April 14, 2015

Via email
Allegheny County Health Department
Air Quality Program
301 39th St., Building 7
Pittsburgh, PA 15201-1891
aqpermits@achd.net

Comments Regarding Draft Synthetic Minor Operating Permit #0275 – McConway & Torley LLC, 109 48th St. Pittsburgh, PA 15201

Dear Sir or Madam,

Please accept these comments regarding Draft Synthetic Minor Operating Permit #0275 for McConway & Torley LLC, 109 48th St. Pittsburgh, PA 15201 on behalf of Clean Water Action, the American Lung Association in Pennsylvania, Allegheny County Clean Air Now, Clean Air Council, Women for a Healthy Environment, Sustainable Pittsburgh, and the Group Against Smog & Pollution. Thank you for providing this opportunity to comment.

Sincerely,

Joe Osborne
Legal Director
Group Against Smog & Pollution
5135 Penn Ave.
Pittsburgh, PA 15224

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Pennsylvania Campaigns Director
Clean Water Action
100 5th Ave, Ste 1108
Pittsburgh, PA 15222

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COMMENTS RE: DRAFT SYNTHETIC MINOR OPERATING PERMIT #0275 – MCCONWAY & TORLEY LLC, 109 48TH ST. PITTSBURGH, PA 15201

I. Background on the McConway & Torley facility

On March 13, 2015 the Allegheny County Health Department Air Quality Program (ACHD) published notice of intent to issue a synthetic minor source operating permit to the McConway & Torley facility (109 48th Street, Pittsburgh, PA 15201),[1] a steel foundry producing railcar couplers. Activities at the site include steel melting, mold-making, casting, and finishing.

The facility is located in Pittsburgh's Lawrenceville neighborhood, less than 500 feet from a densely populated residential area. Our understanding of the human health impacts of air pollution has improved dramatically in the roughly century and a half since foundry operations began at this location.[2] It is exceedingly unlikely a facility generating air emissions comparable to the McConway & Torley facility would be constructed in such close proximity to a residential area today. Based on 2013 reported actual emissions from all stationary air pollution sources in Allegheny County, McConway & Torley was

- the 3rd largest source of benzene emissions,
- the 3rd largest source of manganese (Mn) emissions,
- the 4th largest source of chromium (Cr) emissions,
- the 10th largest source of PM2.5 emissions,
- the 11th largest source of carbon monoxide (CO) emissions, and
- the 12th largest source of lead (Pb) emissions.[3]

Given the quantity and types of pollutants emitted by McConway & Torley and its proximity to a densely populated residential area, the importance of ensuring the final operating permit is complete, accurate, and effective cannot be understated.

II. ACHD's revised building control policy is reasonable, technically sound, and consistent with Clean Air Act policy and regulatory requirements

At present, the McConway & Torley facility is subject to a production limit of 92,500 tons of steel melted in any consecutive 12-month period.[4] This production limit was established in the facility's January 2011 installation permit for a second electric arc furnace ("IP7") and was intended keep the facility's PM10 potential to emit (PTE) below the 100 ton per year (TPY) major source threshold.[5]

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[1] ACHD, Permits in Public Comment until April 14, 2015, http://www.achd.net/air/publiccomment2015/notice_149-2015-03-13pg.pdf.
[2] McConway & Torley, Company Information, http://www.mcconway.com/info/default.htm.
[3] PADEP, eFacts Facility Emissions Report http://www.ahs.dep.pa.gov/eFACTSWeb/criteria_facilityemissions.aspx.
[4] ACHD, McConway & Torley IP #0275-I007 (Jan. 21, 2011) Condition IV.20 at 15.
[5] ACHD, Review of Application - McConway & Torley IP #0275-I007 (Jan. 20, 2011) at 1.

ACHD now proposes a lower production limit of 21,250 tons of steel melted in any consecutive 12-month period in the draft synthetic minor operating permit.[6] This new, lower production limit is based in part on new and revised emission rates and pollution control efficiency assumptions developed in the time since IP7 was issued in 2011.[7] Based on these updated emission calculations, at its current 92,500 ton production limit, McConway & Torley exceeds the major source thresholds for PM10, PM2.5, and carbon monoxide.[8] The new, lower 21,250-ton limit is necessary in order to prevent facilitywide PTE from exceeding major source thresholds.

McConway & Torley has challenged several aspects of the Department's emission calculation changes, as well as the resulting lower production limit.[9] Most notably, McConway & Torley disputes ACHD's decision to no longer accept unsubstantiated emission reduction claims based on building enclosures.[10] McConway & Torley's objections notwithstanding, ACHD's decision to reject unsubstantiated building control figures is reasonable, technically sound, consistent with Clean Air Act policy recommendations and regulatory requirements, and provides a more accurate accounting of emissions from the McConway & Torley facility.

A. *ACHD's previous blanket 50% PM10 emission reduction for building controls was unreasonable, arbitrary, and capricious.*

In the past, ACHD has allowed sources to apply a 50% reduction to PM10 emitted within a building on the assumption the building itself could contain and control 50% of these emissions. In January 2015, ACHD informed those county air pollution sources claiming emission reductions based on building structures that, upon review, the building emission reduction policy "was found to have no technical basis to reference and was incongruent with policies and procedures of other air agencies,"[11] and that the Department "no longer allows for the use of buildings as a control device for particulate matter . . . unless the reduction at your specific building is measurable and can be proven to be such to the satisfaction of the Department."[12]

The extent to which a building may contain or control particulate matter emissions depends on a variety of factors, including building dimensions; the size, number, and location of openings within the structure; location of emission points; direction, velocity, and volume of air

[6] ACHD, McConway & Torley Draft Synthetic Minor Operating Permit #0275 (Mar. 2015) Condition IV.21 at 23.
[7] ACHD, Review of Application - McConway & Torley Draft Synthetic Minor Operating Permit #0275 (Jan. 28, 2015) at 4-5.
[8] *Id* at 4.
[9] McConway & Torley, Comments on Draft-Synthetic Minor Operating Permit No. 0275 - McConway & Torley (Feb. 27, 2015) at 2 [hereinafter "MT Operating Permit Comments"]
[10] *Id*.
[11] Attachment 1: ACHD Letter Re: Claiming Bui/dings as Emissions Reductions, (Jan 26, 2015).
[12] *Id*.

flow through building openings; temperature; and particle size and density.[13] Given the complexity of determining the level of control afforded by an enclosure, ACHD's previous policy of simply assuming a 50% building control efficiency for all applicable sources without any facility-specific analysis of the above-listed factors, was unreasonable, arbitrary, and capricious.

