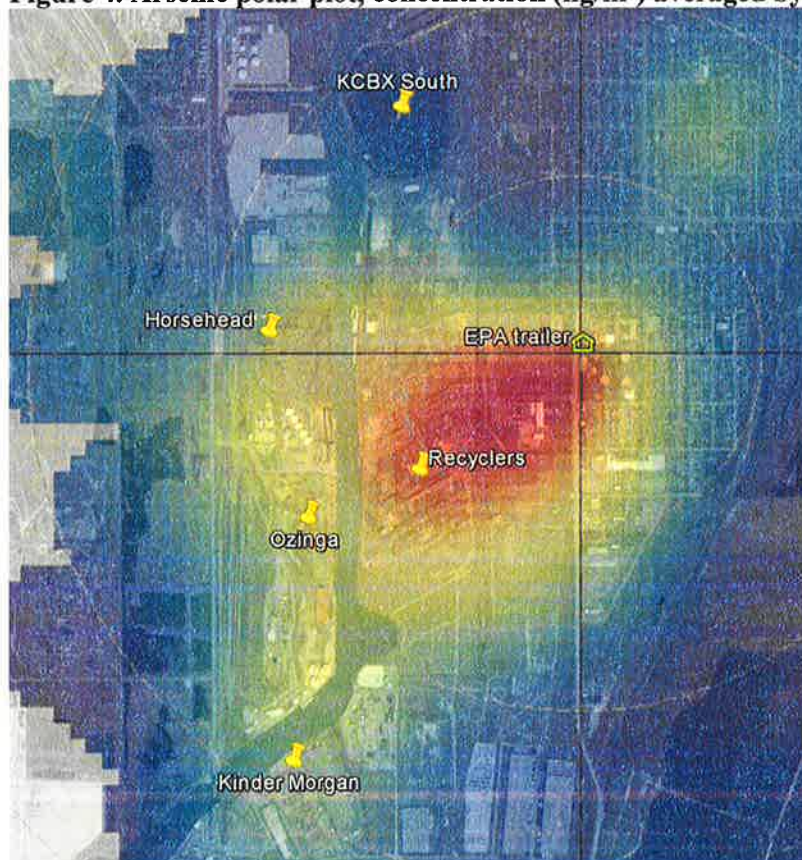


Figure 4. Arsenic polar plot, concentration (ng/m^3) averaged by wind direction and speed



The manganese (Mn) frequency distribution on Figure 5 and the polar plot on Figure 6 both point toward the southwest as the area of most significant and consistent emissions. There appear to be two distinct hot spots: one around Kinder Morgan and the second including Ozinga, the area over the Calumet River, and possibly the recycling facilities. The hour-of-day (diurnal) pattern and day-of-week patterns on Figure 7 show that Mn concentrations are highest during typical industry business hours, i.e. 8 AM to 4 PM, Monday through Friday. Mn levels drop down overnight and on the weekend.

To distinguish between temporal patterns at Kinder Morgan and Ozinga, Figure 8 contains month-to-month and day-of-week patterns only when wind direction is from these two specific source areas. The peak Mn values that emanate from Kinder Morgan are highest on Mondays and Tuesdays, with a secondary spike on Fridays. These levels were highest February to March. The peaks from Ozinga happen Tuesday-Thursday with a distinct spike in May.

Kinder Morgan, Ozinga, and the various recyclers at Reserve Marine Terminal (RMT) were all recently inspected by EPA air enforcement engineers. Kinder Morgan stores and processes ferro-alloys on site. Material unloading occurs during typical business hours, which is consistent with peak Mn values shown on Figure 7. Ozinga is also believed to handle some manganese-containing product(s) on their site, but less is known about the facility's operations schedule. Both Kinder Morgan and Ozinga may be required by the City of Chicago to develop new fugitive dust plans, which could lessen metals emissions into the community.

