

JOHN MARTA
Plant Manager

2701 E. 114TH STREET
CHICAGO, IL 60617

WWW.HORSEHEAD.NET
JMARTA@HORSEHEAD.NET

P 773.933.9260
F 773.933.9272



September 25, 2015

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

Re: Amendment to Request for Variance from the Rules and Regulations for Control of Emissions from the Handling and Storage of Bulk Solid Materials-Horsehead Corporation

Dear Commissioner Morita:

Pursuant to Section 8.0 of Article II, Part E of the City of Chicago Department of Public Health's (the "Department") Rules and Regulations for Control of Emissions from the Handling and Storage of Bulk Solid Materials (the "Bulk Solid Materials Rules" or "Rules"), Horsehead Corporation ("Horsehead") submits this Amendment to its pending request for variance dated June 13, 2014, for its facility located in Chicago, Illinois (the "Chicago Plant").¹ This filing amends the June 2014 variance request primarily for the purpose of requesting a short extension of the deadline set forth in Section 6.0(6) of the Bulk Solid Materials Rules for completion of the schedule for implementation of the Section 4.0(2) enclosure requirement. It also provides additional information in support of Horsehead's previous request for a variance from the fugitive dust monitors requirement in Section 3.0(4)(a)-(e).

I. Request for Variance to Extend the Enclosure Deadline

A. Matters Incorporated by Reference

Section 8 of the Bulk Solid Materials Rules specifies information to be included with a variance request. Much of this information was already included in Horsehead's June 2014 variance request and remains accurate today. To avoid burdening your Department with redundant

¹ The June 16, 2014 variance request addressed Sections 3.0(2)(c), 3.0(4)(a)-(e), 3.0(8)(d), 5.0(2), 5.0(5), and 5.0(6)(d). As stated in Horsehead's February 19, 2015 Response to the Department's January 26, 2015 Request for Additional Information, Horsehead has completed the activities for which its 2014 variance request sought an extension of time.

materials, Horsehead hereby incorporates by reference the following sections of its June 2014 variance request.

- Section II & Exhibits A + B (Description of the Process and Activities for Which the Variance is Requested - § 8.0(2)(b))
- Section III (Quantity and Types of Materials Used in the Process and Activities for Which the Variance is Requested - § 8.0(2)(c))

As stated in Horsehead's July 2014 variance request, the Horsehead Chicago Plant receives relatively small quantities of coke materials at its Chicago Plant solely for use in its production process. The coke material is consumed in the Horsehead production process.

At the time of the July 2014 variance request, the coke material used in Horsehead's production process was actually a 50-50 mixture of two specific kinds of coke, petroleum coke ("petcoke") and metallurgical coke ("metcoke"). Earlier this year, the United States Environmental Protection Agency ("USEPA") requested a reduction in the use of petcoke, citing testing results that, in the USEPA's opinion, showed a potential for reduced emissions under this reformulation. The USEPA believes that this change will achieve additional environmental benefits for the surrounding community.

To implement the USEPA's request, Horsehead agreed to limit its petcoke use to 10% by weight. Notwithstanding the ability to use 10% petcoke, Horsehead is now using no petcoke in its manufacturing process. This operating change has further reduced the Chicago Plant's potential for fugitive dust emissions. Under the previous formulation, the Plant had three piles of coke materials: A petcoke pile, a metcoke pile, and a pile for mixing the two. Because of the reformulation there is no longer a need for a mixing pile. There are now just two piles of metcoke (of similar size to the original piles). This reduction in the surface area of outside storage and reduced handling of coke material further reduces the risk of coke material becoming airborne.

As an additional safeguard, Horsehead has surrounded each of these piles with concrete barriers to maximize the containment of coke material. Photographs of these coke storage areas are attached as Exhibit A. Further, under the terms of the July 2, 2015 Provisional Administrative Order Pertaining to Coke & Coal Bulk Material Uses issued to Horsehead by the City's Commissioner of Planning and Development, the total daily amount of coke or coal materials present at the Chicago Plant "shall not exceed 4,516 tons at any one time" and the annual receipt of coke materials is limited to 52,808 tons.

B. The Regulation or Requirement from which the Variance is Requested (§ 8.0(2)(a))

Horsehead seeks relief from the enclosure deadline established in Section 6.0(6) of the Rules. Section 6.0(6) requires Horsehead to remove or fully enclose all coke and coal bulk materials within two years following the submission of its Enclosure Plan.

Horsehead has begun the process for enclosing the coke materials. In the Department's May 21, 2015 letter, it specified that the deadline for completing the coke materials enclosure is June 11, 2016, based on the 90-day deadline for the Enclosure Plan (established in Section 6.0(2)), followed by the 2-year deadline set by Section 6.0(6). Depending upon the duration of the City's building permit application review and issuance process, as well as weather conditions affecting the construction of the enclosure, Horsehead may not be able to complete the construction of the enclosure by June 11, 2016. For the reasons outlined below, strict compliance with this deadline would impose an arbitrary and unreasonable hardship on Horsehead, both because compliance cannot be accomplished due to events beyond Horsehead's control and because a brief extension of the deadline would result in no public harm.

C. Granting Horsehead a Variance from the Enclosure Deadline in Section 6.0(6) will not Cause a Nuisance or Adversely Affect the Surrounding Community (§ 8.0(2)(d)).

Until the completion of the coke materials enclosure, the coke materials received and processed at the Chicago Plant present a low risk of fugitive dust emissions because of the limited quantity on site, the protected location of the storage piles, their high moisture content, and their large particle size. Because Horsehead's process requires that it purchase coke material with a minimum 10% moisture content—which is significantly higher than the 3% by weight definition of "moist material" specified in Section 2.0(15) of the City's Rules—the coke material delivered to the Chicago Plant is not as susceptible to windborne dispersion as drier coke material. The process also requires coke material with a particle size of at least approximately 3/8th inch, or slightly bigger than the size of a pea. And because Horsehead only purchases enough coke material to service its production needs for approximately 2-3 weeks, the coke quantity it handles is a small fraction of the quantity handled by bulk terminals. Also, the coke material on average spends a relatively small amount of time on site, and so is less susceptible to drying. As noted above, Horsehead has significantly reduced the surface area of the coke stored at the Chicago Plant (using two piles instead of three) and has added concrete barriers around both remaining coke storage areas to maximize the containment of coke material during the limited storage period.

Horsehead uses a hydrant-and-hose water suppression system to apply water to the coke material to ensure that fugitive emissions from its coke storage areas are properly controlled during transfer activities, high winds, and extended periods of dry conditions. In addition, both coke

storage areas are centrally located within the Chicago Plant (as shown in the site plan attached as Exhibit B) so that adjacent buildings and structures serve to reduce their exposure to the wind.

The coke materials used by Horsehead do not present any human health or environmental risks. As previously described in Horsehead's February 2014 Comments Regarding the Department of Public Health's Rules and Regulations for Bulk Materials Storage Piles, both materials have been studied by the USEPA and Congressional Research Service (CRS), which both concluded that potential emissions of airborne particulate matter from petcoke dust pose no identified risk to human health.² The CRS Report concluded that "petcoke has a low health hazard potential in humans."³

The potential for airborne release of coke at the Chicago Plant is significantly less than the conditions under which airborne releases are predicted using the "conceptual" facility in the 2014 Fugitive Dust Study prepared by CDM Smith for the City. Enclosed as Exhibit C is a comparison of the operating conditions at the Horsehead Chicago Plant to the "conceptual" facility described in the CDM Smith Study. The comparison shows that there are two main reasons why the potential for airborne release of coke material is significantly less at the Chicago Plant than the conceptual facility described in the CDM Smith Study. First, based on the typical volume of coke stored at the Chicago Plant, the footprint and height of the coke piles, and the fact that the piles at the Chicago Plant are surrounded by on-site structures that serve as wind barriers, significantly less surface area is available for potential airborne release of coke than the conceptual facility described in the CDM Smith Study. Second, based on the 12% historic average minimum moisture content of the coke material as received at the Chicago Plant, and the rate of consumption of coke material by the Chicago Plant, there is a significantly lower potential for airborne release of coke material.