B. *ACHD's previous blanket 50% PM10 emission reduction for building controls did not satisfy EPA's requirements for practical enforceability and thus was not an effective limit on potential to emit.*

Further, according to EPA, in order to effectively limit potential to emit, permit limitations must be enforceable as a practical matter:[14]

> "[P]racticable enforceability for a source-specific permit means that the permit's provisions must specify: (1) A *technically-accurate* limitation and the portions of the source subject to the limitation; (2) the time period for the limitation (hourly, daily, monthly, and annual limits such as rolling annual limits); and (3) the method to determine compliance including appropriate monitoring, recordkeeping, and reporting."[15]

> "When permits require add-on controls operated at a specified efficiency level, *permit writers should include, so that the operating efficiency condition is enforceable as a practical matter, those operating parameters and assumptions which the permitting agency depended upon to determine that the control equipment would have a given efficiency*".[16]

As stated above, ACHD's previous blanket 50% building control efficiency presumption had, in ACHD's own words, "no technical basis"[17] and involved no evaluation of the factors relevant to quantifying building control efficiency. Thus the blanket 50% building control presumption is not a "technically-accurate limitation." Further, because ACHD's 50% control presumption is not based on any particular operating parameters or assumptions, the Department could not possibly follow EPA's recommendation to include permit conditions establishing "those operating parameters and assumptions which the permitting agency depended upon to determine that the control equipment would have a given efficiency."

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[13] *See e.g.*, USEPA, Permanent Total Enclosures Fact Sheet, http://www.epa.gov/ttncatc1/dir1/fpte.pdf; USEPA, Method 204, http://www.epa.gov/ttnemc01/promgate/m-204.pdf; MT Operating Permit Comments, *supra* note 9, at 70.

[14] USEPA, Limiting Potential to Emit in NSR Permitting, http://www.epa.gov/reg3artd/permitting/limitPTEmmo.htm

[15] Memo from John Seitz, Director OAQPS, USEPA, Options for Limiting PTE Under Section 112 and Title V of the Clean Air Act (Jan. 25, 1995) at 5-6, *available at* http://www.epa.gov/region7/air/title5/t5memos/ptememo.pdf [emphasis added]

[16] USEPA, Limiting Potential to Emit in NSR Permitting, *supra* note 14 [emphasis added].

[17] Attachment 1: ACHD Letter Re: Claiming Bui/dings as Emissions Reductions (Jan 26, 2015).

Thus ACHD's previous blanket 50% building control efficiency did not satisfy EPA's practical enforceability requirements and was not an effective limit on potential to emit. In addition to addressing these issues, ACHD's new building control policy will result in more accurate emission calculations as air permit applicants will be required to provide a technical basis to support their building control claims. Further, because substantiated building control claims are comparatively accurate and can be rendered enforceable as a practical matter, the revised building control policy will likely result in improved compliance with regulatory requirements based on potential to emit.

III. Concerns regarding manganese emissions from the McConway & Torley facility.

In 2011, concerns regarding community exposure to toxic metal emissions from the McConway & Torley facility prompted ACHD to install and operate an ambient air monitor at the facility fenceline. This monitoring effort has provided 24-hour-average ambient air PM10, manganese (Mn), chromium (Cr), and lead (Pb) concentrations at the McConway & Torley facility fenceline from April 30, 2011 to present.[18] A 24-hour sample is collected once every 3 days.[19]

The average monitored Mn concentration from April 30, 2011 to March 13, 2015 (the latest date for which monitoring data has been published) is 76.28 ng/m^3 (nanograms per cubic meter).[20] This value is 53% higher than the USEPA Integrated Risk Information System (IRIS) reference concentration (RfC) for Mn of 50 ng/m^3.[21] The IRIS RfC is defined as, "[a]n estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime."[22]

Excessive manganese exposure is associated with adverse neurological effects, including tremors, difficulty walking, facial spasms, mood disturbances, impaired reaction time, impaired hand-eye coordination, cognitive deficits, and diminished memory.[23] Individuals living near the McConway & Torley facility may be at risk of developing adverse health effects associated with excessive Mn exposure due to the presence of ambient air Mn concentrations greater than the IRIS RfC.

A. *Consistent with its standard policy, ACHD should rely on the IRIS RfC, rather than the ATSDR MRL when evaluating Mn-related health risks.*

[18] ACHD, Lawrenceville Toxic Metals Study (Mar. 27, 2015) at 1 & 4, *available at* http://www.achd.net/air/pubs/pdf/032715_LawrencevilleToxicMetals.pdf.
[19] *Id*. at 1.
[20] *Id*. at 4.
[21] USEPA, IRIS Summary - Manganese, http://www.epa.gov/iris/subst/0373.htm.
[22] USEPA, IRIS Glossary, http://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&glossaryName=IRIS%20Glossary
[23] USEPA, IRIS Summary – Manganese, *supra* note 21.

"The Department shall not issue [an] Operating Permit" unless it has determined that "[e]missions from the source will not endanger the public health, safety, or welfare."[24] The fact that monitored Mn concentrations at the McConway & Torley fenceline exceed the IRIS RfC suggests that emissions from the source may endanger the public health, safety, or welfare.

Typically, IRIS values are ACHD's preferred source of chemical toxicity information. For instance, ACHD's air toxics guidelines state that,

> "the best available recognized and peer reviewed science should be used to conduct risk assessments required by this policy. In general, if risk assessment information is available in EPA's Integrated Risk Information System (IRIS) for the air toxics under evaluation, there is no need to search further for additional sources of information."[25]

As recently as the September 3, 2014 update to the Lawrenceville Toxic Metals Study, ACHD indicated IRIS was its preferred source for chemical toxicity information.[26] However, in the January 7, 2015 update to the Lawrenceville Toxic Metals Study, ACHD indicated it would now use the ATSDR Minimum Risk Level (MRL), rather than the IRIS RfC, to assess Mn-related health risks.[27]

The ATSDR MRL for Mn is 300 ng/m^3—6 times higher than the IRIS RfC, and nearly 4 times higher than the average monitored Mn concentration at the McConway & Torley fenceline. However, several studies have found neurological effects at air Mn concentrations well below the ATSDR MRL, for example:

- Solis-Vivanco et al. (2009) – Impaired attention at 100 ng/m^3 cut-off point.[28]
- Riojas-Rodríguez et al. (2010) – Diminished full-scale and verbal IQ in population exposed to mean Mn concentration of 130 ng/m^3.[29]
- Kim et al. (2011) – increased postural sway and increased risk of abnormal Unified Parkinson's Disease Rating Scale scores in population exposed to mean Mn concentration of 180 ng/m^3.[30]

These studies suggest the ATSDR MRL is inadequate to protect human health. By deviating from its standard policy and adopting a less protective manganese risk estimate, ACHD