Figure 5. Manganese frequency plot, percent contribution binned by wind direction and speed

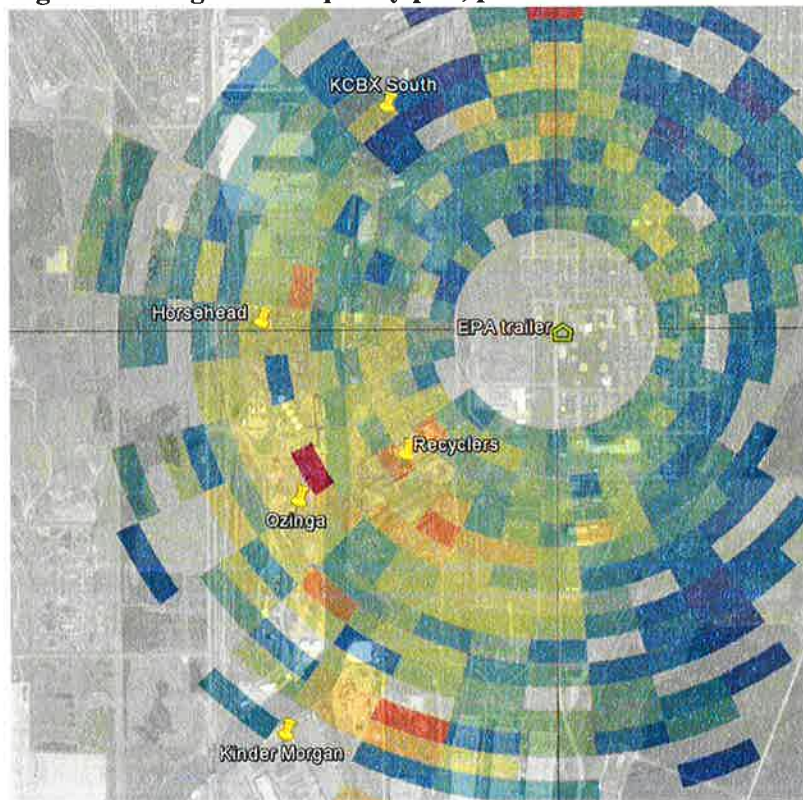


Figure 6. Manganese polar plot, concentration (ng/m^3) averaged by wind direction and speed