Horsehead has not been the subject of community complaints thanks to the controls described above. Furthermore, Horsehead has consistently complied with all applicable fugitive particulate matter emissions requirements in its Illinois Title V Air Permit since that permit was issued in May 2002. The requirements of that permit, which would remain in effect throughout the proposed variance, require:

- A Fugitive Particulate Matter Operating Programs ("FPMOP") to significantly reduce emissions that is reviewed by Illinois EPA (Permit § 5.2.3.a; 35 Ill. Adm. Code §§ 212.309(a), 212.310 and 212.312). The FPMOP includes details about both the Horsehead facility and how fugitive dust is managed, including a diagram showing the

² U.S. EPA, *Screening Level Hazard Characterization, Petroleum Coke Category*, June 2011 (available at http://www.epa.gov/chemrtk/hpvis/hazchar/Category_Petroleum%20Coke_June_2011.pdf); *Petroleum Coke: Industry and Environmental Issues*, by Anthony Andrews & Richard K. Lattanzio, CRS Report R43263, Oct. 29, 2013 (available at <https://www.hsdl.org/?view&did=746955>).

³ CRA report at 9. Metcoke is at least as benign as petcoke, having both a higher carbon content and a lower sulfur content. *Id.* at 11 tbl. 3.

locations of storage piles and traffic patterns, Horsehead's "best management practices" for controlling dust, the frequency of dust suppressant application, as well as other information;

- A PM₁₀ Contingency Measures Plan (Permit § 5.2.8; 35 Ill. Adm. Code §§ 212.703 & 212.704);
- A fire hose water spray system used to spray piles;
- Pile management and grooming - Storage piles are shaped and compacted to manage the potential for wind erosion.

D. Also, since the second quarter of 2014 and continuing to the present, Horsehead has conducted extensive quarterly opacity testing at the Chicago Plant to directly determine if fugitive dust emissions are present. Horsehead has been careful to collect samples on precipitation-free, windy, days that were most favorable to fugitive dust emissions. No sample detected dust that exceeded the opacity limit of 10% established by Sections 3.0(2)(a) and (b) of the Rules. Similarly, repeated testing done under Method 22 detected no visible emissions at the property line.⁴ Horsehead would suffer arbitrary and unreasonable hardships unless it receives additional time to comply with Section 6.0(2) (§ 8.0(2)(e)(i)-(iii)).

Horsehead has responded diligently to the City's adoption of the Bulk Solids Materials Rules and made every effort to avoid having to request a variance from the Enclosure Deadline. Due to the significant expense of designing, permitting, and building a new enclosure, Horsehead investigated ways in which to reduce the outside storage of on-site coke to the de minimis level allowed under the Rules. Because Horsehead uses coke in amounts that are orders of magnitude smaller than bulk coke terminals, it explored whether it could reduce its coke piles to de minimis levels through "just in time" delivery from other locations or by reformulating its product to use less coke. Evaluating these options took several months, as it was necessary to balance out many factors to determine whether these modifications to Horsehead's operations were feasible.

Once Horsehead determined that constructing an enclosure was its only viable option for option compliance with the Bulk Solids Materials and identified feasible on-site locations for the enclosure, its representatives began meeting with outside vendors regarding possible design alternatives for the proposed enclosure. The initial design alternatives presented were not economically feasible. Although the volume of coke material to be stored on-site is relatively small, the size of the enclosure structure had to be large enough to allow trucks to enter and exit when delivering coke. Thus, both the size and the associated fire protection requirements of the proposed initial designs resulted in cost estimates in the several millions of dollars. With the

⁴ Horsehead gave your Department its testing data through December 2014 as attachments to the February 19, 2015 Response to the City's Request for Additional Information. Horsehead is not attaching the data it has collected since then out of concern that it would be burdening your Department with voluminous and duplicative documentation. However, Horsehead will provide any or all of the additional opacity testing reports promptly upon the Department's request.

help of your Department, Horsehead secured meetings with representatives from the City of Chicago Building and Fire Departments to discuss acceptable methods under the City Building Codes for reducing the cost of the enclosure without compromising safety. These meetings occurred in March of this year.

By June 15, 2015, the design process had advanced to the point that Horsehead could issue a request for quotes for the design of the enclosure. The project attracted interest from several established engineering firms, some of which conducted site visits in order to prepare suitable proposals. In August 2015, Horsehead selected Raffin Construction Co., Inc. ("Raffin"), as its design engineer, and began a bidding process for the selection of a contractor.

After extensive discussions with Raffin, Horsehead has determined that even if construction is accelerated in the manner you suggested in your May 2015 letter, the enclosure likely cannot be completed by June 11, 2016. A copy of the design and construction schedule for the coke enclosure is attached as Exhibit D. The Raffin schedule projects that the enclosure structure will be completed July 1, 2016, less than a month after the enclosure deadline. While Raffin has extensive experience with Chicago area construction projects, and prepared the construction schedule based on visits to the Chicago Plant and extensive discussion with Horsehead employees, the attached schedule is still preliminary because the construction contractor has not yet been selected. Upon the selection of the construction contractor, the Raffin schedule may need to be adjusted based on the construction contractor's input.⁵ However, because the City's May 2015 letter encouraged Horsehead to submit any necessary variance request as soon as possible, this request is submitted based on the currently available preliminary schedule. If the schedule needs to be revised based on the selected construction contractor, Horsehead will supplement this variance request to advise the City of the final construction schedule.

The projected completion of the enclosure structure also depends upon additional factors which may require revisions to the preliminary schedule, at least two of which are beyond Horsehead's ability to control. One is the time it requires for the City's Building Department to issue the necessary construction permits. Should the issuance of the permits take longer than projected, it will extend the projected schedule accordingly. The second uncontrollable factor is the weather. Adverse winter weather conditions will delay the installation of the structure's foundation and slow construction of the remainder of the enclosure. Horsehead cannot predict with any

⁵ Raffin has advised Horsehead that there are outstanding design issues that could result in revisions to the project schedule. Both are related to fire-protection, and Raffin is in active discussions with the City Building Department to find solutions that can protect worker and public safety while completing this project without delay. The first issue is that the fire protection system for the enclosure structure may be too large for the existing water system at the Chicago Plant, and so the project may need to incorporate upgrades to this system, particularly the installation of new pumps. The second is that the enclosure will require additional fabrication time if City fireproofing standards require its structural elements to be encased in gypsum board. Raffin is optimistic that suitable compromises (such as using spray-on fireproofing for structural elements) can be worked out with the Building Department, but these issues represent an important caveat to the projected project completion date.

certainty what the Chicago weather conditions will be from late 2015 to the typical beginning of construction season in spring 2016. However, even with the potential for delay arising from the permitting and weather factors, the amount of time to complete the structure, which may extend beyond the June 11 deadline, is still reasonably expected to be of limited duration. A limited extension of time that poses no risk or cost to the public when compared to the economic hardship Horsehead would face in the absence of that extension supports the requested variance relief. The requested extension is justified when balanced against the interruption in the Chicago Plant's operations that ceasing the outdoor storage of coke material would cause. As stated above, Horsehead explored but could not identify a feasible means of eliminating any on-site storage of coke. There are simply no available reasonable alternatives to this variance request that do not require the interruption and cessation of the Chicago Plant's operations. In further support of this variance request, Horsehead already has or is implementing the appropriate interim measures to further minimize the risk of fugitive emissions from the outside storage of its coke materials, including the reduction in coke surface area, the erection of containment barriers around both remaining coke piles, and improvements to the coke hopper where coke is loaded into the production process that further minimize spillage onto the surrounding pavement. In light of Horsehead's reasonable efforts to comply with the enclosure structure deadline, the significant costs of those efforts, and the even greater costs Horsehead anticipates in erecting the enclosure, the Department should exercise its discretion in favor of granting the requested variance.

