A. Lawrenceville Air Toxic Metals Study

This report is a revision of the previous report that was released August 31, 2020. This version contains data through December 29, 2020. Revisions will be released quarterly while air sampling continues.

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 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 for each sample period is corrected to standard temperature and pressure. The sampler employs a size selective inlet that 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 concentrations are presented in nanograms per 1 cubic meter of air, which is a standard method of presenting metals concentration in ambient air. Measured ambient concentrations are listed in Figure 2 as quarterly averages and in Figure 5 as individual 24-hour sampling events. Quarterly averages of all metals are visually represented in Figure 3. Figure 6 is a table of listing the percentage of samples that were below the laboratory method detection limit (MDL) for each respective species. Data below the MDL is expressed as ½ of the MDL for that sample and is color-coded red in Figure 5.

Estimates of long-term exposure levels in the nearby community are complex due to seasonal variations of air movement, temperature and precipitation and 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 1 for chromium and in Figure 2 for manganese and lead. ACHD references the National Ambient Air Quality Standards (NAAQS) for the criteria pollutants. For the metals measured during this study, only lead is a criteria pollutant. In most cases, for substances that are not included under the NAAQS, ACHD references the dose-response assessment tables maintained by the EPA and available at: https://www.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants

PM_{10} Chromium Results

Chromium is found in the environment in two principal oxidation states. Chromium 3 (Cr+3) is found naturally in foods at low levels and is an essential human dietary nutrient. Chromium 6 (Cr+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 Cr+3 while Cr+6 is much more uncommon even near industrial sources of chromium. Health based limits are only listed for Cr+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) [1]	**100 ng/m³**
1 in 10,000 Cancer Risk	**8 ng/m³**
1 in 100,000 Cancer Risk	**0.8 ng/m³**
1 in 1,000,000 Cancer Risk	**0.08 ng/m³**

[1] Integrated Risk Information System (I.R.I.S.) reference concentration (RfC) in nanograms per cubic meter (ng/m³)

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 Cr+6, the monitoring data are 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.: http://www.epa.gov/iris/subst/0144.htm

PM_{10} Manganese Results

Figure 2 lists concentration limits for manganese. The manganese concentration 12-month running average as well as the latest quarterly average are below each of these concentration limits.

The first manganese concentration limit listed is the Agency for Toxic Substances and Disease Registry's (ATSDR) MRL or Minimal Risk 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. Each quarterly average result for manganese concentrations during this study is well below the ATSDR MRL for manganese. ATSDR last updated this manganese screening level during 2012. For more information, see ATSDR's webpage at; http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=23

The EPA is now endorsing the use of the ATSDR MRL in dose-response assessments for assessing health risks associated with exposure to manganese;

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

ATSDR MRL was endorsed and used in the development of the Ferroalloys Production NESHAP; http://www.gpo.gov/fdsys/pkg/FR-2014-10-06/pdf/2014-23266.pdf.

The second manganese concentration limit listed is the Integrated Risk Information System (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 workdays 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, based on the sampling results, short-term acute adverse health effects due to manganese exposure are not to be expected in the nearby community.

Figure 4 displays a graph of 12-month running average manganese sampling results, showing general trends of measured ambient manganese concentrations throughout the monitoring project.

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 are not indicative of any anticipated long-term health risks associated with lead. For more information about the current lead standard, see the EPA NAAQS: https://www.epa.gov/criteria-air-pollutants/naaqs-table

(Figure 2) Quarterly Averages and Screening Levels

Quarterly Average	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
2012 Q4	15.79	80.85	10.86
2013 Q1	8.30	52.35	6.71
2013 Q2	10.65	90.86	7.74
2013 Q3	11.91	86.17	8.94
2013 Q4	8.19	56.11	5.99
2014 Q1	11.25	105.23	9.48
2014 Q2	11.09	83.34	12.62
2014 Q3	9.96	70.77	8.17
2014 Q4	9.47	64.12	8.57
2015 Q1	7.37	51.45	5.40
2015 Q2	10.11	70.45	8.80
2015 Q3	7.71	57.15	7.22
2015 Q4	7.34	47.22	6.28
2016 Q1	8.59	37.26	1.22
2016 Q2	31.26	31.20	4.72
2016 Q3	32.13	38.17	5.84
2016 Q4	32.27	38.65	5.90
2017 Q1	29.41	37.22	5.02
2017 Q2	13.15	36.20	4.38
2017 Q3	5.45	28.00	5.98
2017 Q4	6.12	41.65	5.51
2018 Q1	7.95	43.80	8.48
2018 Q2	8.10	51.35	5.43
2018 Q3	7.84	42.59	7.90
2018 Q4	5.44	33.27	4.02
2019 Q1	10.04	56.11	5.19
2019 Q2	4.15	38.18	7.23
2019 Q3	5.46	50.90	6.62
2019 Q4	4.49	30.57	5.57
2020 Q1	4.72	28.53	6.50
2020 Q2	3.73	17.07	3.59
2020 Q3	3.87	18.46	2.62
2020 Q4	3.26	14.23	7.62
ATSDR MRL[1]		**300**	
USEPA I.R.I.S LOAEL[2]		**50,000**	
NAAQS (TSP)[3]			**150**

[1] Agency for Toxicity and Disease Registry (ATSDR) in nanograms per cubic meter (ng/m^3): http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=23

[2] Integrated Risk Information System (I.R.I.S.) lowest observable adverse effects level (LOAEL) in nanograms per cubic meter (ng/m^3): https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=373

[3] National Ambient Air Quality Standards (NAAQS) in nanograms per cubic meter (ng/m^3): https://www.epa.gov/criteria-air-pollutants/naaqs-table