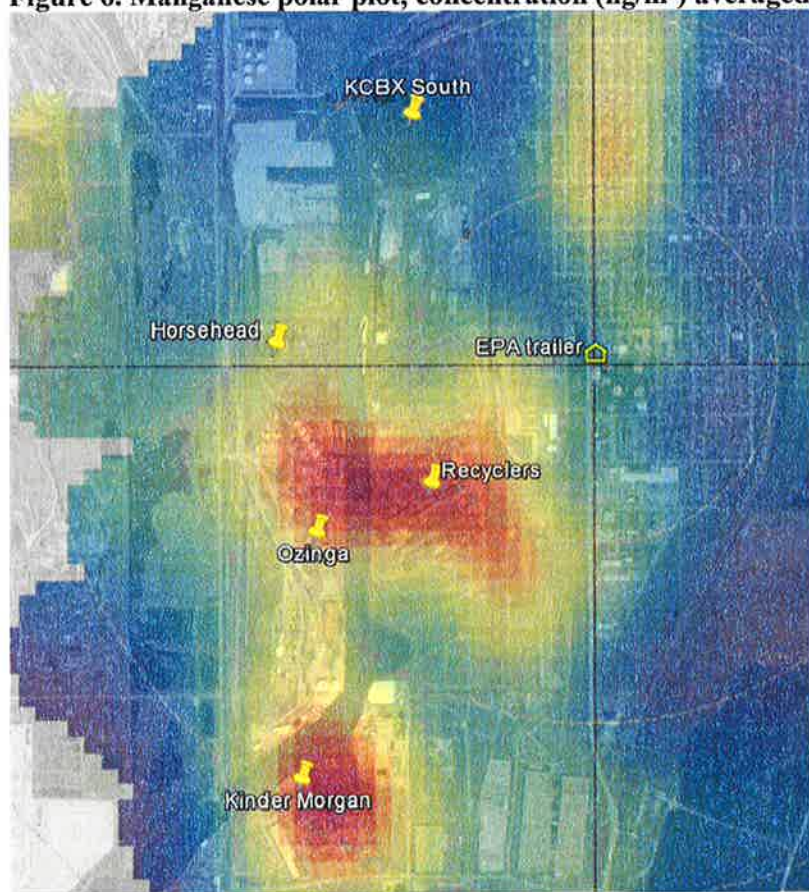


Figure 7. Manganese concentrations (ng/m^3) averaged by hour-of-day and day-of-week.