E. Proposed Methods to Achieve Compliance with the Regulations (§ 8.0(2)(f))

As discussed above, Horsehead anticipates that it will finalize construction on its coke enclosure shortly after the June 11, 2016 deadline adopted by the City and is already well into the design/build process. Horsehead has already complied with or plans to comply with all other provisions of the Bulk Solids Handling Rules, save those identified in the original variance petition, as modified by Horsehead's February 19, 2015 Response to the City's Request for Additional Information to limit the variance relief to the fugitive dust monitors and the below-freezing dust suppression measures.

F. Alternative Methods and Factors Influencing the Choice of Applying for a Variance (§ 8.0(2)(g))

Horsehead is in its current position both due to the tight deadlines set by the City and by its careful evaluation of its alternatives for complying with the new rules, which were passed with very little advanced notice. Horsehead has already adequately controlled its operations so that the Chicago Plant does not cause fugitive dust emissions above the opacity standard and does not create any nuisance conditions to the surrounding community. Other factors influencing Horsehead's decision to apply for a variance include: The essential nature of coke as a raw material Horsehead's manufacturing process, the logistical difficulty in converting the Plant's operations to "just in time" delivery that would allow reduction of on-site coke, and the severe

economic disruptions that would occur if Horsehead shut down operations between June 11, 2016, and the end of construction.

G. Statement Regarding the Person's Current Status as Related to the Subject Matter of the Variance Request (§ 8.0(2)(h))

Horsehead believes that it has provided the requested statement concerning its current status of compliance related to the subject matter of this variance request. The above information provides the City with Horsehead's current status regarding the requirements of the City's Rules from which it is seeking a variance. Horsehead will continue providing monthly updates regarding its development of an Enclosure Plan.

II. Amendment to Original Variance Request Regarding Fugitive Dust Monitors

Horsehead requests that the Department consider the new information presented in this Amendment in its consideration of Horsehead's prior request for a variance from the fugitive dust monitors requirement of Section 3.0(4)(a)-(e) of the Bulk Solid Materials Rules. Since its original variance request, as supplemented by its February 2015 Response, Horsehead has completed several additional quarters of opacity testing with consistent compliance demonstrated by these tests. Further, Horsehead's receipt of coke materials at the Chicago Plant is now subject to the limits imposed under the Provisional Throughput Order. Between now and the time the enclosure structure is completed, the limited amount of outdoor coke storage is further contained by the concrete blocks perimeter that has been installed around one storage area and will be completed soon in a second storage area. Once the enclosure structure is completed next year, there will be no outside storage of coke material. The only outside storage activity that will remain are the IRM product storage piles. As explained in detail in Horsehead's original variance request, the IRM material stored outside forms a crust which minimizes the potential for airborne release from these piles. Horsehead's previous implementation of its dust suppression system protects against off-site emissions during the handling of IRM on-site. Horsehead's Chicago Plant continues to perform all of the other requirements of the City's Rules that are intended to prevent or minimize airborne emissions of IRM. The operations of the Chicago Plant with regard to the limited handling activities associated with the IRM product do not warrant or justify the imposition of the fugitive air monitors requirement under the Rules.

Conclusion

Horsehead appreciates the cooperation which your Department has shown during the process of completing its proposed enclosure structure for coke material. The time it has taken to explore various options for coming into the compliance with the enclosure structure requirements is reasonable given the effort that was needed to overcome logistical and economic hurdles involved in this project. Because most facilities which handle coke material do so in much greater volumes than Horsehead does, the enclosure requirement presented challenges for which no applicable precedent was identified. Therefore, it took additional time to navigate this new

regulatory territory in a way that would ensure that the Chicago Plant could continue to operate. Horsehead will continue to exercise all due diligence to complete the enclosure structure as soon as possible. Horsehead has nothing to gain by doing otherwise.

Pursuant to the Department's request, Horsehead has submitted this variance request as soon as it was able to project a proposed completion date for the enclosure structure. Because the proposed July 1, 2016 completion of the enclosure project depends on certain factors beyond Horsehead's control, such as the issuance of permits and weather conditions, Horsehead reserves the right to supplement this variance request should future developments in the schedule require some additional time beyond July 1, 2016.

Horsehead respectfully submits that it has satisfied the requirements for a variance in Section 8.0 of the Rules and requests that the Commissioner grant the requested variance for the reasons described above.

Respectfully submitted,

A handwritten signature in black ink that reads "BRAD D Sutek". The signature is written in a cursive style with a long horizontal line extending to the right.