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[24] Article XXI §2103.12.a.2.E.
[25] ACHD, Policy for Air Toxics Review of Installation Permit Applications (Nov. 7, 2012, *amended* Jan. 9, 2013) at 5, *available at* http://www.achd.net/air/pubs/pdf/ATG_final_2013-01-09_boh.pdf.
[26] Attachment 2: ACHD, Lawrenceville Toxic Metals Study (Sep. 3, 2014) at 1 ("ACHD references the USEPA I.R.I.S. Rfc (when available) as a screening tool to indicate that investigation into public exposure may be necessary. ACHD's Air Toxics Guidelines Document . . . also assigns top priority to the USEPA I.R.I.S. Rfc.")
[27] ACHD, Lawrenceville Toxic Metals Study (Mar. 27, 2015) *supra* note 18 at 1.
[28] Solis-Vivanco et al., Cognitive impairment in an adult Mexican population non-occupationally exposed to manganese. Environ Toxicol Pharmacol 8(2):172-178 (2009).
[29] Riojas-Rodriguez et al., Intellectual function in Mexican children living in a mining area and environmentally exposed to manganese. Environ Health Perspect 118(10):1465-1470 (2010).
[30] Kim et al.,. Motor function in adults of an Ohio community with environmental manganese exposure. Neurotoxicology 32(5):606-614 (2011).

avoids its nondiscretionary duty to determine whether emissions from the source endanger public health, safety, or welfare. ACHD's decision to rely on the ATSDR MRL for Mn may cause the Department to overlook an imminent threat to human health. It may also undermine public confidence in the Department's commitment to protecting the health of county residents. Thus we urge the Department to reverse its decision and to rely once again on the IRIS RfC to evaluate Mn-related health risks.

B. *ACHD should include a condition requiring continued fenceline monitoring in the final operating permit.*

Initially, McConway & Torley was required to allow ACHD to operate an ambient air monitor at the facility fenceline for up to 36 months pursuant to a condition of a facility installation permit issued in 2011.[31] At present, the McConway & Torley operating permit contains no provision requiring monitoring to continue.

To McConway & Torley's credit, they have allowed the monitor to continue to operate beyond the initial 36-month term. However, as discussed in the previous section, ambient air Mn concentrations near the facility remain a concern. Air monitoring should continue so long as monitored Mn concentrations remain at or near the IRIS RfC. While McConway & Torley may be willing to allow the monitor to remain as long as ACHD desires, as a general policy matter, so long as a source's emissions are creating ambient air pollution concentrations of sufficient concern to have spurred ACHD to install a fenceline monitor, that source should not be permitted to unilaterally remove that monitor.

Thus ACHD should include an ambient air monitoring requirement similar to Condition IV.21 of McConway & Torley's 2011 installation permit #0275-I007 in the final operating permit. While operating permits typically do no include new substantive requirements, ACHD has both the authority and the duty to incorporate such a requirement in the present case pursuant to Article XXI §2103.12.a.2.E.

IV. The final operating permit must include additional testing, monitoring, reporting, and recordkeeping requirements for benzene.

The McConway & Torley facility's calculated benzene PTE is 9.67 TPY,[32] less than 5% below the 10 TPY major source threshold for a single HAP.[33] ACHD must include additional testing, monitoring, reporting, and recordkeeping requirements in the final permit in order to ensure benzene emissions from the facility cannot exceed the 10 TPY major source threshold.

V. Additional carbon monoxide emissions information is necessary prior to issuing the final permit.

[31] ACHD, McConway & Torley IP #0275-I007, *supra* note 4, Condition IV.21 at 15.
[32] ACHD, McConway & Torley Draft Synthetic Minor Operating Permit, *supra* note 6, Table VII-1 at 90.
[33] Article XXI §2101.20 definition of major source; 42 USC § 7412(a)(1).

ACHD notes in its permit review memo that "McConway & Torley did not include emissions estimates for carbon monoxide from the pouring, cooling and shakeout processes."[34] McConway & Torley's failure to provide this information is contrary to the application content requirements of Article XXI §2103.11.b.3; nevertheless, ACHD did not require McConway & Torley to provide this information, nor did the Department develop its own CO estimates for these sources prior to publishing the draft permit. The permit record also does not appear to include CO emissions estimates for the air arc welding tables, sand reclaim systems, mold making system, or sand handling/preparation.

Article XXI prohibits ACHD from issuing an operating permit "unless it has . . . [r]ecieved a complete application" which demonstrates compliance with all applicable air quality requirements.[35] At present, ACHD cannot ascertain compliance with all applicable air quality requirements because the permit record does not include an estimate of CO emissions from a number of emission units located at the facility.

ACHD's review memo notes that "[a] paper from the Casting Emissions Reduction Program (CERP) . . . shows high levels of carbon monoxide in metalcasting operations."[36] In fact, the CERP paper reported CO emission rates for steel foundry pouring, cooling, and shakeout operations ranging from 0.51 to 2.31 lbs/ton of metal poured.[37] At the facility's proposed 21,250-ton production limit, this would result in potential CO emissions of 5.31 to 24.54 TPY from facility pouring, cooling, and shakeout operations alone. By failing to estimate CO emissions from pouring, cooling, and shakeout, the McConway & Torley facility PTE calculations may fail to account for CO emissions equivalent to nearly 25% of the major source threshold.

Given the lack of CO emissions data for multiple emission units and pollutant emitting activities at the McConway & Torley facility, the permit record does not appear to sufficient information at present to support a finding that the facility will comply with all applicable air quality requirements. For example, the permit record does not contain sufficient information to determine whether CO emissions from the facility may cause CO NAAQS violations,[38] violate an applicable CO emission limit,[39] or cause emissions to exceed the CO major source threshold.[40]

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[34] ACHD, Review of Application - McConway & Torley Draft Synthetic Minor Operating Permit #0275, *supra* note 7, at 5.
[35] Article XXI §2103.12.a.2.
[36] Schifo et al., Carbon Monoxide and Carbon Dioxide Emissions in Metalcasting Pouring, Cooling and Shakeout Operations (Mar. 2008), *available at* http://www.afsinc.org/files/1413-211%20co%20co2%20variability%20pcs%20public_1383852424686_19.pdf.
[37] *Id*. Table 5 at 15.
[38] Article XXI §2103.12.a.2.E & F.
[39] ACHD, McConway & Torley Draft Synthetic Minor Operating Permit, *supra* note 6, Condition IV.21 at 23.
[40] Article XXI §2101.20 definition of major source; 40 CFR 52.21(b)(1)(i).

The draft operating permit includes CO testing requirements for several emission units that were not accounted for in current facility CO PTE calculations.[41] We commend the Department for incorporating these CO testing requirements, which presumably will allow for more complete, accurate facility CO emissions calculations in the future.

However, as the facility is presently configured, some unquantified but potentially significant sources of CO are fugitive sources that cannot be subjected to CO stack test requirements such as emissions from pouring and cooling operations. However, while stack testing may not be feasible, it may still be possible to develop a reasonably accurate estimate of CO emissions from pouring and cooling based on parametric monitoring, mass balance, or use of emission rates derived from stack tests of similar sources. The CERP paper[42] analyzes the effect of several varying operational parameters on CO emissions from pouring and cooling and thus may prove useful in developing an emissions estimate for McConway & Torley pouring and cooling operations.