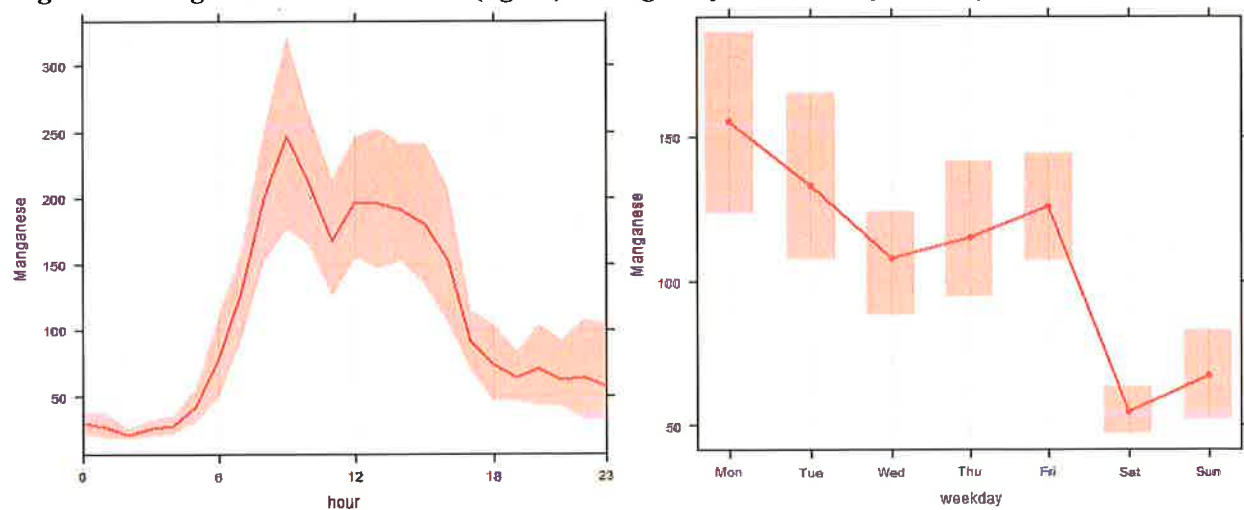
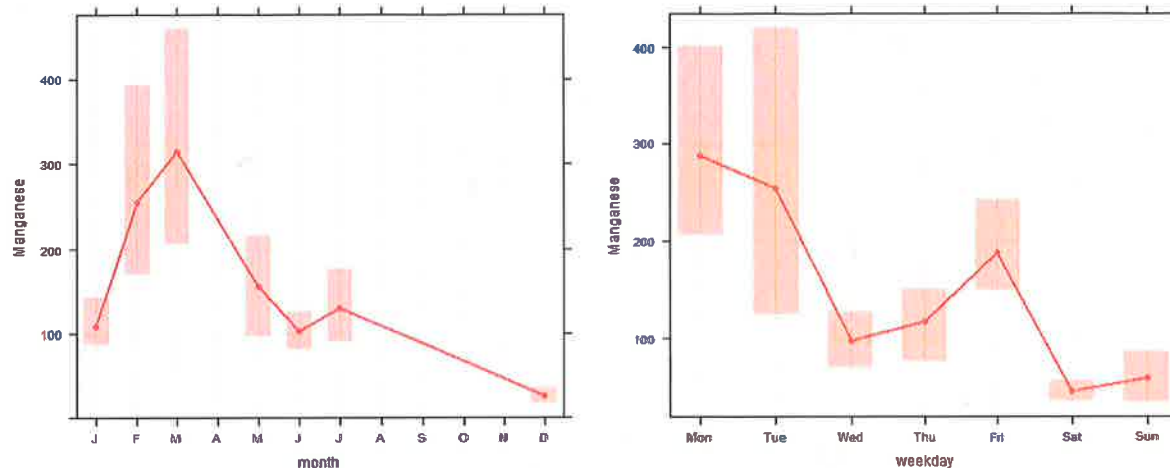
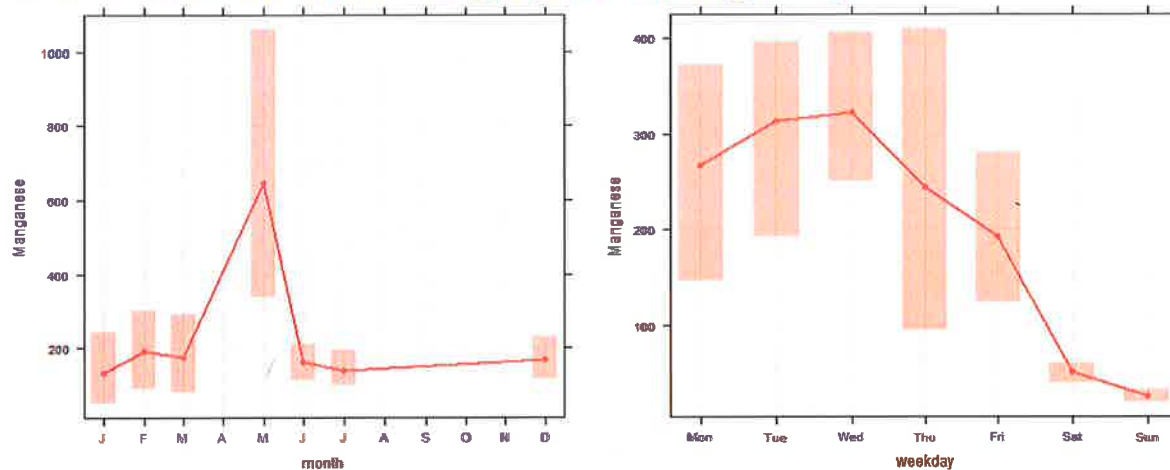