Brad Sutek
Plant Manager

EXHIBIT A

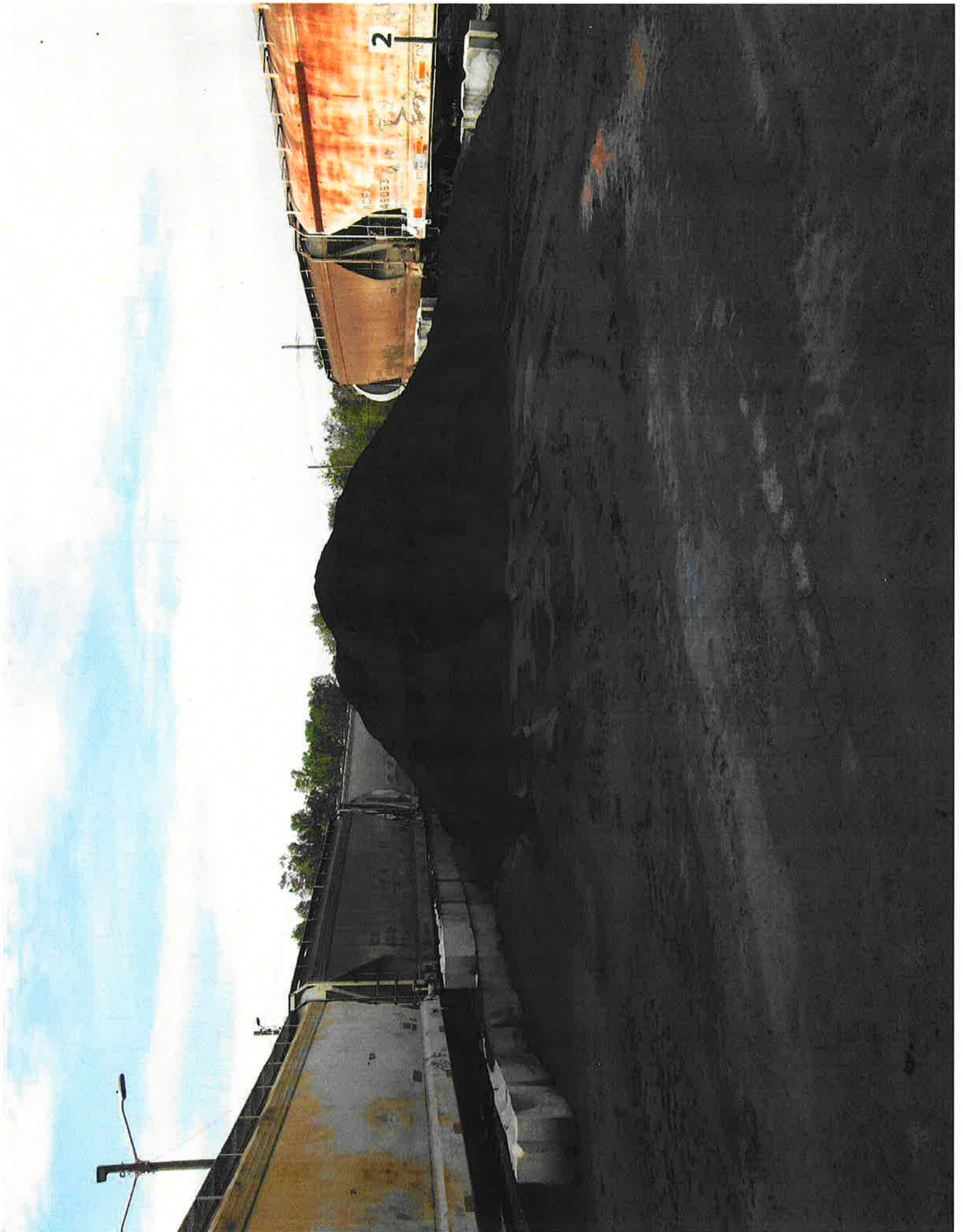




EXHIBIT B

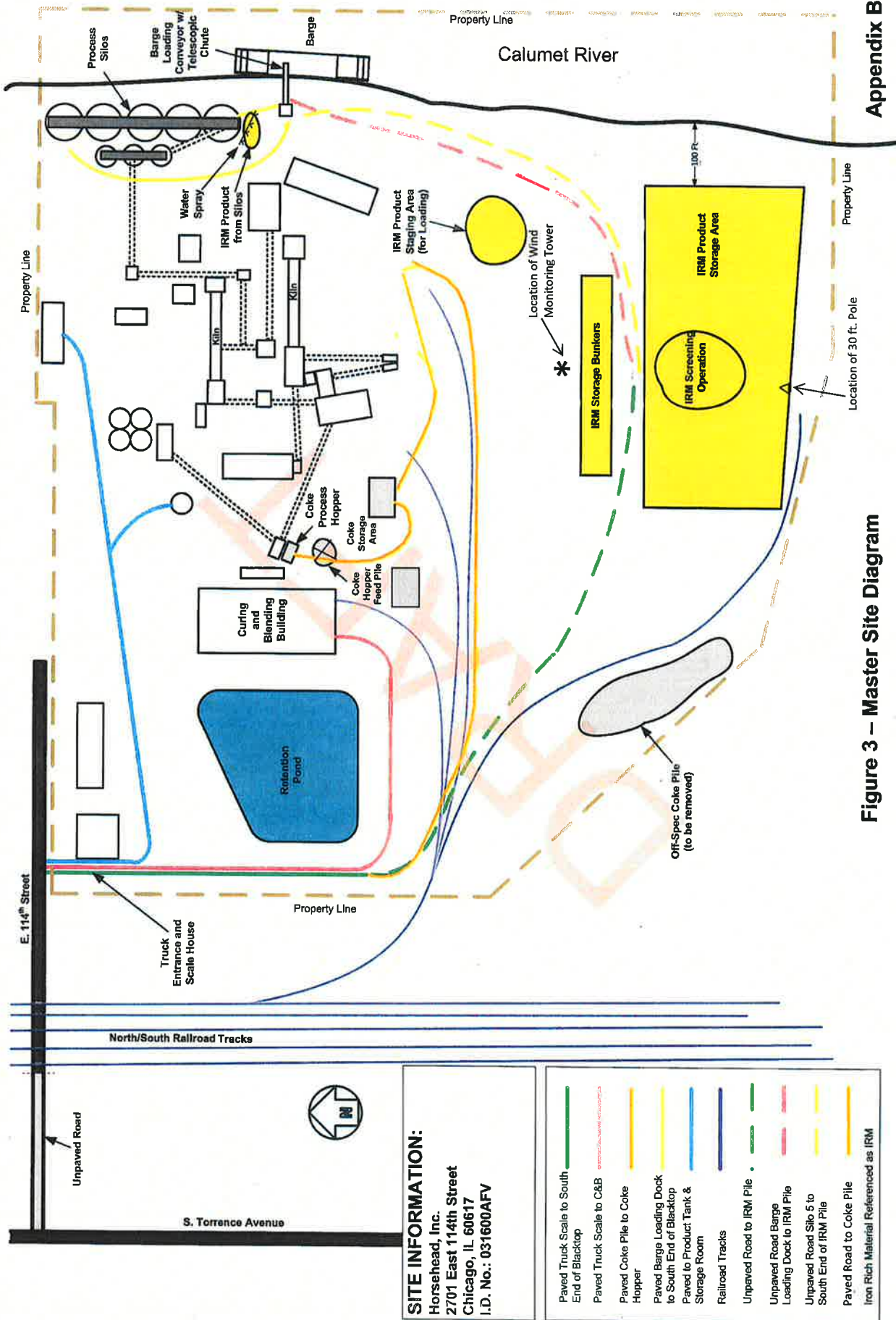


Figure 3 – Master Site Diagram

SITE INFORMATION:
 Horsehead, Inc.
 2701 East 114th Street
 Chicago, IL 60617
 I.D. No.: 031600AFV

	Paved Truck Scale to South End of Blacktop
	Paved Truck Scale to C&B Hopper
	Paved Coke Pile to Coke Hopper
	Paved Barge Loading Dock to South End of Blacktop
	Paved to Product Tank & Storage Room
	Railroad Tracks
	Unpaved Road to IRM Pile
	Unpaved Road Barge Loading Dock to IRM Pile
	Unpaved Road Silo 5 to South End of IRM Pile
	Paved Road to Coke Pile
	Iron Rich Material Referenced as IRM

EXHIBIT C

TIMOTHY R. BASILONE
Vice President - Environmental Affairs

4955 STEUBENVILLE PIKE
SUITE 405
PITTSBURGH, PA 15205

WWW.HORSEHEAD.NET
TBASILONE@HORSEHEAD.NET

724.773.2223
412.788.4526



April 13, 2015

Jennifer David Hesse
Chicago Department of Public Health
Environmental Permitting & Inspections
333 South State Street, Rm. 200
Chicago, IL 60604
(312) 745-8222

Dear Ms. Hesse:

Thank you for meeting with us on March 16, 2015 to discuss various matters pertaining to coke management at the Horsehead Corporation (Horsehead) Chicago facility. In follow up to that meeting and pursuant to your advice, we are in the process of scheduling a meeting with the City of Chicago Planning Department (the Department) to discuss the possibility of obtaining a variance for certain provisions of the city's building code for the construction of a building in a cost effective manner given the nature of our operation compared to various local coke transfer tenants in the area. Based on our initial telephone discussion with them, the department advised that a representative of the fire department should also be in attendance at the meeting. We are currently attempting to set up a meeting with both parties.

At our March 16 meeting we also discussed the amended throughput ordinance with regard to Horsehead's use of coke in their process. As we described, all coke that is delivered to the Horsehead facility is consumed in the process, and no coke is shipped from the facility. In other words, there is no throughput per se; records show that coke delivered to the facility has been consumed on average within a two to three week period. As we indicated, we believe the amount of coke stored at the facility can be reduced to approximately [800 cubic yards], which would reduce the period of time from delivery to consumption to around one week on an average basis.

Since our meeting we obtained a copy of the 2014 Fugitive Dust Study by CDM Smith that was relied upon by the city as a basis for developing rules requiring coke to be stored in a building by March 2016, and the more recent amended throughput ordinance. During the meeting we described circumstances at the Horsehead facility are such that it did not appear that the building requirement or throughput ordinance were applicable to Horsehead. Enclosed is a comparison of circumstances at the Horsehead facility to the "conceptual" facility described in the CDM Smith Report.

Based on this analysis, the potential for airborne release of coke at the Horsehead facility is significantly less than the conditions under which airborne releases are predicted using the "conceptual" facility in the CDM Report:

- Based on the volume of coke stored at the Horsehead facility, the footprint and height of the coke pile at Horsehead, and the location of the pile on site surrounded by facilities that serve as wind barriers, significantly less surface area is available for potential airborne release of coke than the conceptual facility described in the CDM Report; and
- Based on the historic average minimum moisture content (12%) of coke at the time of delivery to the Horsehead facility, and the rate of consumption of the coke at the Horsehead facility, the potential for airborne release of material is significantly less than the conceptual facility described in the CDM Report.

Horsehead believes the distinction between the information relied upon by the Department in comparison to the actual situation at the Horsehead facility supports our view that the building requirement and throughput are not applicable to the Horsehead situation.