(Figure 3) Quarterly Metals Averages

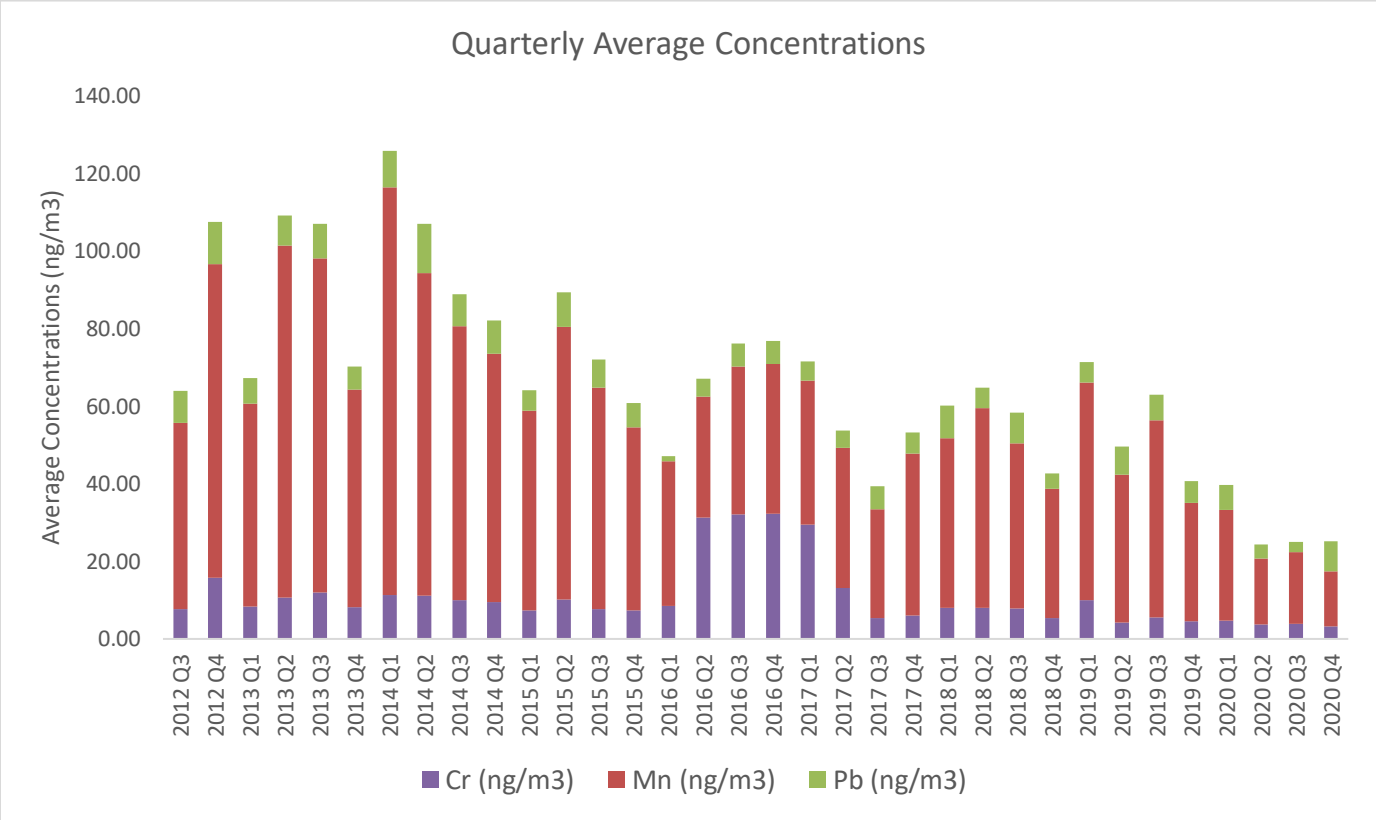

Figure 3. *Measure of ambient Chromium (Cr), Manganese (Mn) and Lead (Pb) Concentrations (Quarterly averages, ng/m^3)*

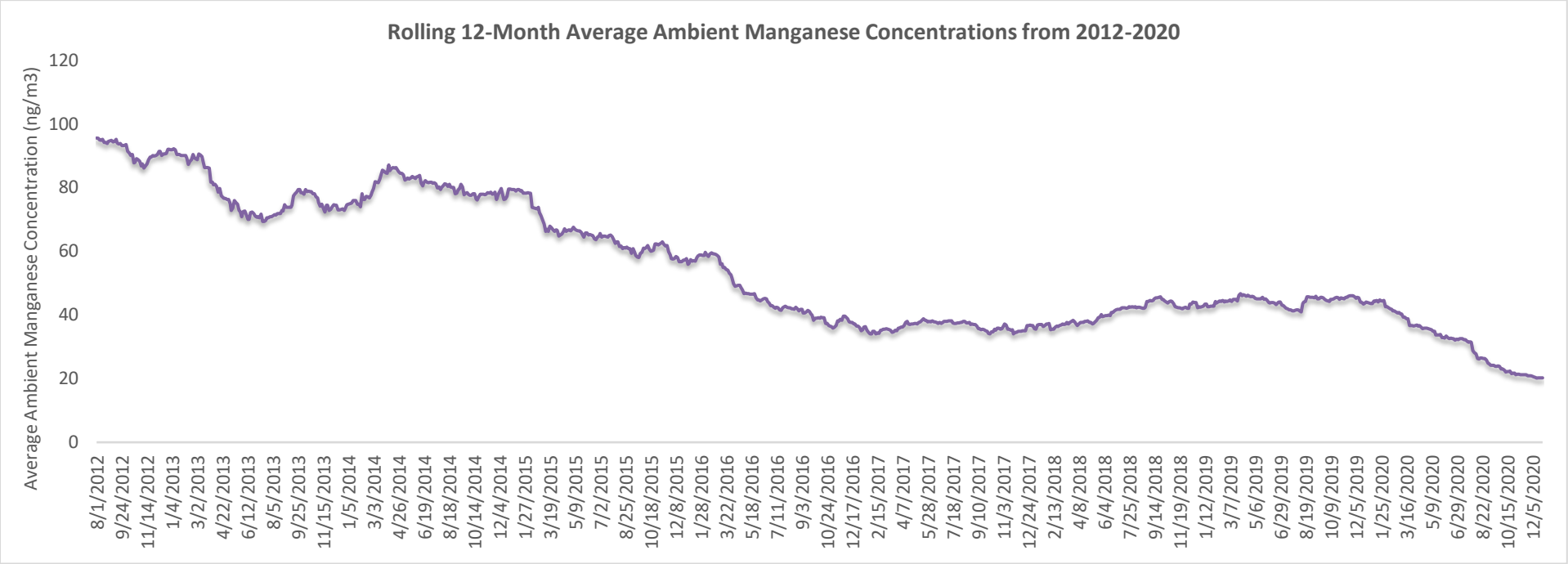

Figure 4. *Measure of ambient Manganese Concentration (12-month running average, ng/m^3). Latest 12-month running average manganese concentration as of December 29, 2020 =* ***20 ng/m^3****)*

(Figure 5) 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
5/03/2011	1.54	160.04	9.32
5/06/2011	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
7/02/2011	3.68	23.11	10.25
7/07/2011	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
8/02/2011	1.96	20.21	6.44
8/04/2011	15.23	131.69	8.09
8/07/2011	---------	4.70	3.83
8/10/2011	1.42	14.52	5.33
8/16/2011	21.53	131.24	11.80
8/23/2011	7.91	57.18	12.80
8/25/2011	6.85	105.00	7.91
8/28/2011	6.19	34.32	3.53
8/31/2011	12.00	77.78	22.74
9/03/2011	1.46	12.25	6.73
9/06/2011	27.04	87.19	4.95
9/09/2011	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

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) 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
10/03/2011	1.91	10.48	5.99
10/06/2011	33.83	250.05	20.59
10/09/2011	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
11/02/2011	34.58	177.71	23.70
11/05/2011	1.49	9.99	6.20
11/08/2001	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
12/03/2011	25.15	177.68	21.72
12/05/2011	22.36	173.99	19.23
12/08/2011	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
1/01/2012	0.22	7.50	1.36
1/04/2012	1.30	16.09	3.36
1/07/2012	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
2/03/2012	16.53	65.35	17.73
2/06/2012	1.92	11.98	6.31
2/09/2012	0.98	13.45	2.47
2/12/2012	0.83	6.95	2.02

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(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
3/01/2012	24.17	165.29	4.34
3/04/2012	5.22	23.88	2.02
3/07/2012	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
4/03/2012	36.47	516.02	53.74
4/06/2012	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
5/03/2012	8.02	87.84	21.31
5/09/2012	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
6/02/2012	6.66	71.02	12.66
6/05/2012	43.43	278.65	8.32
6/08/2012	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
6/29/2012	4.01	34.40	5.60
7/02/2012	24.49	79.40	7.33
7/03/2012	15.06	95.73	11.21