[41] ACHD, McConway & Torley Draft Synthetic Minor Operating Permit, *supra* note 6, Condition V.H.2 at 60 (mold making and sand handling), Condition V.I.2.a&b at 63 (shakeout and sand reclaim), & Condition V.K.2.a at 67 (air arc welding tables).
[42] Schifo et al., *supra* note 36.

Attachment 1

COUNTY OF ALLEGHENY

RICH FITZGERALD
COUNTY EXECUTIVE

January 26, 2015

Scott Buterbaugh
McConway & Torley, LLC
109 48th Street
Pittsburgh, PA 15201-2755

RE: Claiming Buildings as Emissions Reductions

Dear Mr. Buterbaugh:

The Department is no longer allowing the blanket usage of building structures as a control device for purposes of potential and actual emissions reductions in air permits and emissions inventories effective immediately. The Department has historically allowed fugitive particulate emissions released inside of a building to have a certain level of control ascribed to them for purposes of emissions inventory and permitting. Upon review of this procedure, it was found to have no technical basis to reference and was incongruent with policies and procedures of other air agencies, including, but not limited to the PADEP, Ohio EPA, and Oregon DEQ. The Department no longer allows for the use of buildings as a control device for particulate matter (including PM10 and PM2.5) in Allegheny County unless the reduction at your specific building is measurable and can be proven to be such to the satisfaction of the Department.

Please revise all current and future emissions estimates and emissions inventories to reflect these changes noted above. If you have any questions, please call Sandra Etzel at (412)-578-8116.

Sincerely,

Jayme Graham
Air Quality Manager

cc: Sandra Etzel, Chief Engineer
Dean Deluca, Enforcement Chief

ALLEGHENY COUNTY HEALTH DEPARTMENT • AIR QUALITY PROGRAM
301 39TH STREET BUILDING #7 • PITTSBURGH, PA 15201-1811
PHONE (412) 578-8103 • FAX (412) 578-8144

Attachment 2

A. Introduction

This report is a revision of the previous report that was released July 14, 2014. This version contains data through August 24, 2014. Additional revisions will be released as new data is generated in the future.

A special study was initiated on 04/30/2011 in Lawrenceville in response to public concern about local exposure to toxic metals potentially being released into the community by McConway & Torley LLC. located at 109 49th Street, Pittsburgh PA. Activities at this industrial site include a steel foundry and railcar coupling casting. The Air Quality Program has determined that toxic metals that may potentially be released by these processes are particle bound manganese, lead and chromium.

Air sampling is being conducted on McConway & Torley property using a USEPA reference method PM_{10} sampler. This sampler is a high volume, filter based method that draws ambient air at a flow rate of 40 cfm. The total volume of air sampled for each sample period is corrected to standard temperature and pressure. The sampler employs a size selective inlet allows only particles of an aerodynamic size of 10 microns or less to pass to the collection filter. Each sample operates for 24 hours, after which time the filter is removed for laboratory analysis. Sampling during this study is conducted every three days.

PM_{10} is that fraction of particle pollution that is known to penetrate to sensitive human respiratory tissues, including the lungs. Larger particles are generally trapped by mucus membranes in the sinus and esophageal portions of the human respiratory tract and are subsequently expectorated from the body.

B. Discussion of Air Monitoring Results

Measured ambient concentrations are listed in Figure 2 as running averages, in Figure 3 in graphical form and in Figure 4 as individual 24 hour sampling events. All results are presented in nanograms per 1 cubic meter of air, which is a standard method of presenting metals concentration in ambient air.

Estimates of long term exposure levels in the nearby community are complex due to seasonal variations of air movement, temperature and precipitation and also must consider the various operational conditions that may occur within the source. Final analysis must also account for any background concentrations of these pollutants that may be present that are not attributed to the local source.

Various public exposure limits are discussed in this section and are listed in Figure 2 for informational purposes. ACHD does not endorse any individual limit provided here as a “safe” exposure limit. The ACHD references the USEPA I.R.I.S. Rfc (when available) as a screening tool to indicate that investigation into public exposure may be necessary. ACHD’s Air Toxics Guidelines Document (ATG, rev 01/9/2013) also assigns top priority to the USEPA I.R.I.S. Rfc when evaluating installation permits for new facilities, or for modifications and/or addition of new equipment to existing facilities. The ATG does not currently apply to permitting of any operations at McConway & Torley. See the Air Quality Program’s website for detailed information regarding the ATG:
http://www.achd.net/air/pubs/pdf/2013_Air_Toxics_Guidelines_Implementation.pdf

PM_{10} Manganese Results

Figure 2 lists five concentration limits for manganese. The lowest of these limits is the USEPA I.R.I.S. Rfc, or inhalation reference concentration. This concentration is the average concentration below which no health effects are expected in individuals over a lifetime. Short term health effects are not expected at this level. Analysis of all available sampling data shows that the average measured manganese concentration exceeds the I.R.I.S. Rfc by about 58%. The USEPA I.R.I.S. Rfc for manganese was last updated 12/01/1993. For detailed information about the USEPA I.R.I.S. Rfc for manganese, see the webpage at: http://www.epa.gov/iris/subst/0373.htm

The second manganese limit listed is the California EPA's chronic Inhalation REL or Reference Exposure Level. This level is intended to be applied in a similar manner as the USEPA I.R.I.S. Inhalation Rfc. The average manganese concentrations measured during this study is about 88% of the California EPA chronic Inhalation REL. The California EPA last updated this manganese exposure level December 1, 2008. For detailed information about the California EPA chronic Inhalation REL see the webpage at: http://www.oehha.org/air/hot_spots/2008/AppendixD1_final.pdf#page=170

The third manganese concentration limit listed is the Agency for Toxic Substances and Disease Registry's (ATSDR) MRL or Minimal Exposure Level. This MRL is intended to serve as a screening level, and is used by ATSDR health assessors to identify contaminants and potential health effects that may be of concern at hazardous waste sites. It is below levels that might cause adverse health effects in the people most sensitive to such chemical-induced effects during exposure periods equal to or longer than one year. The average manganese concentration measured during this study is about 26% of the ATSDR MRL for manganese. ATSDR last updated this manganese exposure level during 2012. For detailed information about ATSDR's MRL see the webpage at: http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=23