Based on the limited amount of coke maintained at the site, employed coke management practices, the (less) frequent disturbance activity associated with coke usage at the Horsehead facility, and the fact that coke is consumed at the facility as opposed to transferred for off-site shipment, the potential for airborne releases is significantly less than those described in the CDM Report.

We believe the enclosed information supports our request for relief from specific requirements relating to the building and throughput ordinance requirements. We are available to meet with you at your earliest convenience to discuss these matters further, in light of the enclosed information.

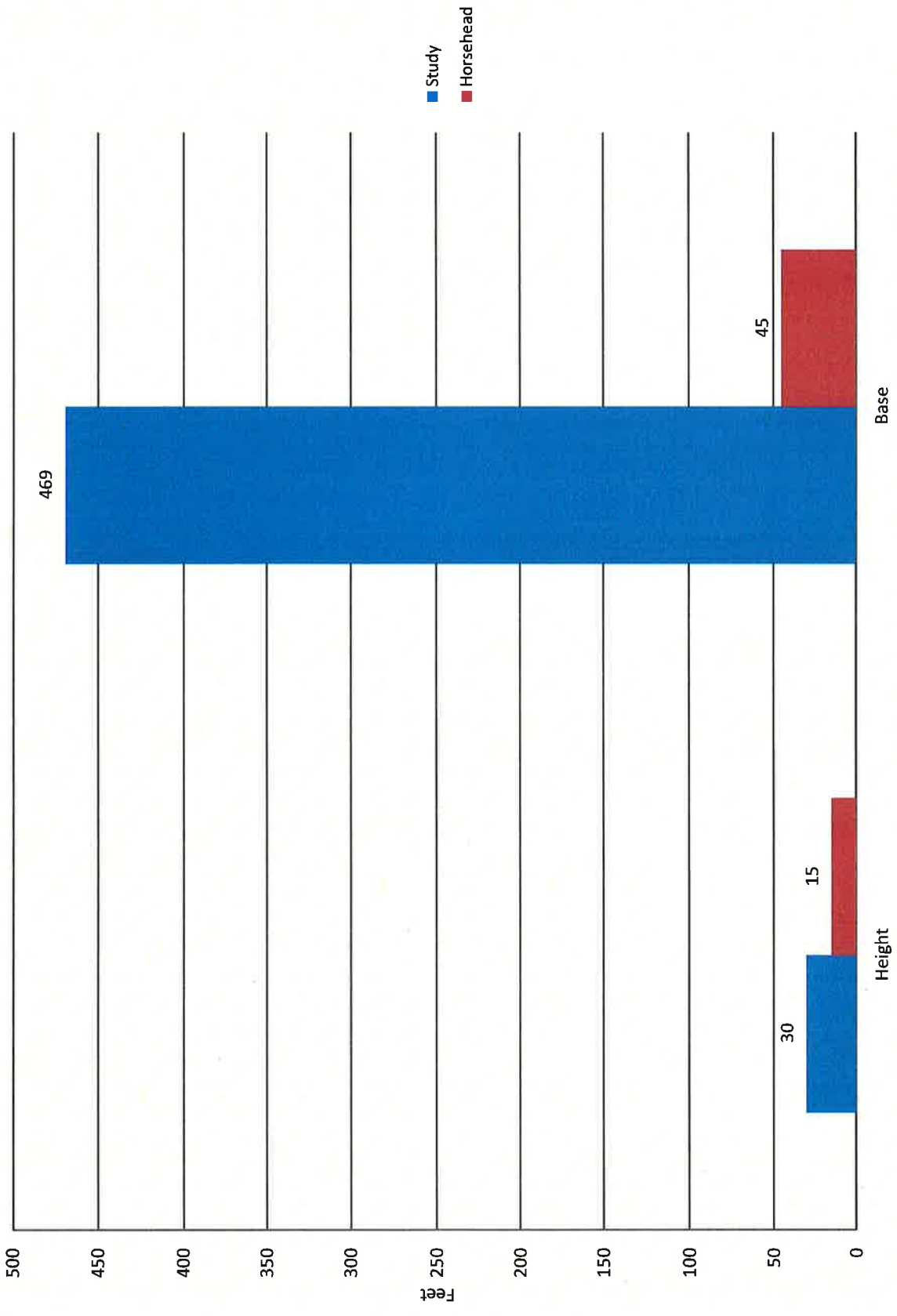