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
7/05/2012	12.33	70.36	8.10
7/06/2012	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
8/01/2012	16.00	101.63	9.20
8/04/2012	2.88	11.59	2.72
8/07/2012	9.16	66.81	9.76
8/10/2012	2.39	2.60	2.60
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
9/06/2012	5.34	34.59	5.52
9/09/2012	5.23	30.78	2.72
9/12/2012	6.04	38.14	5.93
9/15/2012	11.14	94.25	13.10
9/18/2012	3.71	8.62	10.46
9/21/2012	4.30	11.26	7.63
9/24/2012	5.21	26.09	16.11
9/27/2012	5.13	24.23	8.85
9/30/2012	13.27	83.76	11.25
10/03/2012	6.11	31.40	7.91
10/06/2012	4.42	17.54	9.82
10/09/2012	4.74	17.08	8.78
10/12/2012	72.51	55.43	13.12
10/15/2012	21.32	138.56	13.74
10/18/2012	31.63	43.16	6.18
10/21/2012	13.65	72.94	11.13
10/24/2012	5.90	42.63	9.43
10/27/2012	20.59	140.41	17.21
10/30/2012	3.25	8.45	2.59
11/02/2012	14.04	38.71	2.75
11/05/2012	11.38	15.59	2.83
11/08/2012	14.21	83.00	2.83
11/11/2012	7.92	36.09	15.38
11/14/2012	11.06	125.51	17.75
11/17/2012	23.20	92.58	7.97
11/20/2012	31.03	204.30	16.50

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
11/23/2012	3.40	10.18	2.63
11/26/2012	15.82	234.31	19.75
11/29/2012	19.63	147.21	32.63
12/02/2012	5.72	24.67	2.72
12/05/2012	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	2.67
12/20/2012	4.92	25.23	2.67
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
1/01/2013	2.43	2.89	2.89
1/04/2013	2.63	2.93	2.93
1/07/2013	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	2.88
1/22/2013	4.44	26.47	2.77
1/25/2013	3.13	12.88	5.67
1/28/2013	5.41	22.33	2.88
1/31/2013	2.93	7.32	2.66
2/03/2013	2.71	2.72	2.72
2/06/2013	19.18	141.82	8.08
2/09/2013	3.92	13.69	9.19
2/12/2013	16.78	128.78	12.94
2/15/2013	6.35	68.44	2.80
2/21/2013	36.86	229.23	6.32
2/24/2013	6.82	28.87	2.79
2/27/2013	2.32	2.81	2.81
3/02/2013	2.99	19.25	8.68
3/05/2013	37.64	255.70	12.32
3/08/2013	4.39	22.29	14.23
3/11/2013	11.70	93.69	8.36
3/14/2013	4.42	24.97	11.36
3/17/2013	8.75	51.50	2.83
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
4/01/2013	4.95	26.94	2.80
4/04/2013	10.87	114.36	24.96
4/07/2013	13.74	95.19	8.13
4/10/2013	8.51	66.09	8.64

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
4/13/2013	3.15	9.15	2.76
4/16/2013	18.56	239.13	12.69
4/19/2013	2.58	2.67	2.67
4/22/2013	14.32	98.93	6.51
4/25/2013	4.96	38.67	2.80
4/28/2013	17.66	104.01	13.30
5/01/2013	14.76	127.69	9.72
5/04/2013	5.51	89.40	13.02
5/07/2013	28.40	188.92	8.89
5/10/2013	3.88	16.98	2.76
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	2.66
5/25/2013	5.27	51.98	19.40
5/28/2013	7.43	51.32	2.63
5/31/2013	3.06	27.24	2.65
6/03/2013	14.01	201.57	8.73
6/06/2013	8.28	63.68	5.64
6/09/2013	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	2.62
6/30/2013	12.77	91.23	6.08
7/03/2013	5.36	32.96	7.39
7/09/2013	4.51	10.57	2.92
7/12/2013	21.99	147.03	9.03
7/15/2013	10.57	76.78	2.95
7/18/2013	4.81	22.29	2.76
7/21/2013	9.29	57.28	2.68
7/24/2013	20.44	196.30	6.83
7/27/2013	3.18	5.95	2.85
7/30/2013	11.07	96.10	10.31
8/02/2013	3.38	11.17	2.87
8/05/2013	10.72	80.37	12.15
8/08/2013	7.77	53.26	2.94
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	2.70

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
8/29/2013	31.98	253.55	13.07
9/01/2013	2.98	5.88	2.73
9/04/2013	5.92	15.89	2.73
9/07/2013	3.28	16.45	8.22
9/10/2013	4.00	16.32	2.80
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
10/01/2013	4.66	29.65	8.27
10/04/2013	6.22	41.25	9.30
10/07/2013	4.68	21.45	5.42
10/10/2013	22.78	208.03	6.46
10/13/2013	10.51	55.96	2.73
10/16/2013	5.47	41.06	2.70
10/19/2013	3.13	7.47	2.61
10/22/2013	4.45	25.16	2.61
10/25/2013	3.15	9.90	2.61
10/28/2013	6.53	37.24	14.00
10/31/2013	3.06	7.38	2.72
11/03/2013	14.37	55.46	2.58
11/06/2013	4.12	33.32	2.99
11/09/2013	2.70	7.81	2.79
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	2.79
11/21/2013	31.47	268.48	15.96
11/24/2013	3.92	56.47	2.82
11/27/2013	3.28	13.12	2.80
11/30/2013	9.75	40.92	6.19
12/03/2013	36.52	277.56	24.45
12/06/2013	14.39	149.40	11.69
12/09/2013	3.64	6.12	2.60
12/12/2013	2.82	8.47	2.72
12/15/2013	2.71	2.81	2.81
12/18/2013	3.82	21.47	10.58
12/21/2013	5.50	23.92	2.91
12/24/2013	2.51	5.90	2.77
12/27/2013	3.79	21.53	8.92
12/30/2013	9.37	78.55	2.72
1/02/2014	16.14	143.96	6.32
1/05/2014	4.93	34.33	5.90
1/08/2014	9.69	51.38	2.76

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
1/11/2014	5.34	34.42	2.77
1/14/2014	8.67	109.51	7.75
1/17/2014	3.49	2.73	2.73
1/23/2014	2.99	8.83	2.78
1/26/2014	5.37	2.73	2.73
1/29/2014	3.20	30.91	2.80
2/01/2014	4.57	29.61	7.88
2/04/2014	49.05	531.05	15.74
2/07/2014	3.38	21.02	2.70
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	2.82
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
3/03/2014	14.57	160.09	7.37
3/06/2014	30.14	295.91	25.51
3/09/2014	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	2.80
3/30/2014	4.18	44.55	16.41
4/02/2014	28.30	318.88	19.59
4/05/2014	5.62	24.90	13.89
4/08/2014	11.12	75.58	8.97
4/11/2014	14.62	137.77	19.09
4/14/2014	5.17	20.85	9.66
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	2.83
4/29/2014	25.97	128.19	3.02
5/02/2014	3.16	17.13	65.40
5/05/2014	10.69	88.48	6.94
5/08/2014	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	2.69
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