The fourth manganese concentration limit listed was selected by the USEPA for use during the ongoing School Air Toxic Initiative. Air sampling was conducted at selected schools across the nation to determine exposure to nearby sources of known toxic emissions. The sample screening level, as defined by the EPA, is, "A level of pollution in the air that is below what we expect to cause health problems from short-term exposures, all day, every day over a period ranging up to at least a couple of weeks." The data collected during the full study period features two days when the 24 hour average concentration exceeded the SAT screening level for manganese. On April 3, 2012 this level was exceeded by 3.2% and on February 4, 2014 this level was exceeded by 6.2%. The third highest day during the study was measured on 09/16/13 and was about 86% of the SAT screening level for manganese. For more information about the School Air Toxic Initiative, see the webpage at: http://www.epa.gov/schoolair/

The fifth manganese concentration limit listed is the I.R.I.S. Inhalation LOAEL. LOAEL stands for the "lowest observable adverse effect level" and is defined as the lowest exposure level at which there are biologically significant increases in frequency or severity of adverse effects between the exposed population and its appropriate control group. This is a limit derived from an occupational setting and is based on repeated exposures during successive 8-hour work days over a period of years as a time weighted average. The highest daily manganese concentration recorded during this study is about one percent of the I.R.I.S. LOAEL, suggesting that short term acute adverse health effects due to manganese exposure are not to be expected in the nearby community.

PM_{10} Chromium Results

Chromium is found in the environment in two principal oxidation states. Chromium 3 is found naturally in foods at low levels and is an essential human dietary nutrient. Chromium 6 is the toxic form and is a known human carcinogen even at very low levels. The analytical method used on the samples in this study measures chromium as total chromium, meaning that it cannot differentiate between oxidation states. Commonly, chromium found in the environment consists of chromium 3 while chromium 6 is much more uncommon even near industrial sources of chromium. Health based limits are only listed for chromium 6 in the USEPA I.R.I.S. data base. These limits are as follows;

(Figure 1) Chromium +6 I.R.I.S. Chronic Inhalation Risk Factors

I.R.I.S Rfc (Chronic Inhalation)	**100 (ng/m^3)**
1 in 10,000 Cancer Risk	**8 (ng/m^3)**
1 in 100,000 Cancer Risk	**0.8 (ng/m^3)**
1 in 1,000,000 Cancer Risk	**0.08 (ng/m^3)**

Limits in Figure 1 represent individual lifetime average exposure to Cr+6. Since it is likely that only a small percentage of the measured total chromium is chromium 6, the monitoring data is not indicative of any anticipated short or long term health risks associated with chromium. For more details about Cr +6 and the risk factors included in figure 1 see the EPA I.R.I.S. webpage:
http://www.epa.gov/iris/subst/0144.htm

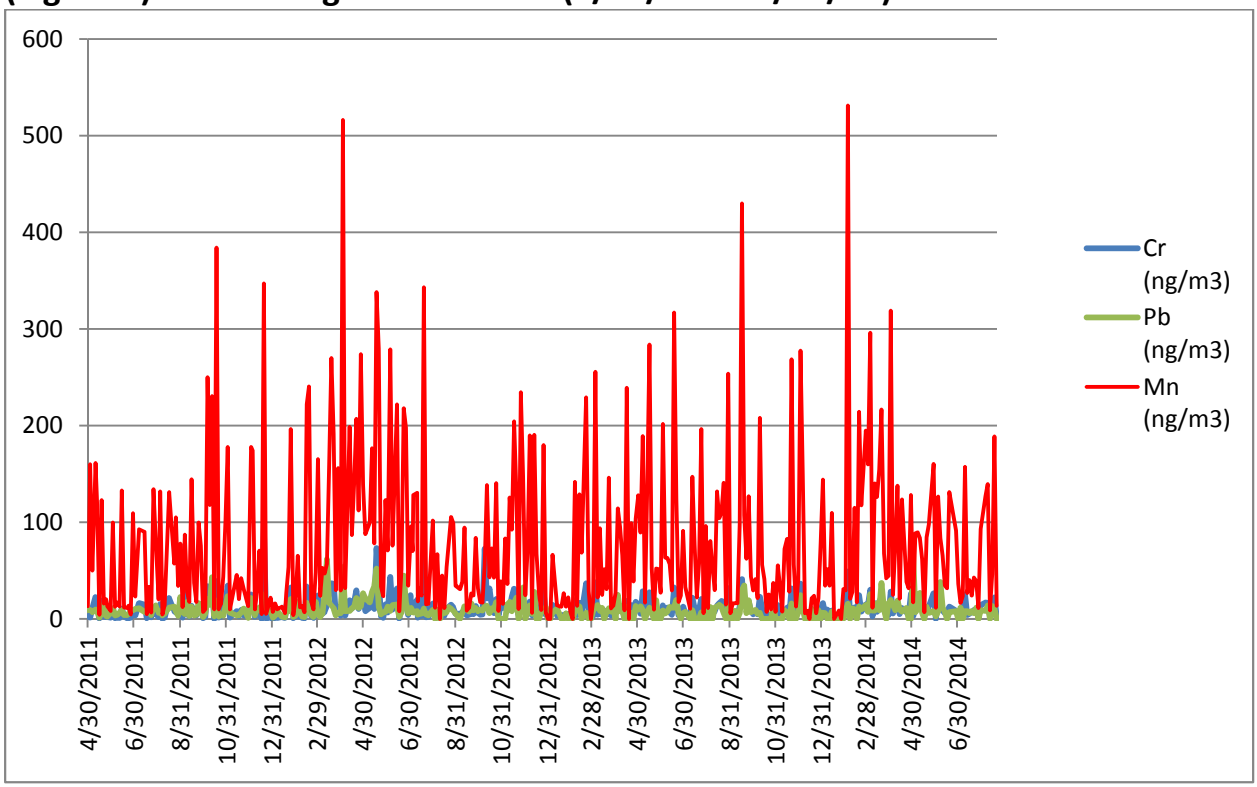
PM_{10} Lead Results

Lead levels measured during sampling are low and compare favorably to the national ambient air quality standard for lead (Figure 2). This standard is based on a rolling three month average concentration. The monitoring data is not indicative of any anticipated long term health risks associated with lead. For more information about the current lead standard, see the EPA NAAQS webpage;
http://www.epa.gov/air/criteria.html

(Figure 2) Running Averages and Screening Limits (4/30/11 – 08/21/14)

	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
Average	11.26	79.20	8.93
Maximum (24hr)	95.29	531.05	65.40
USEPA I.R.I.S Rfc		50	
California EPA REL		90	
ATSDR MRL		300	
EPA (SAT) Screening Level		500	
USEPA I.R.I.S LOAEL		50,000	
NAAQS (TSP)			150

(Figure 3) Monitoring Results Chart (4/30/11 – 08/21/14)



C. Facility Information and Future Monitoring Plans

McConway & Torley, LLC has reactivated an Electric Arc Furnace (EAF) through Installation Permit No. 0275-I007. The EAF became operational at the end of March 2012 and the facility now operates two (2) EAFs. Upon successful demonstration of the improved pollution control technology installed on the new EAF, the facility plans to implement the same pollution control technology on the existing EAF. The Air Quality Program estimates that the facility's maximum potential PM_{10} manganese emissions will be reduced by up to 53% from these emission control improvements.