Yours truly,



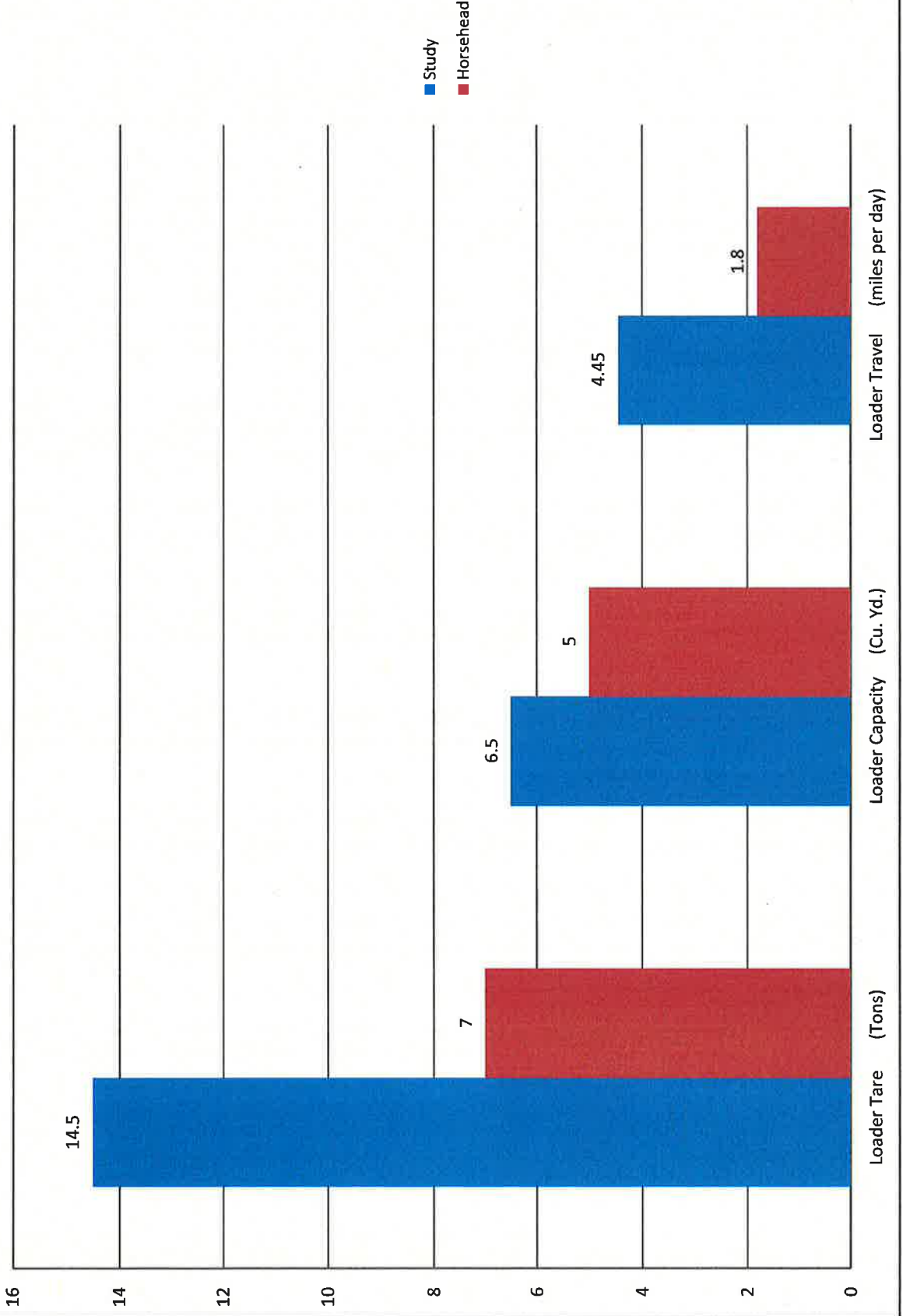
Timothy R. Basilone



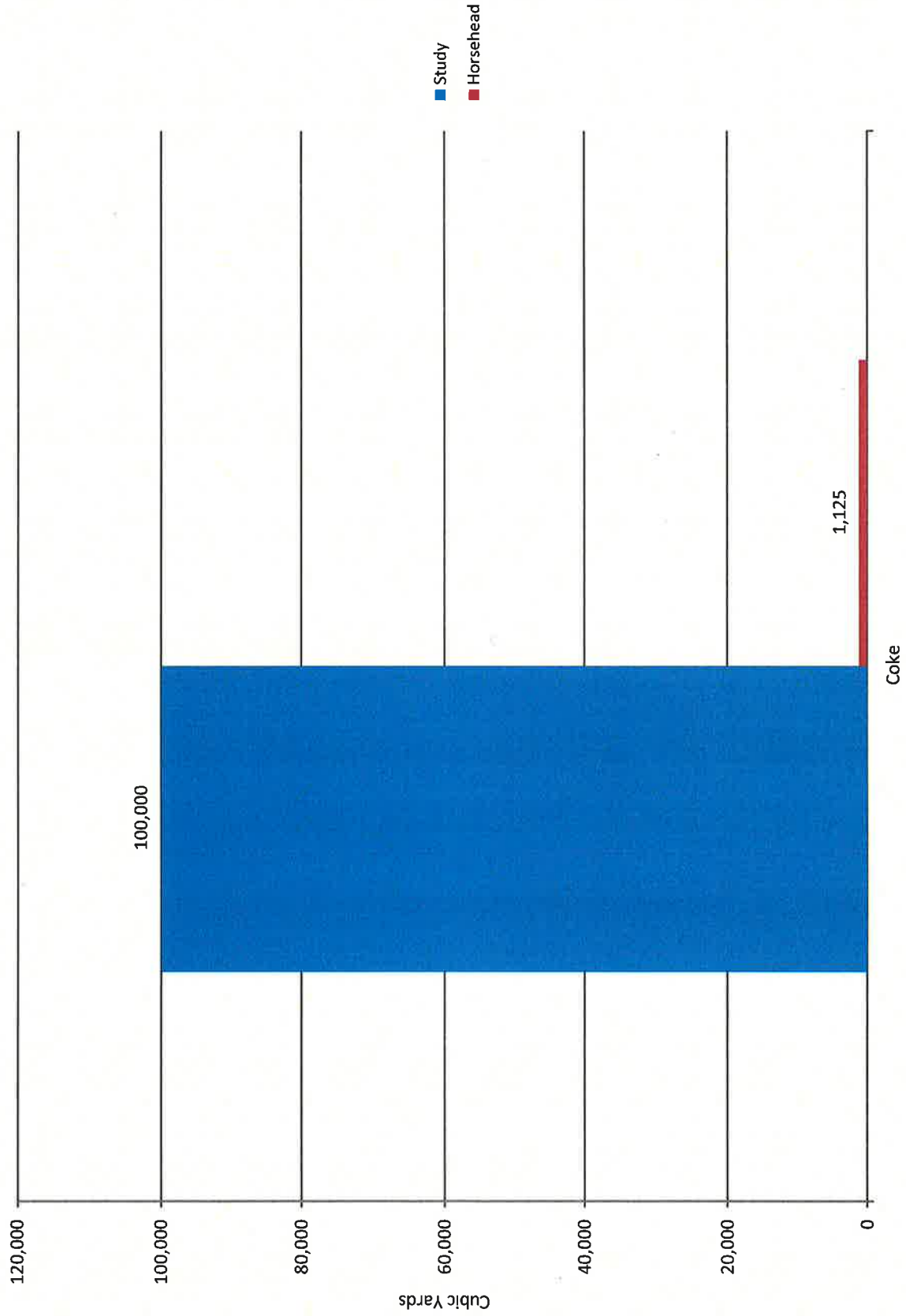
Storage Pile Size



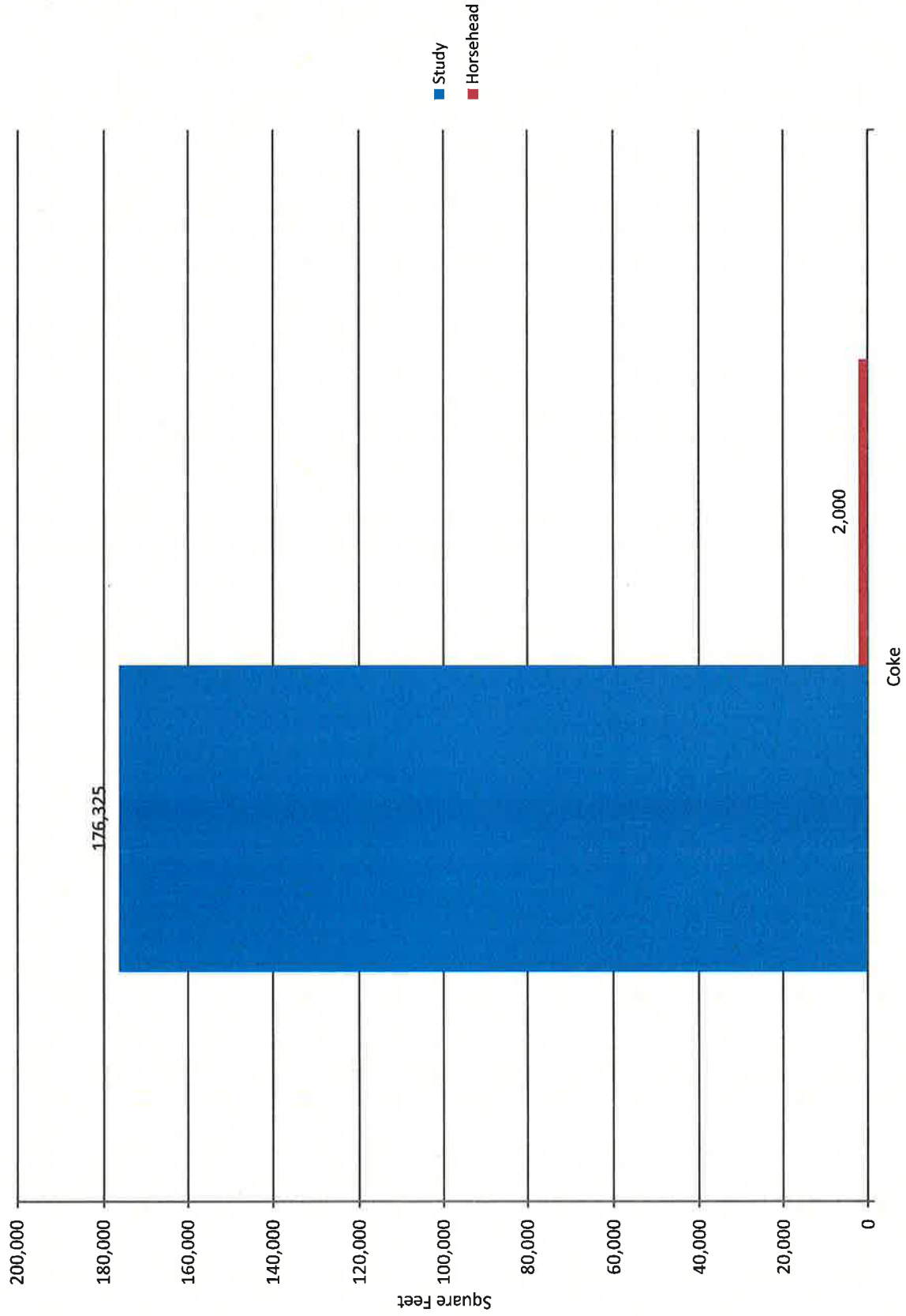
Stockpile: Front End Loader



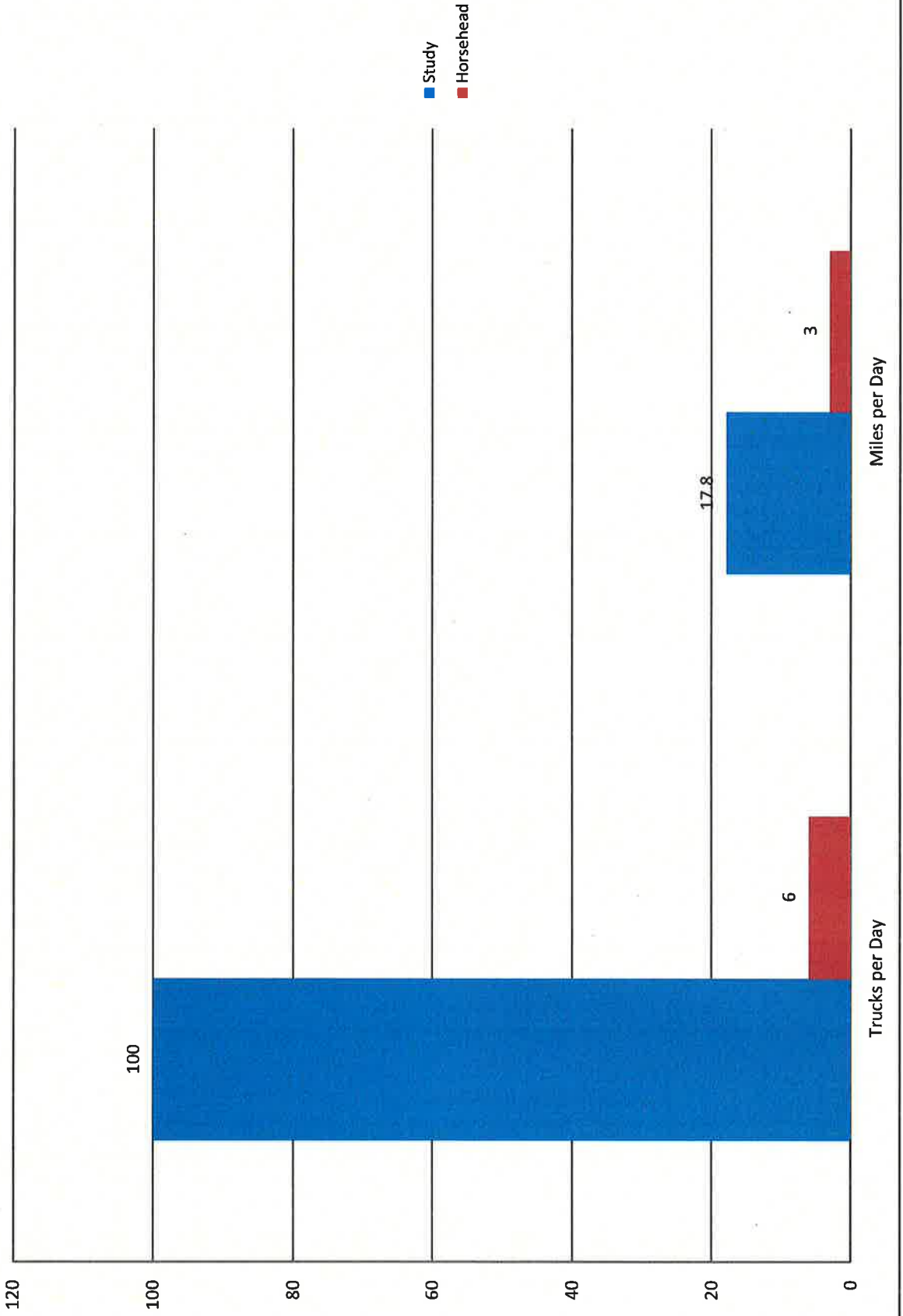
Total Volume of Material Stored



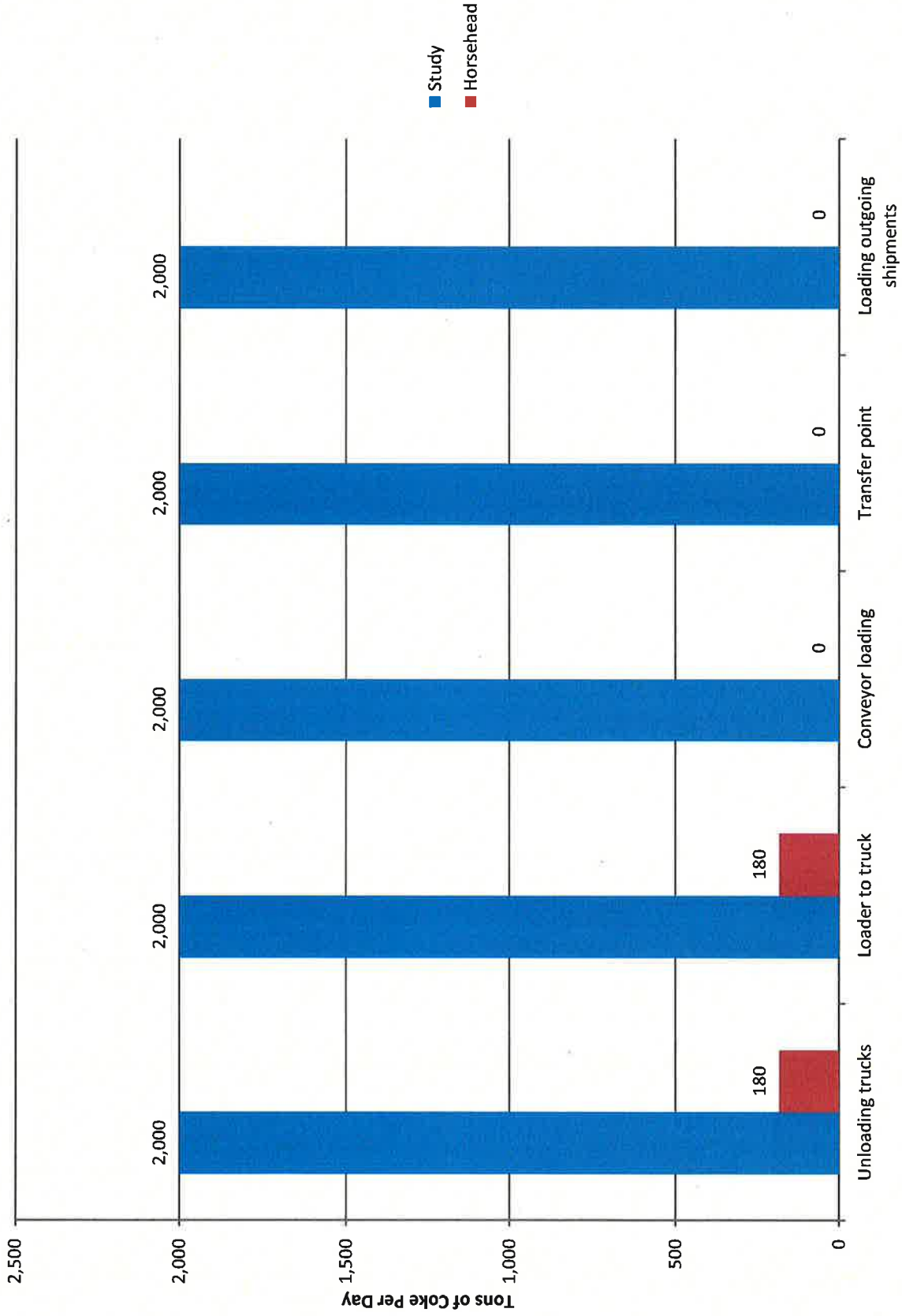