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
6/01/2014	1.24	11.76	2.78
6/04/2014	20.12	126.39	7.79
6/07/2014	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	2.79
6/19/2014	12.61	131.14	6.93
6/28/2014	8.44	91.50	7.93
7/01/2014	4.41	36.25	2.84
7/04/2014	7.07	16.78	11.81
7/07/2014	3.19	23.86	2.72
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	2.71
7/31/2014	14.38	92.92	8.98
8/06/2014	16.82	126.92	8.50
8/09/2014	16.75	139.28	13.80
8/12/2014	3.27	9.00	2.81
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	2.89
8/27/2014	14.35	116.05	10.08
8/30/2014	4.27	16.18	7.77
9/02/2014	5.65	27.26	2.81
9/05/2014	6.21	32.05	2.86
9/11/2014	13.47	147.48	7.40
9/14/2014	8.41	38.32	9.67
9/17/2014	6.76	176.82	11.68
9/20/2014	3.18	7.70	2.94
9/23/2014	22.77	152.66	11.93
9/26/2014	23.99	154.82	17.02
9/29/2014	9.63	76.83	15.49
10/02/2014	9.97	69.78	15.26
10/05/2014	3.32	9.64	2.71
10/08/2014	4.17	26.16	10.61
10/11/2014	13.62	110.21	12.11
10/14/2014	3.78	19.77	2.81
10/17/2014	3.80	16.18	2.66
10/20/2014	2.85	7.99	2.66
10/23/2014	10.54	165.92	7.21
10/26/2014	10.92	98.49	18.69

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
10/29/2014	4.18	22.59	9.75
11/01/2014	3.28	13.88	2.69
11/04/2014	3.31	20.01	2.77
11/07/2014	8.30	22.84	6.95
11/10/2014	16.97	121.23	54.03
11/13/2014	3.70	10.96	2.64
11/16/2014	7.91	33.08	2.74
11/19/2014	2.82	11.66	2.73
11/22/2014	17.03	97.05	16.15
11/25/2014	12.62	75.85	8.56
11/28/2014	2.69	8.83	2.74
12/01/2014	22.49	228.47	8.53
12/04/2014	23.19	130.56	15.98
12/07/2014	25.85	153.50	7.12
12/10/2014	3.24	28.79	2.66
12/13/2014	2.92	5.64	2.74
12/16/2014	5.88	17.91	2.75
12/19/2014	13.58	93.77	2.74
12/22/2014	32.50	269.23	22.30
12/28/2014	6.05	24.45	2.91
12/31/2014	2.48	9.31	2.85
1/03/2015	5.11	9.13	2.91
1/06/2015	3.09	10.81	2.70
1/09/2015	3.17	25.61	2.73
1/12/2015	20.79	202.47	7.43
1/15/2015	3.59	34.97	2.74
1/18/2015	3.02	2.73	2.73
1/21/2015	8.79	49.81	5.91
1/24/2015	2.62	2.73	2.73
1/27/2015	3.57	10.44	2.73
1/30/2015	2.89	8.80	2.73
2/02/2015	3.36	14.34	2.67
2/05/2015	3.84	23.70	2.74
2/08/2015	4.93	16.67	2.79
2/11/2015	3.74	29.25	2.74
2/14/2015	2.37	8.90	2.78
2/17/2015	3.44	8.11	2.68
2/20/2015	11.80	91.05	6.41
2/23/2015	10.27	67.86	7.43
2/26/2015	4.82	31.17	2.84
3/01/2015	2.88	2.92	2.92
3/04/2015	6.10	45.47	2.85
3/07/2015	3.17	9.31	2.95
3/10/2015	5.96	38.39	8.01
3/13/2015	18.41	75.06	21.81

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
3/16/2015	9.43	68.91	6.83
3/19/2015	22.95	318.94	12.11
3/22/2015	12.58	86.36	2.82
3/25/2015	22.52	152.11	18.74
3/28/2015	3.54	13.94	6.60
3/31/2015	8.29	83.48	7.80
4/03/2015	4.23	26.76	2.80
4/06/2015	13.29	118.80	13.22
4/09/2015	15.19	69.33	13.34
4/12/2015	20.00	108.60	18.65
4/15/2015	26.21	224.63	9.12
4/18/2015	17.89	120.94	6.08
4/21/2015	3.49	27.47	2.66
4/24/2015	10.40	76.05	7.91
4/27/2015	4.91	44.41	2.63
4/30/2015	11.37	98.69	10.29
5/03/2015	13.35	98.71	21.58
5/06/2015	22.68	146.13	14.87
5/09/2015	3.19	16.64	11.58
5/12/2015	5.10	43.68	2.76
5/15/2015	4.11	30.10	17.00
5/18/2015	3.49	14.10	2.87
5/21/2015	5.56	31.96	2.81
5/24/2015	3.43	17.72	29.76
5/27/2015	10.13	67.50	2.81
6/02/2015	28.17	163.94	7.65
6/05/2015	10.95	124.73	14.44
6/08/2015	1.21	9.52	2.71
6/11/2015	12.12	81.47	7.70
6/14/2015	2.62	6.75	2.84
6/17/2015	4.53	25.06	8.13
6/20/2015	2.72	14.75	2.84
6/23/2015	6.28	44.61	2.80
6/26/2015	18.89	133.07	6.53
6/29/2015	7.56	56.89	6.94
7/02/2015	10.17	125.78	6.97
7/08/2015	4.44	15.14	2.87
7/11/2015	3.46	67.58	15.40
7/14/2015	4.22	39.85	2.74
7/17/2015	2.77	15.87	6.33
7/20/2015	3.40	23.42	2.71
7/23/2015	7.06	85.14	8.03
7/26/2015	4.35	27.74	2.79
7/29/2015	4.93	34.67	8.03
8/01/2015	2.96	14.49	11.43

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
8/04/2015	4.63	21.06	2.71
8/07/2015	9.71	57.89	11.39
8/10/2015	5.30	42.29	7.07
8/13/2015	3.51	24.63	6.62
8/16/2015	4.65	39.36	6.59
8/19/2015	2.78	9.03	2.78
8/22/2015	11.29	53.32	10.02
8/25/2015	3.12	17.20	2.72
8/28/2015	10.70	69.70	23.36
8/31/2015	8.33	80.22	8.64
9/03/2015	4.93	41.41	10.01
9/06/2015	3.97	15.33	16.64
9/09/2015	21.21	182.90	6.93
9/12/2015	1.16	2.60	2.60
9/15/2015	7.19	43.05	6.94
9/18/2015	3.95	28.15	6.98
9/21/2015	9.54	56.66	2.68
9/24/2015	20.67	158.09	9.12
9/27/2015	9.65	56.72	2.72
9/30/2015	37.14	265.31	2.65
10/03/2015	3.55	2.66	2.66
10/06/2015	9.29	58.82	13.00
10/09/2015	10.35	85.24	2.74
10/15/2015	4.18	28.03	2.68
10/18/2015	2.97	19.01	7.72
10/21/2015	7.31	48.14	17.06
10/24/2015	3.65	21.31	7.31
10/27/2015	31.76	251.70	8.99
10/30/2015	3.56	20.20	7.72
11/02/2015	13.30	86.71	13.30
11/05/2015	7.34	56.90	6.73
11/08/2015	9.56	58.58	11.96
11/11/2015	4.75	58.21	2.67
11/14/2015	2.35	2.64	6.46
11/17/2015	3.64	15.17	2.73
11/20/2015	5.55	19.90	2.71
11/23/2015	2.98	16.70	2.68
11/26/2015	3.26	9.13	2.93
11/29/2015	7.79	29.96	2.70
12/02/2015	2.97	10.69	2.67
12/05/2015	3.79	15.14	6.94
12/08/2015	16.34	94.26	12.57
12/11/2015	9.46	52.96	8.20