Air monitoring will continue during and after the emission control upgrades to document any changes in the ambient levels of PM_{10} manganese, lead or chromium. Updated reports will be posted on an ongoing basis as analytical results are received from the laboratory.

(Figure 4) McConway & Torley Metals Sampling Results

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m3)
4/30/2011	2.62	13.22	9.32
5/3/2011	1.54	160.04	9.32
5/6/2011	10.95	50.09	7.11
5/10/2011	22.46	161.34	9.59
5/12/2011	20.09	117.77	8.46
5/15/2011	0.23	4.27	1.46
5/18/2011	18.87	122.80	6.15
5/21/2011	2.49	15.93	15.28
5/24/2011	2.19	20.36	2.90
5/26/2011	2.13	12.83	2.33
5/30/2011	1.26	8.36	5.81
6/02/2011	7.94	99.72	10.88
6/05/2011	0.77	12.50	3.78
6/08/2011	1.88	17.08	4.45
6/11/2011	1.05	12.87	6.19
6/14/2011	10.78	132.69	9.19
6/17/2011	2.68	11.96	3.99
6/21/2011	0.89	11.48	4.03
6/23/2011	0.70	13.77	4.92
6/26/2011	1.33	4.81	9.62
6/29/2011	5.83	109.22	8.88
7/2/2011	3.68	23.11	10.25
7/7/2011	16.33	92.70	10.89
7/14/2011	14.56	90.22	7.39
7/17/2011	0.66	4.90	7.14
7/20/2011	7.06	33.03	7.95
7/23/2011	1.73	6.83	3.89
7/26/2011	8.17	133.97	10.67
7/29/2011	5.24	81.89	14.11
8/02/11	1.96	20.21	6.44
8/04/11	15.23	131.69	8.09
8/07/11	---------	4.70	3.83
8/10/11	1.42	14.52	5.33
8/16/11	21.53	131.24	11.80
8/23/11	7.91	57.18	12.80
8/25/11	6.85	105.00	7.91
8/28/11	6.19	34.32	3.53
8/31/11	12.00	77.78	22.74
9/3/2011	1.46	12.25	6.73
9/6/2011	27.04	87.19	4.95
9/9/2011	5.23	27.79	17.60
9/12/2011	2.41	17.64	3.12
9/15/2011	13.68	144.25	12.63
9/18/2011	8.50	37.22	3.72
9/21/2011	3.58	17.72	4.46

(Figure 4) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
9/24/2011	12.51	99.67	16.30
9/27/2011	15.06	75.67	8.90
9/30/2011	0.63	7.46	2.00
10/3/2011	1.91	10.48	5.99
10/6/2011	33.83	250.05	20.59
10/9/2011	19.86	117.96	14.65
10/12/2011	31.56	230.42	43.08
10/15/2011	0.18	9.92	2.83
10/18/2011	38.99	384.17	18.99
10/21/2011	1.39	9.90	2.30
10/24/2011	2.33	15.40	4.44
10/27/2011	9.52	43.55	3.32
10/30/2011	17.40	101.21	12.74
11/2/2011	34.58	177.71	23.70
11/5/2011	1.49	9.99	6.20
11/8/2001	36.28	197.71	15.85
11/14/2011	7.94	45.30	3.83
11/17/2011	2.60	20.71	3.82
11/20/2011	9.23	42.14	6.75
11/23/2011	3.55	30.89	10.77
11/29/2011	2.76	13.38	1.10
12/3/2011	25.15	177.68	21.72
12/5/2011	22.36	173.99	19.23
12/8/2011	2.32	10.01	3.74
12/11/2011	5.18	28.78	10.21
12/14/2011	8.88	70.71	11.82
12/17/2011	0.01	5.10	7.80
12/20/2011	95.29	346.84	25.36
12/23/2011	0.31	5.36	10.96
12/29/2011	1.83	21.80	7.27
1/1/2012	0.22	7.50	1.36
1/4/2012	1.30	16.09	3.36
1/7/2012	0.95	9.98	8.16
1/13/2012	2.01	12.80	2.43
1/17/2012	0.96	6.08	1.71
1/19/2012	13.32	27.00	7.88
1/22/2012	21.92	53.52	7.94
1/25/2012	32.45	196.44	20.45
1/28/2012	0.63	4.20	2.02
1/31/2012	2.42	19.80	3.30
2/3/2012	16.53	65.35	17.73
2/6/2012	1.92	11.98	6.31
2/9/2012	0.98	13.45	2.47
2/12/2012	0.83	6.95	2.02

(Figure 4) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
2/15/2012	33.42	222.08	16.60
2/18/2012	18.06	240.28	7.27
2/21/2012	2.81	18.42	3.98
2/24/2012	1.20	9.90	2.02
2/27/2012	5.50	48.34	17.66
3/1/2012	24.17	165.29	4.34
3/4/2012	5.22	23.88	2.02
3/7/2012	5.27	52.72	5.47
3/10/2012	7.34	47.01	26.93
3/13/2012	13.25	56.94	61.68
3/16/2012	26.78	159.24	16.21
3/19/2012	36.73	269.80	14.06
3/22/2012	36.17	191.50	10.92
3/25/2012	5.18	29.99	3.55
3/28/2012	11.94	156.13	5.96
3/31/2012	3.46	29.53	5.86
4/3/2012	36.47	516.02	53.74
4/6/2012	3.33	31.78	8.10
4/12/2012	19.23	198.51	8.26
4/15/2012	10.71	86.65	10.95
4/18/2012	17.28	139.60	12.38
4/21/2012	29.51	206.90	21.73
4/24/2012	10.45	112.22	11.22
4/27/2012	20.50	273.86	13.13
4/30/2012	24.39	138.69	26.57
5/3/2012	8.02	87.84	21.31
5/9/2012	11.48	100.14	17.16
5/12/2012	26.34	176.56	27.99
5/15/2012	10.34	78.23	34.16
5/18/2012	73.21	338.04	51.89
5/21/2012	41.18	279.36	12.67
5/24/2012	2.56	33.50	4.80
5/27/2012	1.01	23.70	6.23
5/30/2012	14.90	122.84	7.48
6/2/2012	6.66	71.02	12.66
6/5/2012	43.43	278.65	8.32
6/8/2012	9.51	75.76	14.37
6/14/2012	31.41	221.97	14.80
6/17/2012	0.53	8.04	2.00
6/20/2012	13.41	51.36	6.80
6/23/2012	29.85	217.86	44.88
6/26/2012	15.60	197.69	17.21