Figure 8. Manganese concentrations (ng/m³) averaged by month and day-of-week when wind direction is from direction of Kinder Morgan as compared with Ozinga.

Wind direction from Kinder Morgan (190-225 degrees)



Wind direction from Ozinga (225-250 degrees)



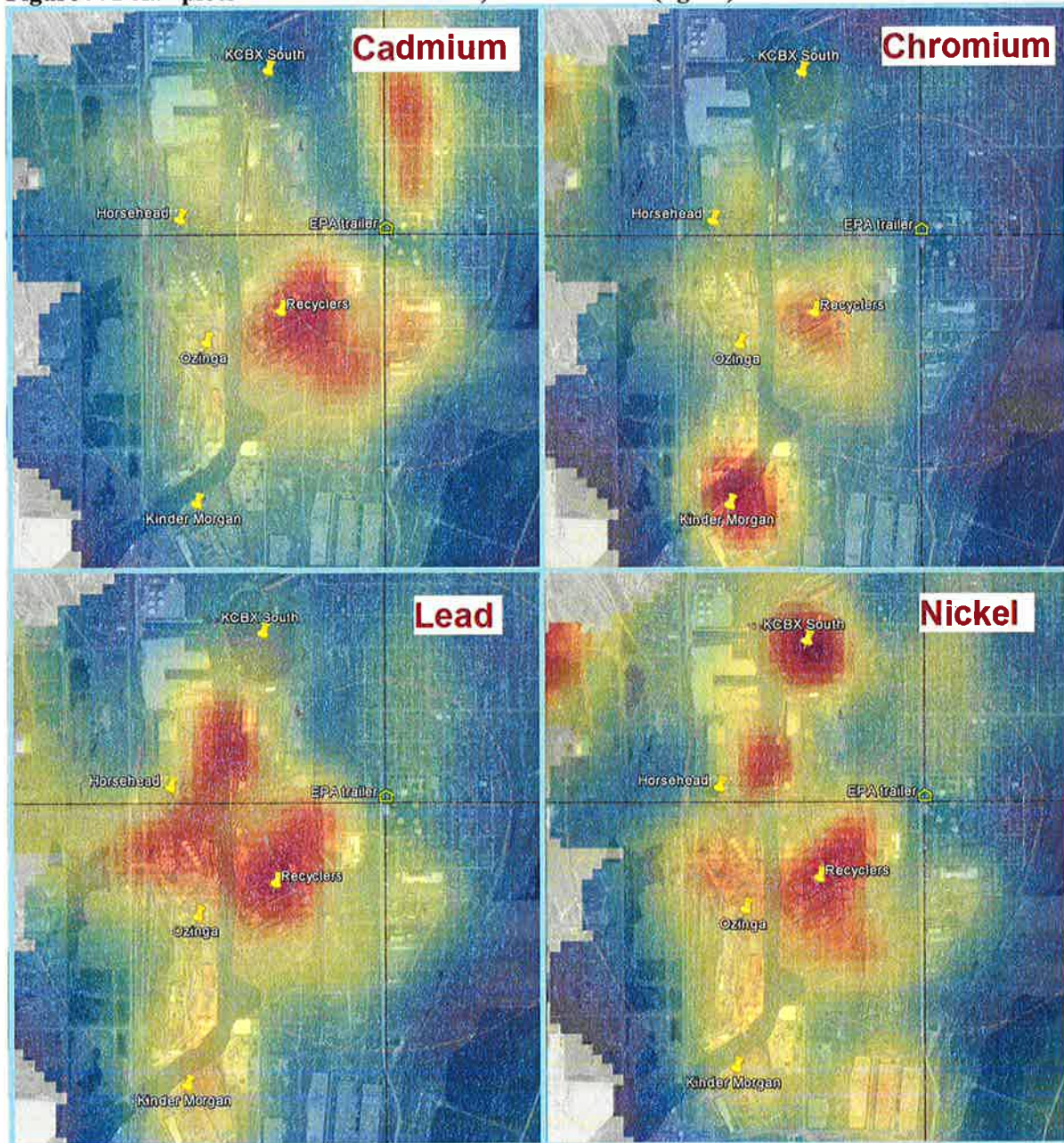
Peak manganese periods are shown on Table 3. These are the 34 hours when manganese was more than ten times the average concentration, i.e. the top 1% of data. The majority of these peak periods had winds emanating from the area of Kinder Morgan.

Table 3. Details of Peak Manganese Periods (ng/m³)