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
12/14/2015	16.34	127.08	6.05
12/17/2015	3.64	15.17	2.73
12/20/2015	3.80	16.46	9.50
12/23/2015	11.73	65.16	2.93
12/26/2015	3.20	7.05	2.88
12/29/2015	4.45	76.31	2.86
1/01/2016	2.44	6.70	2.74
1/04/2016	9.71	72.81	2.73
1/07/2016	20.19	126.20	20.82
1/10/2016	1.23	2.76	2.76
1/13/2016	2.43	7.91	2.74
1/16/2016	1.26	2.83	2.83
1/19/2016	7.45	136.54	2.79
1/22/2016	15.55	77.76	2.69
1/25/2016	8.61	59.04	7.38
1/28/2016	3.10	14.86	2.79
1/31/2016	3.10	8.07	2.79
2/03/2016	2.59	10.35	2.91
2/06/2016	3.83	115.02	8.31
2/09/2016	2.46	2.77	2.77
2/12/2016	4.87	13.38	2.74
2/18/2016	18.51	127.64	2.87
2/21/2016	5.09	30.52	2.86
2/24/2016	3.76	21.29	2.82
2/27/2016	2.51	2.83	2.83
3/01/2016	3.82	21.64	2.86
3/04/2016	7.15	27.28	2.92
3/07/2016	4.17	23.63	3.13
3/10/2016	6.85	48.58	2.80
3/13/2016	12.93	104.64	2.77
3/16/2016	4.77	20.28	2.68
3/19/2016	2.39	6.59	2.69
3/22/2016	27.34	20.99	2.86
3/25/2016	23.82	2.75	2.75
3/28/2016	22.54	5.38	2.60
3/31/2016	25.67	10.64	2.82
4/03/2016	27.07	6.15	2.77
4/06/2016	26.58	11.13	2.78
4/09/2016	26.04	16.35	2.73
4/15/2016	35.85	48.40	2.69
4/18/2016	38.00	106.68	15.33
4/24/2016	33.68	36.92	6.48
4/27/2016	30.77	27.63	2.83
4/30/2016	31.07	6.34	2.91
5/03/2016	25.87	13.25	2.84

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
5/06/2016	37.68	32.57	2.87
5/09/2016	30.99	29.17	6.08
5/12/2016	29.88	25.33	2.92
5/15/2016	20.00	2.50	2.50
5/18/2016	27.64	24.63	2.70
5/21/2016	40.07	13.78	2.82
5/24/2016	42.38	88.56	16.45
5/27/2016	38.19	18.12	2.91
6/02/2016	32.04	51.66	2.94
6/05/2016	27.56	2.88	2.88
6/08/2016	27.47	38.46	2.75
6/11/2016	28.66	47.14	5.92
6/14/2016	36.66	54.68	8.08
6/17/2016	32.89	34.16	7.59
6/20/2016	32.33	40.74	2.91
6/23/2016	27.88	29.15	2.85
6/26/2016	26.03	2.86	2.86
6/29/2016	30.82	33.15	8.14
7/02/2016	29.43	6.47	17.07
7/05/2016	27.88	11.27	6.52
7/08/2016	27.66	7.22	2.71
7/11/2016	35.43	48.05	6.61
7/14/2016	32.93	8.23	2.85
7/17/2016	29.57	8.01	2.77
7/23/2016	31.21	21.42	6.12
7/26/2016	35.02	126.81	6.64
7/29/2016	33.51	47.53	6.03
8/01/2016	31.16	40.32	2.75
8/04/2016	29.94	17.11	2.75
8/07/2016	30.28	27.85	2.72
8/10/2016	29.55	18.86	2.83
8/13/2016	27.22	2.78	2.78
8/16/2016	30.57	11.62	2.75
8/19/2016	30.20	26.58	15.71
8/22/2016	36.53	94.27	7.66
8/25/2016	26.86	11.60	2.75
8/28/2016	28.36	21.58	2.77
8/31/2016	35.17	90.95	10.31
9/03/2016	27.66	6.61	9.02
9/06/2016	31.44	55.96	8.80
9/09/2016	29.35	9.78	7.34
9/12/2016	36.08	66.15	7.22
9/15/2016	43.39	102.46	5.91
9/18/2016	29.23	7.31	2.74
9/21/2016	39.29	69.70	10.14

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
9/24/2016	29.09	21.21	2.73
9/27/2016	38.76	72.68	5.45
9/30/2016	41.17	84.75	2.72
10/03/2016	35.67	43.73	6.33
10/06/2016	50.22	110.95	8.76
10/09/2016	27.46	16.48	2.75
10/12/2016	29.42	47.65	12.35
10/15/2016	31.09	27.85	12.95
10/18/2016	29.43	20.07	3.01
10/21/2016	30.30	56.35	2.73
10/24/2016	29.00	12.61	2.84
10/27/2016	30.01	8.48	2.94
10/30/2016	37.76	38.40	2.88
11/02/2016	31.98	35.90	7.18
11/05/2016	27.55	10.02	10.64
11/08/2016	30.31	40.62	7.74
11/14/2016	31.38	67.68	14.15
11/17/2016	59.27	185.22	16.05
11/20/2016	36.04	6.01	2.70
11/23/2016	40.50	75.95	10.76
11/26/2016	25.31	2.78	2.78
11/29/2016	58.69	166.81	10.50
12/02/2016	24.52	2.76	2.76
12/05/2016	30.57	46.45	2.65
12/08/2016	25.84	15.13	2.84
12/11/2016	25.41	7.62	2.86
12/14/2016	23.55	2.79	2.79
12/17/2016	25.30	8.86	2.85
12/20/2016	24.67	19.61	2.85
12/26/2016	28.27	2.89	2.89
12/29/2016	23.92	2.69	2.69
1/01/2017	25.46	8.49	2.73
1/04/2017	33.03	3.91	3.91
1/10/2017	28.24	20.36	2.96
1/13/2017	34.06	28.92	2.89
1/19/2017	46.97	117.44	11.13
1/22/2017	29.82	19.88	2.80
1/25/2017	20.43	5.63	2.79
1/28/2017	24.62	2.70	2.70
1/31/2017	25.83	2.70	2.70
2/03/2017	26.32	14.35	2.69
2/06/2017	39.86	93.43	14.95
2/09/2017	26.39	17.59	2.64
2/12/2017	25.93	20.51	2.71
2/15/2017	25.42	27.78	2.66

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
2/18/2017	26.30	6.89	6.01
2/21/2017	36.82	237.11	21.84
2/24/2017	27.97	22.88	2.86
2/27/2017	33.94	60.61	8.49
3/02/2017	24.71	16.87	2.71
3/05/2017	29.74	27.88	8.67
3/08/2017	25.24	11.08	2.77
3/11/2017	24.88	10.92	2.73
3/14/2017	27.66	33.08	2.71
3/17/2017	28.36	26.51	2.77
3/20/2017	30.31	35.88	6.80
3/23/2017	33.74	57.48	6.25
3/26/2017	26.85	12.15	2.88
3/29/2017	34.71	99.16	2.79
4/01/2017	23.72	2.81	2.81
4/04/2017	28.72	34.96	2.81
4/07/2017	24.70	14.82	2.78
4/10/2017	36.48	72.95	2.98
4/13/2017	39.75	123.80	5.99
4/16/2017	28.48	88.60	2.85
4/19/2017	24.56	9.21	2.76
4/22/2017	27.11	12.32	2.77
4/25/2017	36.32	48.84	2.82
4/28/2017	3.79	17.69	2.84
5/01/2017	3.63	26.63	2.72
5/04/2017	10.40	32.43	2.75
5/07/2017	3.51	8.19	2.63
5/10/2017	16.08	89.34	7.74
5/13/2017	4.15	10.68	5.93
5/16/2017	8.11	87.36	10.61
5/19/2017	8.55	59.24	2.75
5/22/2017	8.96	47.81	2.69
5/25/2017	2.41	2.71	2.71
5/28/2017	2.43	2.74	2.74
5/31/2017	3.60	13.20	2.70
6/03/2017	7.94	36.65	7.33
6/06/2017	8.97	71.77	2.69
6/09/2017	3.61	14.43	2.70
6/12/2017	11.19	38.56	13.68
6/15/2017	4.89	16.51	2.75
6/18/2017	2.41	5.73	2.71
6/21/2017	7.33	33.59	11.60
6/24/2017	2.40	2.70	6.61
6/27/2017	5.36	33.93	5.42
6/30/2017	8.04	61.86	2.78