Exposed Surface Area of Storage Pile



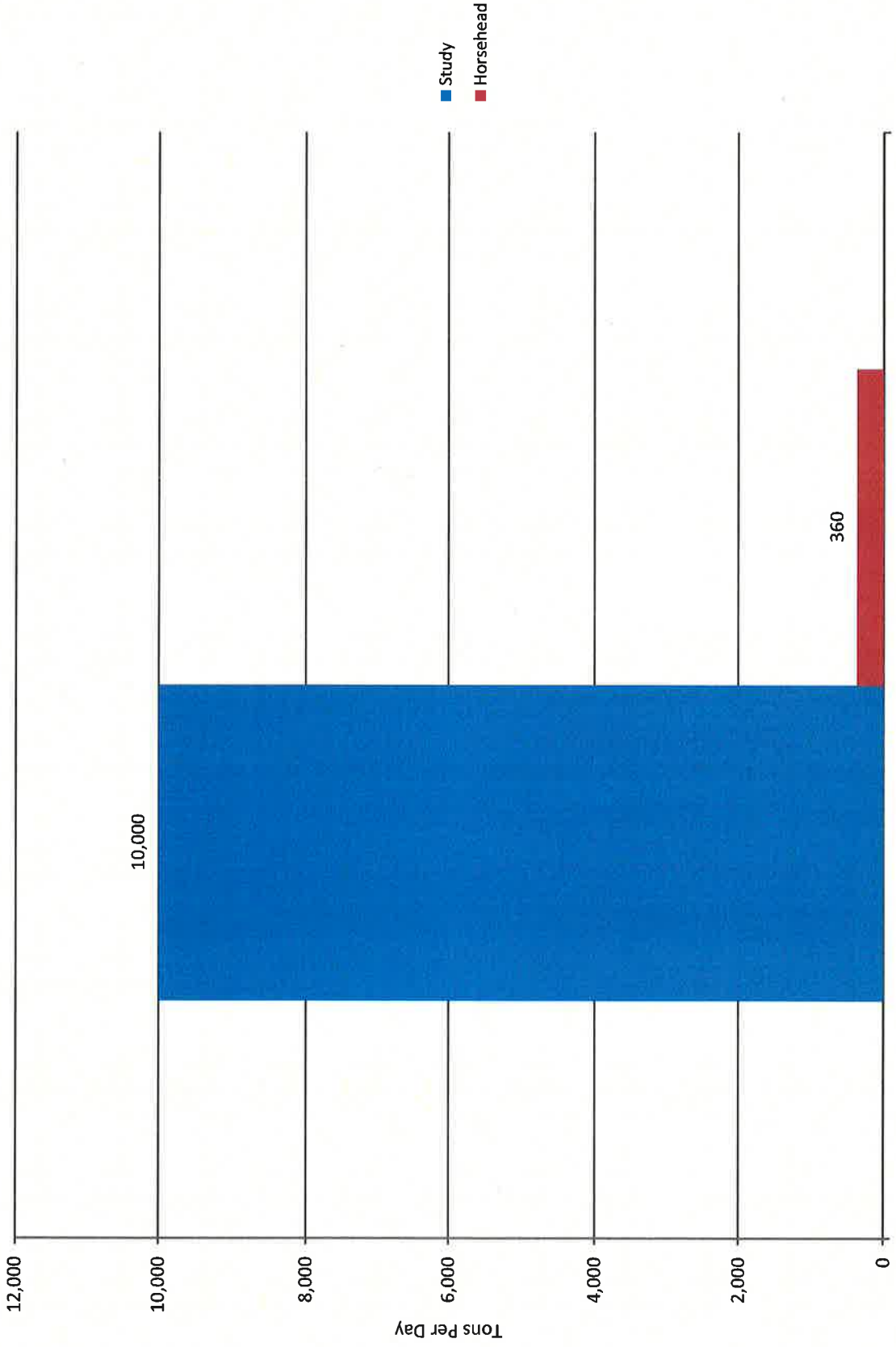
Truck Travel over Paved Roads



Unloading Operations

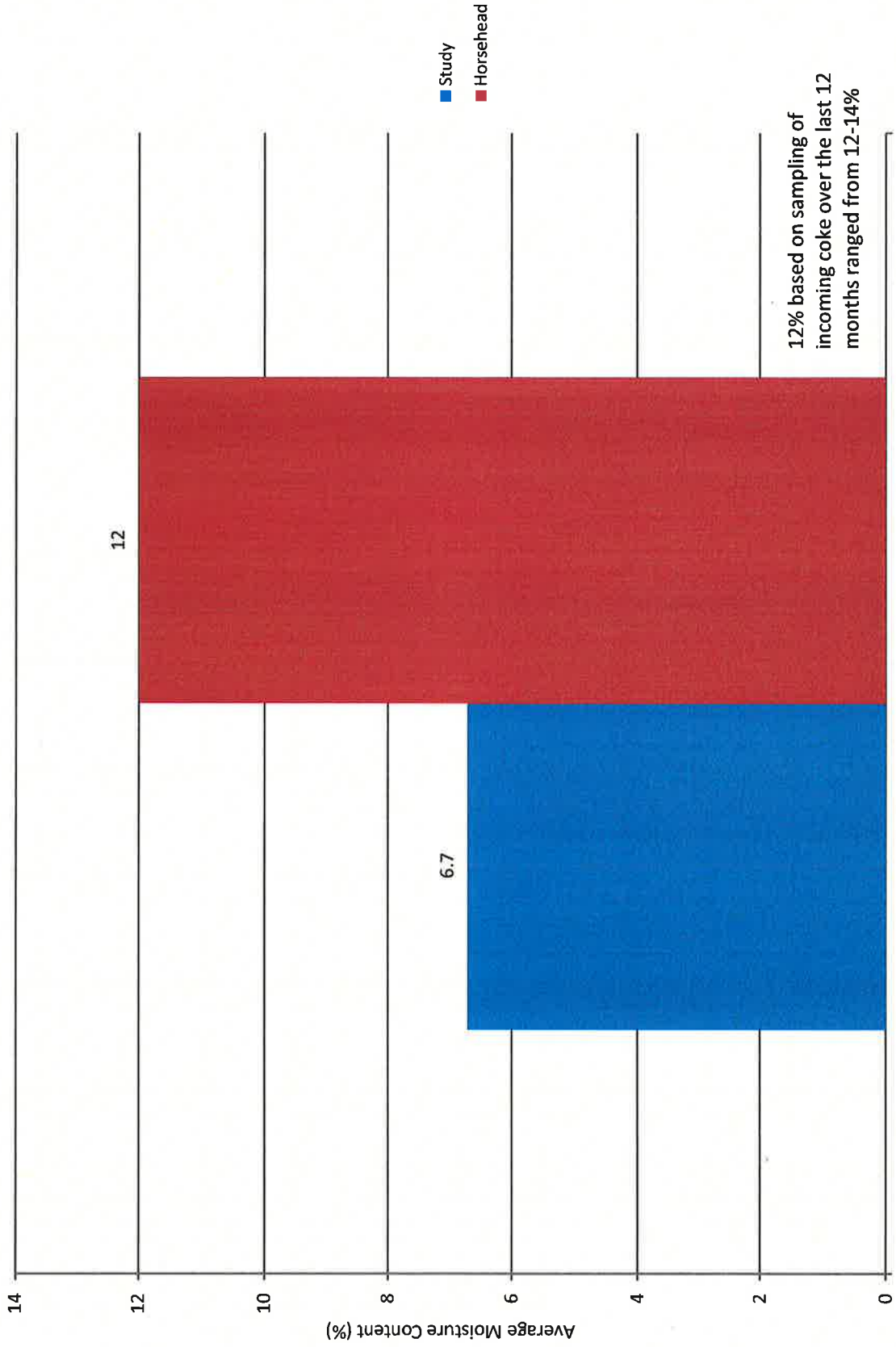


Material Handled



Coke

Moisture Content (%)



12% based on sampling of incoming coke over the last 12 months ranged from 12-14%

Coke

EXHIBIT D

Horsehead Corporation - Coke Building