Date	Day	Time	Mn	WD	WS
23-Dec-14	Tues	2:00 PM	1151	190	4.9
23-Dec-14	Tues	3:00 PM	1155	187	4.2
31-Dec-14	Weds	11:00 AM	1313	234	6.6
31-Dec-14	Weds	12:00 PM	1223	224	6.8
31-Dec-14	Weds	1:00 PM	2033	223	6.9
31-Dec-14	Weds	3:00 PM	1114	209	7.3
31-Dec-14	Weds	5:00 PM	1126	208	7.6
2-Jan-15	Fri	11:00 AM	1601	184	2.4
15-Jan-15	Thurs	4:00 PM	3685	199	4.8
15-Jan-15	Thurs	5:00 PM	3338	204	4.8
13-Feb-15	Fri	10:00 AM	1148	215	6.6
13-Feb-15	Fri	3:00 PM	1141	205	6.6
14-Feb-15	Sat	10:00 AM	1807	324	8.8
17-Feb-15	Tues	5:00 PM	2313	247	5.7
24-Feb-15	Tues	7:00 AM	1863	204	7.8
24-Feb-15	Tues	8:00 AM	1710	205	8.8
24-Feb-15	Tues	9:00 AM	2775	206	9.3
24-Feb-15	Tues	10:00 AM	4353	212	8.0
24-Feb-15	Tues	11:00 AM	1255	222	7.9
24-Feb-15	Tues	12:00 PM	1441	217	7.6
24-Feb-15	Tues	3:00 PM	1465	229	5.9
5-Mar-15	Thurs	6:00 PM	1373	231	4.0
5-Mar-15	Thurs	9:00 PM	2247	239	2.3
9-Mar-15	Mon	9:00 AM	2860	174	2.1
9-Mar-15	Mon	10:00 AM	2902	176	3.3
13-Mar-15	Fri	10:00 AM	1723	199	2.6
15-Mar-15	Sun	8:00 PM	1151	215	7.5
16-Mar-15	Mon	11:00 AM	1796	216	4.9
16-Mar-15	Mon	12:00 PM	2018	201	6.1
16-Mar-15	Mon	1:00 PM	3273	205	6.5
16-Mar-15	Mon	2:00 PM	3086	200	6.2
16-Mar-15	Mon	3:00 PM	1516	190	6.5
16-Mar-15	Mon	4:00 PM	1463	201	7.3
16-Mar-15	Mon	5:00 PM	2350	204	5.3

Polar plots for the remaining toxic metals, which did not exceed levels of potential health concern, are shown on Figure 9. Cadmium appears to emanate mainly from the RMT recycling facilities east of the Calumet River. Chromium peaks come from the area of Kinder Morgan. Lead seems to be emitted by a combination of the nearby recycling facilities and Horsehead. Nickel emissions emanate from KCBX's South Terminal, Horsehead, and the recycling facilities.

Figure 9. Polar plots for other toxic metals, concentration (ng/m³)



Summary and Conclusions

1. This short-term investigation showed that Pb concentrations are well below 50% of the NAAQS.
2. Arsenic (As) was equal to the short-term health comparison level, the California EPA's 8-hour REL (15 ng/m³) on one day, January 27th. This high 8-hour average was driven by a 1-hour peak of 93, which itself did not cause an exceedance of the 1-hour REL (200 ng/m³).
3. Data trends analyses show that dominant As emission are from the southwest, i.e. the area of various recyclers east of the Calumet River. However, the January 27th date peak value happened during a period when winds were from the northeast, where industrial sources are not present.
4. The full-study average for Arsenic is well below the chronic health comparison value. This study does not suggest that there is a long-term issue with As health risks.
5. Ambient concentrations of other toxic metals were below EPA's long-term and short-term health comparison levels.
6. The ambient manganese (Mn) concentration was higher than EPA's previously used comparison value (the RfC of 50 ng/m³) in this study. The Mn average was 108 ng/m³, consistent with data reported at the Illinois EPA station at Washington High School.
7. Peak Mn levels correspond to wind direction from the area of the Kinder Morgan facility. Secondary peaks are from the vicinity of Ozinga and RMT.
8. The monitoring trailer was sited about one mile away from the Ozinga and Kinder Morgan properties. Follow up metals monitoring may be useful in the residential area south of Kinder Morgan to determine whether Mn concentrations are significantly higher in this area.
9. Mn and other toxic metal trends at the Washington High School monitor should be evaluated over the next year to determine whether new fugitive dust controls at local industries have reduced metals emissions into ambient air.