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
7/03/2017	5.57	5.82	2.78
7/06/2017	7.24	41.65	2.72
7/09/2017	4.82	30.15	7.24
7/12/2017	3.08	11.70	5.61
7/15/2017	3.62	13.27	2.71
7/18/2017	8.39	58.70	9.68
7/21/2017	3.79	18.95	2.84
7/24/2017	4.94	41.41	2.78
7/27/2017	4.97	34.76	10.55
7/30/2017	4.36	22.42	2.80
8/02/2017	11.60	51.30	15.27
8/05/2017	3.02	2.72	6.65
8/08/2017	7.15	43.48	8.93
8/11/2017	4.80	21.62	5.71
8/14/2017	8.41	45.04	7.21
8/17/2017	2.91	14.56	2.62
8/20/2017	4.72	37.79	9.45
8/23/2017	4.84	21.76	2.72
8/26/2017	4.08	23.90	5.83
8/29/2017	7.03	32.23	2.64
9/04/2017	2.90	2.61	2.61
9/07/2017	2.30	6.31	2.58
9/10/2017	5.74	18.94	6.31
9/13/2017	2.87	9.18	2.58
9/16/2017	4.68	22.82	6.44
9/22/2017	10.53	43.30	7.61
9/25/2017	7.57	46.02	5.83
9/28/2017	6.71	61.49	16.77
10/01/2017	5.17	25.84	5.23
10/04/2017	4.07	20.35	7.56
10/07/2017	2.87	7.47	2.58
10/10/2017	17.67	113.98	7.98
10/13/2017	9.65	32.92	6.24
10/16/2017	7.86	112.25	6.74
10/19/2017	6.71	28.85	10.06
10/22/2017	13.97	82.55	10.79
10/25/2017	2.99	6.58	2.69
10/28/2017	2.96	7.69	2.66
10/31/2017	8.97	43.66	7.78
11/03/2017	12.78	110.36	9.87
11/06/2017	11.88	118.80	9.50
11/09/2017	4.87	31.66	2.74
11/12/2017	4.43	22.15	9.49
11/15/2017	2.39	11.33	2.68
11/18/2017	6.07	35.19	7.28

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
11/21/2017	3.64	29.73	2.73
11/24/2017	3.04	15.18	9.11
11/27/2017	9.42	64.75	13.54
11/30/2017	6.44	42.08	2.96
12/03/2017	9.24	50.25	19.06
12/06/2017	1.21	6.65	2.72
12/09/2017	1.21	2.73	9.71
12/12/2017	3.55	31.37	2.66
12/15/2017	1.21	9.68	2.72
12/18/2017	1.24	2.79	2.79
12/21/2017	18.75	205.60	11.49
12/24/2017	1.21	2.73	2.73
12/27/2017	2.97	18.43	9.51
12/30/2017	1.17	5.83	2.62
1/02/2018	7.64	24.11	8.82
1/05/2018	2.33	12.23	2.62
1/08/2018	1.21	2.72	2.72
1/11/2018	14.18	141.76	11.60
1/14/2018	7.89	22.47	21.86
1/17/2018	2.38	8.32	2.67
1/20/2018	5.07	19.65	12.04
1/23/2018	2.37	12.45	2.67
1/26/2018	10.04	57.75	10.67
1/29/2018	16.48	73.23	5.68
2/01/2018	3.07	27.06	2.77
2/04/2018	3.03	21.24	2.73
2/07/2018	3.05	11.58	2.74
2/10/2018	10.59	44.85	26.16
2/13/2018	9.96	60.99	13.07
2/19/2018	22.13	94.83	8.85
2/22/2018	20.43	63.27	59.32
2/25/2018	1.24	2.79	2.79
2/28/2018	9.11	43.60	2.93
3/03/2018	4.23	45.27	5.67
3/06/2018	10.88	78.60	6.65
3/09/2018	2.47	12.35	2.78
3/12/2018	5.68	69.47	5.81
3/15/2018	5.58	68.20	2.79
3/18/2018	10.72	44.14	2.84
3/21/2018	7.41	59.89	2.78
3/24/2018	16.21	74.82	8.11
3/27/2018	10.96	43.85	2.90
3/30/2018	4.28	28.76	2.75
4/02/2018	11.59	54.88	2.74
4/05/2018	3.06	19.58	2.75

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
4/08/2018	11.98	59.90	2.84
4/11/2018	11.40	82.32	2.85
4/14/2018	4.51	43.21	2.90
4/17/2018	2.46	10.46	2.77
4/20/2018	11.36	69.41	8.20
4/23/2018	7.54	29.54	2.83
4/26/2018	8.20	34.67	2.84
4/29/2018	4.41	25.22	7.57
5/02/2018	1.32	22.46	7.27
5/05/2018	1.29	14.88	2.91
5/08/2018	10.50	78.71	8.53
5/11/2018	18.42	116.64	9.82
5/14/2018	5.75	60.56	6.66
5/17/2018	17.90	89.48	6.07
5/20/2018	3.91	28.70	2.93
5/23/2018	7.02	127.56	10.20
5/26/2018	1.29	11.65	2.91
6/04/2018	3.24	18.15	8.43
6/07/2018	8.29	59.31	9.57
6/10/2018	5.66	20.77	2.83
6/13/2018	3.83	26.18	2.87
6/16/2018	1.26	10.67	8.16
6/19/2018	16.88	123.38	9.74
6/22/2018	9.48	31.61	2.84
6/25/2018	27.10	125.56	2.97
6/28/2018	7.14	42.20	9.09
7/01/2018	8.54	45.97	7.22
7/04/2018	10.64	30.59	9.31
7/07/2018	3.22	13.53	9.66
7/10/2018	11.79	85.17	8.52
7/13/2018	9.34	53.39	12.68
7/16/2018	1.34	8.06	3.02
7/19/2018	5.67	37.61	22.20
7/22/2018	7.30	51.09	5.53
7/25/2018	7.99	52.84	9.22
7/28/2018	3.00	35.43	11.41
7/31/2018	3.67	22.03	7.95
8/03/2018	4.32	17.88	6.78
8/06/2018	5.04	39.65	6.29
8/09/2018	3.74	18.72	2.81
8/12/2018	7.43	33.44	6.19
8/15/2018	5.87	29.98	13.74
8/18/2018	1.21	6.64	2.72
8/21/2018	2.99	7.17	2.69
8/24/2018	6.14	31.31	7.98