(Figure 4) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
6/29/2012	4.01	34.40	5.60
7/2/2012	24.49	79.40	7.33
7/3/2012	15.06	95.73	11.21
7/5/2012	12.33	70.36	8.10
7/6/2012	14.32	128.05	6.58
7/11/2012	19.89	130.61	8.01
7/12/2012	1.48	18.18	4.22
7/13/2012	3.57	32.16	4.90
7/17/2012	3.13	24.26	5.58
7/20/2012	67.88	342.91	10.72
7/23/2012	1.71	15.40	4.60
7/26/2012	2.12	15.47	3.55
8/1/2012	16.00	101.63	9.20
8/4/2012	2.88	11.59	0.00
8/7/2012	9.16	66.81	9.76
8/10/2012	2.39	0.00	0.00
8/13/2012	7.12	44.90	8.22
8/16/2012	3.41	11.40	6.09
8/19/2012	8.82	53.77	6.91
8/22/2012	12.63	79.66	12.45
8/25/2012	14.47	105.47	10.55
8/28/2012	11.89	98.58	8.42
9/6/2012	5.23	30.78	0.00
9/9/2012	6.04	38.14	5.93
9/12/2012	11.14	94.25	13.10
9/15/2012	3.71	8.62	10.46
9/18/2012	4.30	11.26	7.63
9/21/2012	5.21	26.09	16.11
9/24/2012	5.13	24.23	8.85
9/27/2012	13.27	83.76	11.25
9/30/2012	6.11	31.40	7.91
10/3/2012	4.42	17.54	9.82
10/6/2012	4.74	17.08	8.78
10/9/2012	72.51	55.43	13.12
10/12/2012	21.32	138.56	13.74
10/15/2012	31.63	43.16	6.18
10/18/2012	13.65	72.94	11.13
10/21/2012	5.90	42.63	9.43
10/24/2012	20.59	140.41	17.21
10/27/2012	3.25	8.45	0.00
10/30/2012	14.04	38.71	0.00

(Figure 4) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
11/2/2012	11.38	15.59	0.00
11/5/2012	14.21	83.00	0.00
11/8/2012	7.92	36.09	15.38
11/11/2012	11.06	125.51	17.75
11/14/2012	23.20	92.58	7.97
11/17/2012	31.03	204.30	16.50
11/20/2012	18.96	131.50	22.04
11/23/2012	3.40	10.18	0.00
11/26/2012	15.82	234.31	19.75
11/29/2012	19.63	147.21	32.63
12/2/2012	5.72	24.67	0.00
12/5/2012	12.48	70.73	6.72
12/08/2012	18.01	189.74	13.96
12/11/2012	3.69	6.51	5.52
12/14/2012	27.10	190.39	27.87
12/17/2012	10.16	67.17	0.00
12/20/2012	4.92	25.23	0.00
12/23/2012	9.69	9.37	6.82
12/26/2012	29.30	179.83	9.93
12/29/2012	4.02	6.55	11.94
1/1/2013	2.43	0.00	0.00
1/4/2013	2.63	0.00	0.00
1/7/2013	14.64	66.35	6.23
1/13/2013	3.52	14.12	10.51
1/16/2013	4.49	12.85	5.65
1/19/2013	2.92	12.59	0.00
1/22/2013	4.44	26.47	0.00
1/25/2013	3.13	12.88	5.67
1/28/2013	5.41	22.33	0.00
1/31/2013	2.93	7.32	0.00
2/3/2013	2.71	0.00	0.00
2/6/2013	19.18	141.82	8.08
2/9/2013	3.92	13.69	9.19
2/12/2013	16.78	128.78	12.94
2/15/2013	6.35	68.44	0.00
2/21/2013	36.86	229.23	6.32
2/24/2013	6.82	28.87	0.00
2/27/2013	2.32	0.00	0.00
3/2/2013	2.99	19.25	8.68
3/5/2013	37.64	255.70	12.32
3/8/2013	4.39	22.29	14.23
3/11/2013	11.70	93.69	8.36
3/14/2013	4.42	24.97	11.36

(Figure 4) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
3/17/2013	8.75	51.50	0.00
3/20/2013	4.44	30.79	6.54
3/23/2013	7.90	146.05	10.88
3/26/2013	3.56	10.83	7.74
3/29/2013	5.05	13.71	12.11
4/1/2013	4.95	26.94	0.00
4/4/2013	10.87	114.36	24.96
4/7/2013	13.74	95.19	8.13
4/10/2013	8.51	66.09	8.64
4/13/2013	3.15	9.15	0.00
4/16/2013	18.56	239.13	12.69
4/19/2013	2.58	0.00	0.00
4/22/2013	14.32	98.93	6.51
4/25/2013	4.96	38.67	0.00
4/28/2013	17.66	104.01	13.30
5/1/2013	14.76	127.69	9.72
5/4/2013	5.51	89.40	13.02
5/7/2013	28.40	188.92	8.89
5/10/2013	3.88	16.98	0.00
5/13/2013	8.33	136.30	7.14
5/16/2013	27.62	283.69	11.60
5/19/2013	8.94	52.38	6.88
5/22/2013	2.67	9.63	0.00
5/25/2013	5.27	51.98	19.40
5/28/2013	7.43	51.32	0.00
5/31/2013	3.06	27.24	0.00
6/3/2013	14.01	201.57	8.73
6/6/2013	8.28	63.68	5.64
6/9/2013	11.77	62.91	7.79
6/12/2013	7.10	56.99	12.40
6/15/2013	4.44	29.42	11.64
6/18/2013	32.60	316.84	11.77
6/21/2013	15.31	123.75	19.56
6/24/2013	3.55	17.65	5.57
6/27/2013	5.01	24.71	0.00
6/30/2013	12.77	91.23	6.08
7/3/2013	5.36	32.96	7.39
7/9/2013	4.51	10.57	0.00
7/12/2013	21.99	147.03	9.03
7/15/2013	10.57	76.78	0.00
7/18/2013	4.81	22.29	0.00
7/21/2013	9.29	57.28	0.00