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
8/27/2018	4.41	32.76	9.45
8/30/2018	26.80	216.98	12.76
9/02/2018	3.15	16.37	8.81
9/05/2018	13.29	49.36	6.96
9/08/2018	5.61	16.11	2.68
9/11/2018	11.93	59.65	6.56
9/14/2018	26.79	99.69	8.72
9/17/2018	16.52	91.77	8.57
9/20/2018	5.05	37.86	6.12
9/23/2018	10.48	38.23	7.40
9/26/2018	6.11	27.51	2.75
9/29/2018	3.52	13.49	8.21
10/02/2018	3.83	31.31	2.88
10/05/2018	9.22	47.31	10.45
10/20/2018	1.11	2.51	2.51
10/23/2018	2.28	35.93	2.57
10/26/2018	11.83	67.60	2.54
10/29/2018	3.10	28.54	2.79
11/04/2018	5.76	23.28	2.62
11/07/2018	3.97	32.29	2.55
11/10/2018	1.14	2.57	2.57
11/13/2018	2.30	22.96	2.58
11/16/2018	1.16	2.61	2.61
11/19/2018	2.97	11.87	2.67
11/25/2018	4.40	18.84	2.83
11/28/2018	1.25	6.86	2.81
12/01/2018	11.09	41.74	2.93
12/04/2018	8.17	100.61	2.83
12/07/2018	1.30	2.92	2.92
12/10/2018	3.71	34.61	2.78
12/13/2018	32.18	160.92	10.30
12/16/2018	2.60	14.28	2.92
12/19/2018	10.76	94.91	16.45
12/22/2018	1.23	2.77	2.77
12/25/2018	1.25	5.62	2.81
12/28/2018	3.13	14.38	2.81
12/31/2018	6.25	24.38	5.94
1/03/2019	3.70	16.02	2.77
1/06/2019	7.37	26.40	8.59
1/09/2019	3.72	31.60	2.79
1/12/2019	21.44	88.27	8.20
1/15/2019	1.26	5.71	2.83
1/21/2019	13.53	54.71	7.06
1/24/2019	1.20	7.20	2.70
1/27/2019	11.39	37.77	2.70

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
1/30/2019	2.36	10.03	2.66
2/02/2019	3.07	12.30	6.76
2/05/2019	35.46	240.64	14.56
2/08/2019	2.87	11.48	2.58
2/11/2019	13.81	58.26	6.61
2/14/2019	6.61	58.26	9.01
2/17/2019	1.20	7.21	2.70
2/20/2019	15.31	79.60	2.76
2/23/2019	1.23	7.41	2.78
2/26/2019	21.86	121.45	10.93
3/01/2019	19.21	53.90	6.07
3/04/2019	3.58	7.16	2.69
3/07/2019	12.85	79.55	10.40
3/10/2019	2.56	2.88	2.88
3/13/2019	22.92	148.69	18.59
3/16/2019	2.50	10.64	2.82
3/19/2019	10.67	65.23	10.67
3/22/2019	3.62	23.50	2.71
3/25/2019	25.83	252.02	22.68
4/03/2019	10.25	102.53	7.84
4/06/2019	3.06	10.39	35.45
4/09/2019	7.19	83.86	6.59
4/12/2019	2.52	13.22	2.83
4/15/2019	1.19	7.11	2.67
4/18/2019	4.44	62.80	2.85
4/21/2019	3.79	14.53	2.84
4/24/2019	15.98	62.64	15.34
4/30/2019	6.58	58.06	11.37
5/03/2019	1.21	2.71	2.71
5/06/2019	3.07	15.98	6.02
5/09/2019	1.21	6.05	2.72
5/12/2019	1.18	31.25	2.65
5/15/2019	2.95	20.68	5.43
5/18/2019	2.40	27.05	13.22
5/21/2019	10.53	81.93	6.44
5/27/2019	1.20	2.69	2.69
5/30/2019	1.20	131.68	2.69
6/02/2019	1.19	6.57	6.57
6/05/2019	1.20	9.61	2.70
6/08/2019	1.20	12.61	2.70
6/11/2019	12.79	133.68	16.27
6/14/2019	1.18	10.01	10.60
6/17/2019	1.21	10.30	2.73
6/20/2019	1.25	7.48	2.81
6/23/2019	8.48	45.41	14.53

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
6/26/2019	6.63	84.37	8.44
6/29/2019	1.22	13.98	2.73
7/02/2019	2.48	16.10	2.79
7/05/2019	2.43	7.90	2.73
7/08/2019	12.01	60.06	2.70
7/11/2019	2.46	13.52	2.76
7/14/2019	4.18	22.71	2.69
7/17/2019	1.25	2.81	2.81
7/20/2019	1.25	2.82	2.82
7/23/2019	4.22	43.39	2.71
7/26/2019	7.17	54.98	7.17
7/29/2019	3.13	36.97	2.82
8/01/2019	7.31	59.67	8.52
8/04/2019	6.61	47.45	7.81
8/07/2019	1.18	7.67	5.84
8/10/2019	1.20	8.41	8.41
8/13/2019	9.21	322.19	10.93
8/16/2019	2.41	72.32	28.93
8/19/2019	7.30	58.39	6.69
8/22/2019	7.79	191.77	11.39
8/25/2019	3.67	22.61	2.75
8/28/2019	1.23	11.11	2.78
8/31/2019	1.20	9.61	15.01
9/03/2019	3.03	12.71	2.72
9/06/2019	2.42	12.09	2.72
9/09/2019	11.37	83.80	7.18
9/12/2019	17.58	127.29	5.94
9/15/2019	4.97	21.76	7.46
9/18/2019	16.44	97.45	6.09
9/21/2019	2.38	15.50	9.54
9/24/2019	5.80	41.84	11.36
9/27/2019	8.93	54.20	8.34
9/30/2019	6.66	38.73	2.72
10/03/2019	2.43	20.65	2.73
10/06/2019	3.08	28.95	2.77
10/09/2019	16.03	106.85	5.82
10/12/2019	1.15	2.59	6.32
10/15/2019	5.75	51.71	8.04
10/18/2019	4.02	80.40	6.89
10/21/2019	2.98	19.09	2.68
10/24/2019	3.54	16.52	6.49
10/27/2019	3.49	15.13	2.62
10/30/2019	8.77	93.13	11.50
11/02/2019	1.10	2.47	2.47
11/05/2019	2.99	9.58	2.69

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
11/11/2019	6.61	66.06	7.21
11/14/2019	3.72	12.41	6.21
11/17/2019	6.45	37.53	5.63
11/20/2019	7.32	45.73	6.10
11/26/2019	4.69	20.76	11.39
11/29/2019	1.29	2.91	2.91
12/02/2019	1.27	7.63	2.86
12/05/2019	3.17	29.18	2.85
12/08/2019	7.85	39.92	8.51
12/11/2019	3.72	21.68	2.79
12/14/2019	1.23	2.76	2.76
12/17/2019	1.21	8.50	2.73
12/20/2019	8.05	30.36	2.79
12/23/2019	6.25	39.36	19.37
12/26/2019	4.99	41.21	8.12
12/29/2019	2.47	2.78	2.78
1/01/2020	1.23	2.76	23.33
1/04/2020	1.19	2.68	2.68
1/07/2020	4.94	24.08	2.78
1/10/2020	14.67	127.54	10.84
1/13/2020	15.04	68.92	14.41
1/16/2020	6.01	35.43	2.70
1/19/2020	1.20	7.78	2.69
1/22/2020	15.26	79.37	14.65
1/25/2020	1.20	2.70	2.70
1/28/2020	3.00	15.01	2.70
1/31/2020	6.82	26.02	2.79
2/03/2020	3.83	20.41	6.31
2/06/2020	2.97	11.27	2.67
2/09/2020	1.25	2.81	2.81
2/12/2020	5.82	23.54	2.79
2/15/2020	1.25	2.81	2.81
2/18/2020	1.24	8.67	2.79
2/21/2020	2.48	14.87	36.55
2/24/2020	11.01	85.60	10.39
2/27/2020	1.21	13.30	2.72
3/01/2020	3.73	22.38	6.22
3/04/2020	4.31	22.18	2.77
3/07/2020	2.50	9.36	6.18
3/10/2020	5.60	33.57	2.80
3/13/2020	1.22	9.76	2.75
3/16/2020	2.51	13.18	7.53

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
3/19/2020	3.26	13.70	2.93
3/22/2020	1.25	8.77	2.82
3/25/2020	7.43	99.13	5.82
3/28/2020	2.51	8.77	2.82
3/31/2020	10.53	68.15	6.82
4/03/2020	3.62	28.32	2.71
4/06/2020	5.99	40.32	7.56
4/09/2020	1.26	11.35	2.84
4/12/2020	5.05	36.01	2.84
4/15/2020	1.25	9.36	2.81
4/18/2020	1.25	2.81	2.81
4/21/2020	3.72	28.50	2.79
4/24/2020	1.26	7.58	8.21
4/30/2020	1.29	2.90	2.90
5/03/2020	1.26	14.53	6.00
5/06/2020	3.03	12.73	2.73
5/09/2020	1.24	2.80	2.80
5/12/2020	2.50	14.35	2.81
5/15/2020	1.25	2.81	2.81
5/18/2020	3.62	13.28	2.72
5/21/2020	2.52	8.20	2.84
5/24/2020	1.23	2.77	2.77
5/27/2020	9.47	37.23	2.84
5/30/2020	1.21	6.63	6.63
6/02/2020	1.29	10.96	2.90
6/05/2020	1.20	5.46	2.70
6/08/2020	16.32	66.51	2.72
6/11/2020	3.00	6.61	2.70
6/14/2020	13.54	38.14	2.77
6/17/2020	11.29	35.13	2.82
6/20/2020	1.27	2.86	8.89
6/23/2020	1.18	2.66	2.66
6/26/2020	1.29	7.72	2.90
6/29/2020	5.87	36.44	2.78
7/02/2020	1.23	7.97	2.76
7/08/2020	8.06	40.90	2.79
7/11/2020	1.21	2.72	5.80
7/14/2020	7.72	43.33	2.67
7/17/2020	1.21	10.91	2.73
7/20/2020	7.26	41.15	2.72
7/23/2020	1.26	5.99	2.84
7/26/2020	2.48	16.12	2.79

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
7/29/2020	3.68	16.56	2.76
8/01/2020	1.22	2.74	2.74
8/04/2020	1.20	6.61	2.70
8/07/2020	1.22	2.74	2.74
8/10/2020	7.30	29.22	7.91
8/13/2020	3.68	16.56	2.76
8/16/2020	1.21	6.04	2.72
8/19/2020	6.04	42.87	2.72
8/22/2020	1.22	2.74	2.74
8/25/2020	2.42	7.87	2.73
8/28/2020	1.18	2.65	2.65
8/31/2020	4.79	22.15	2.69
9/03/2020	3.69	24.60	2.77
9/06/2020	1.20	7.19	7.19
9/09/2020	10.36	40.82	2.74
9/12/2020	1.21	2.72	2.72
9/15/2020	10.05	54.99	6.50
9/18/2020	3.48	9.85	2.61
9/21/2020	8.14	39.52	2.62
9/24/2020	5.96	32.76	51.22
9/27/2020	5.30	23.57	2.65
9/30/2020	1.15	6.34	2.59
10/03/2020	1.14	5.57	13.07
10/06/2020	2.92	9.33	2.62
10/12/2020	3.51	12.87	2.63
10/15/2020	2.91	22.10	2.62
10/18/2020	3.56	18.39	7.12
10/21/2020	7.58	32.22	6.32
10/24/2020	1.17	2.62	2.62
10/27/2020	4.71	21.77	6.47
10/30/2020	1.15	6.89	2.58
11/02/2020	1.15	6.91	2.59
11/05/2020	3.78	34.02	20.79
11/08/2020	7.99	39.97	13.53
11/11/2020	8.55	38.48	7.94
11/14/2020	2.38	7.74	9.53
11/17/2020	1.18	5.57	2.67
11/20/2020	2.43	16.42	9.73
11/23/2020	7.39	21.57	2.77
11/26/2020	1.23	2.78	2.78
11/29/2020	7.98	14.74	13.51
12/02/2020	1.20	2.71	2.71
12/05/2020	1.20	2.70	2.70
12/08/2020	1.23	6.14	12.90

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 5) McConway & Torley Metals Sampling Results (continued)

Sample Date	Cr total (ng/m^3)	Mn (ng/m^3)	Pb (ng/m^3)
12/11/2020	4.39	21.93	20.68
12/14/2020	1.21	10.87	10.87
12/17/2020	1.24	2.80	17.41
12/20/2020	1.25	2.81	2.81
12/23/2020	4.37	17.47	8.74
12/29/2020	2.46	11.09	2.77

**Samples less than the Method Detection Limit are expressed as ½ MDL and color-coded red*

(Figure 6) McConway & Torley Percentage of Samples Below Limit of Detection

Percentages below LOD	Cr total (%)	Mn (%)	Pb (%)
2012	0	2	22
2013	0	5	41
2014	1	2	33
2015	2	5	47
2016	2	12	65
2017	7	10	53
2018	13	6	50
2019	25	9	49
2020	43	20	69

***Figure 6**: Depicts the percentage of samples that are below laboratory limit of detection (LOD)*

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 (Inductively 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)
- Sample void 02/18/13, holiday, no staff available
- Sample was voided on 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 8/03/14 due to power failure
- Sample void on 8/24/14 due to power failure
- Sample void on 12/25/14 due to power failure
- Sample on 12/28/14 started 2 hours late (11:00 EST)
- Sample void on 5/30/15 due to sample duration beyond acceptable range
- Sample void on 7/05/15, field operator unavailable Sample void on 10/12/15, field operator unavailable
- Sample void on 2/15/16, County holiday
- Sample void on 4/12/16, motor failure
- Sample void on 4/21/16, timer malfunction
- Sample void on 5/30/16, due to sampler access restriction (holiday)
- Sample void on 7/20/16, field operator unavailable
- Sample void on 11/11/16, torn filter
- Sample void on 12/23/16, holiday, no staff available
- Sample deviation on 1/04/17, 16 hours 35 minutes run time
- Sample void 1/16/17, holiday, no staff available
- Sample void 2/16/18, holiday, no staff available
- Sample void 5/29/18 and 6/01/18, power interruption
- Sample void 10/08/18, holiday, no staff available
- Sample void, 10/11/18 and 10/17/18, power interruption
- Sample void 10/14/18, sampler malfunction
- Sample void 11/01/18, power interruption
- Sample void 11/22/18, holiday, no staff available
- Sample void 1/18. Holiday, no staff available
- Sample void 3/28/19 and 3/31/19, power outage
- Sample void 4/27/19, operator error
- Sample void 05/24/19, holiday, no staff available
- Sample void 11/08/19, holiday, no staff available
- Sample void 11/23/19, sampler malfunction (chart pen)

- Sample void 4/27/20, air monitor maintenance
- Sample void 7/05/20, holiday, no staff available
- Potential sample void on 8/28/20, under investigation
- Potential sample void on 8/31/20, under investigation
- Sample void 10/09/20, holiday, no staff available
- Run cancelled 12/26/2020, holiday scheduling conflict