(Figure 4) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
7/24/2013	20.44	196.30	6.83
7/27/2013	3.18	5.95	0.00
7/30/2013	11.07	96.10	10.31
8/2/2013	3.38	11.17	0.00
8/5/2013	10.72	80.37	12.15
8/8/2013	7.77	53.26	0.00
8/11/2013	7.62	29.89	11.58
8/14/2013	13.58	131.65	13.11
8/17/2013	16.14	104.39	14.63
8/20/2013	18.47	110.59	13.13
8/23/2013	17.56	140.86	6.34
8/26/2013	3.88	15.04	0.00
8/29/2013	31.98	253.55	13.07
9/1/2013	2.98	5.88	0.00
9/4/2013	5.92	15.89	0.00
9/7/2013	3.28	16.45	8.22
9/10/2013	4.00	16.32	0.00
9/13/2013	12.59	98.83	5.84
9/16/2013	41.16	429.75	29.90
9/19/2013	15.89	107.25	34.53
9/22/2013	11.26	62.14	6.10
9/25/2013	18.33	126.75	19.10
9/28/2013	7.68	43.60	7.01
10/1/2013	4.66	29.65	8.27
10/4/2013	6.22	41.25	9.30
10/7/2013	4.68	21.45	5.42
10/10/2013	22.78	208.03	6.46
10/13/2013	10.51	55.96	0.00
10/16/2013	5.47	41.06	0.00
10/19/2013	3.13	7.47	0.00
10/22/2013	4.45	25.16	0.00
10/25/2013	3.15	9.90	0.00
10/28/2013	6.53	37.24	14.00
10/31/2013	3.06	7.38	0.00
11/3/2013	14.37	55.46	0.00
11/6/2013	4.12	33.32	0.00
11/9/2013	2.70	7.81	0.00
11/12/2013	8.89	72.35	8.95
11/15/2013	11.62	82.94	6.28
11/18/2013	4.17	28.21	0.00
11/21/2013	31.47	268.48	15.96
11/24/2013	3.92	56.47	0.00
11/27/2013	3.28	13.12	0.00

(Figure 4) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
11/30/2013	9.75	40.92	6.19
12/3/2013	36.52	277.56	24.45
12/6/2013	14.39	149.40	11.69
12/9/2013	3.64	6.12	0.00
12/12/2013	2.82	8.47	0.00
12/15/2013	2.71	0.00	0.00
12/18/2013	3.82	21.47	10.58
12/21/2013	5.50	23.92	0.00
12/24/2013	2.51	5.90	0.00
12/27/2013	3.79	21.53	8.92
12/30/2013	9.37	78.55	0.00
1/2/2014	16.14	143.96	6.32
1/5/2014	4.93	34.33	5.90
1/8/2014	9.69	51.38	0.00
1/11/2014	5.34	34.42	0.00
1/14/2014	8.67	109.51	7.75
1/17/2014	3.49	0.00	0.00
1/23/2014	2.99	8.83	0.00
1/26/2014	5.37	0.00	0.00
1/29/2014	3.20	30.91	0.00
2/1/2014	4.57	29.61	7.88
2/4/2014	49.05	531.05	15.74
2/7/2014	3.38	21.02	0.00
2/10/2014	4.82	28.20	11.07
2/13/2014	12.11	114.94	10.08
2/16/2014	5.36	17.19	0.00
2/19/2014	24.54	214.18	12.69
2/22/2014	7.67	117.69	10.08
2/28/2014	14.92	194.74	14.17
3/3/2014	14.57	160.09	7.37
3/6/2014	30.14	295.91	25.51
3/9/2014	2.65	11.67	8.55
3/12/2014	16.12	140.23	8.57
3/15/2014	7.43	126.04	16.20
3/18/2014	17.79	154.39	9.14
3/21/2014	22.59	216.57	37.28
3/24/2014	8.73	67.45	9.79
3/27/2014	4.47	42.07	0.00
3/30/2014	4.18	44.55	16.41
4/2/2014	28.30	318.88	19.59
4/5/2014	5.62	24.90	13.89
4/8/2014	11.12	75.58	8.97
4/11/2014	14.62	137.77	19.09
4/14/2014	5.17	20.85	9.66

(Figure 4) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
4/11/2014	14.62	137.77	19.09
4/14/2014	5.17	20.85	9.66
4/17/2014	11.29	123.68	7.74
4/23/2014	6.66	38.88	11.34
4/26/2014	4.40	31.85	0.00
4/29/2014	25.97	128.19	0.00
5/2/2014	3.16	17.13	65.40
5/5/2014	10.69	88.48	6.94
5/8/2014	10.96	89.30	10.69
5/11/2014	13.50	83.33	27.00
5/14/2014	8.48	61.80	6.77
5/17/2014	2.88	7.12	0.00
5/20/2014	9.93	84.47	12.58
5/23/2014	12.23	97.68	6.47
5/29/2014	26.48	160.37	7.87
6/1/2014	0.00	11.76	2.78
6/4/2014	20.12	126.39	7.79
6/7/2014	11.35	83.85	38.23
6/10/2014	8.67	65.46	12.30
6/13/2014	6.11	34.66	6.76
6/16/2014	8.30	31.79	0.00
6/19/2014	12.61	131.14	6.93
6/28/2014	8.44	91.50	7.93
7/1/2014	4.41	36.25	0.00
7/4/2014	7.07	16.78	11.81
7/7/2014	3.19	23.86	0.00
7/10/2014	25.62	157.30	7.93
7/13/2014	3.95	27.03	8.02
7/16/2014	5.26	40.07	6.19
7/19/2014	7.12	24.09	8.13
7/22/2014	9.21	42.93	6.10
7/25/2014	7.42	39.59	11.72
7/28/2014	3.76	11.31	0.00
7/31/2014	14.38	92.92	8.98
8/6/2014	16.82	126.92	8.50
8/9/2014	16.75	139.28	13.80
8/12/2014	3.27	9.00	0.00
8/15/2014	7.10	46.08	13.46
8/18/2014	22.15	188.57	10.62
8/21/2014	2.63	13.50	0.00

Field Sampling Notes:

- Sampler was not operated on 07/05/11 due to the July 4th holiday
- Sampler was not operated on 07/11/11 due to sampler access restriction during plant closure
- Sampler data recorder malfunctioned on 08/13/11 – Void, equipment was repaired
- No chromium data for 08/07/11 due to laboratory error
- Sampler timer malfunctioned on 08/19/11 – Void, equipment was repaired
- Sampler was not operated on 11/11/11 due to operator error
- Sampler was not operated on 11/26/11 due to sampler access restriction (holiday)
- Sampler motor failure on 01/10/2012 – Void, equipment was repaired
- Sample Flow Error on 05/06/12 – Void
- Timer malfunction 6/11/12, sample exceeded allowed run time – Void
- Effective 08/01/12, laboratory analysis for this study was switched from the Allegheny County Medical Examiner Laboratory to RJ Lee Laboratory. The analytical method was likewise switched from carbon oven atomic absorbance spectrometry to ICP-MS (Ion Coupled Plasma Mass Spectrometry).
- Sampler was not operated on 09/03/12 due to sampler access restriction (holiday)
- Sample flow error on 1/10/13- Void (motor was replaced and calibrated on 1/11/13)
- Sampler was not operated on 02/18/13 due to the President's Day holiday
- Sample was voided 0n 07/06/13 due to power failure during sample run
- Sample was voided on 02/25/14 due to power failure resulting in a timer error
- Sample was voided on 04/20/14 due to a power failure during the sample run
- Samples void on 06/22/14 and 06/25/14 due to consecutive sampler motor failures
- Sample void on 8/3/14 due to power failure
- Sample void on 8/24/14 due to power failure