



**MID-MICHIGAN ENERGY, LLC**  
c/o LS Power Development, LLC  
400 Chesterfield Center, Suite 110  
St. Louis, Missouri 63017  
(636) 532-2200 · Fax (636) 532-2250

---

Via Email and Overnight Mail

October 22, 2008

**RECEIVED**  
OCT 23 2008  
AIR QUALITY DIV.

Mr. D. John Vial, Sr.  
Environmental Engineer  
Michigan Department of Environmental Quality, Air Quality Division  
Constitution Hall  
525 West Allegan Street  
3rd Floor, North Tower  
Lansing, MI 48933

Re: Permit to Install (PTI) Application Number 297-07  
Mid-Michigan Energy Station  
Midland, Michigan

Dear Mr. Vial:

Per our discussion earlier this week pertaining to emissions from the Mid-Michigan Energy Station (MMES), you raised the point that arsenic emissions exceed the toxic air contaminant Initial Risk Screening Level (IRSL) threshold. As you are aware, Mid-Michigan Energy, LLC (MME) had compared arsenic emissions to the Secondary Risk Screening Level (SRSL).

Based on your comments, MME has reevaluated this comparison of arsenic to the SRSL. Attachment 1 contains the revised arsenic emission rate from the coal-fired boiler. Calculations were revised using the method documented in AP-42, Table 1.1-16. The calculation and assumptions are included in this attachment. This attachment should replace the corresponding page in Appendix C of the subject PTI application. Attachment 2 contains an updated Table 6.11. This attachment should replace the corresponding pages presented in the text of the subject PTI application. Based on this calculation and comparison to the appropriate screening value, arsenic is now shown to be below the IRSL.

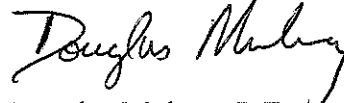
In a separate electronic message I sent to you earlier this week, I referenced information historically provided on chromium. Table 6.11 and relevant pages of Appendix C included herein also include this information. If there are additional questions on that submittal, please let me know.

Mr. John Vial  
October 22, 2008

Page 2

Please contact me at (636) 532-2200 or via email at [dmulvey@lspower.com](mailto:dmulvey@lspower.com) if you have questions.

Very truly yours,



Douglas Mulvey, P.E.  
Senior Environmental Engineer

Cc: Mr. Jim Haywood, MDEQ, with enclosures  
Ms. Janet Vanderpool, with enclosures  
Mr. Bruce Goodman, with enclosures

Enclosures: as noted

**ATTACHMENT 1**

## S01 Boiler (Coal-Fired) Stack

Megawatts (gross)	815
Load Condition	100%
Megawatts (Net)	750
Coal flow (lb/hr)	827,471
Coal Flow (tons/hr)	414
Heat input (mmBtu/hr, HHV)	6,785

CAS	Pollutant	Emission Factor	Emission Factor Units	Emission Rate (lb/hr)	Min. Control Efficiency	Notes	Controlled Emission Rate (lb/hr)	Emission Rate (tons/year)
7647-01-0	HCL	0.027	lb/MMBtu	183	95%	A	9.16	40
7664-39-3	HF	.0134	lb/MMBtu	91	95%	A	4.55	20
7440-38-0	Antimony (Sb)	1.4E-04	lb/MMBtu	0.95	99%	A	9.5E-03	0.042
7440-38-2	Arsenic (As)	2.7E-05	lb/MMBtu	0.19		G	0.19	0.81
7440-41-7	Beryllium (Be)	2.1E-04	lb/MMBtu	1.42	99%	A	0.014	0.062
7440-43-9	Cadmium (Cd)	3.2E-05	lb/MMBtu	0.22	99%	A	2.2E-03	0.010
7440-47-3	Chromium (Cr III)	1.4E-03	lb/MMBtu	9.50	99%	A	0.095	0.42
18540-29-9	Chromium VI					H	0.010	0.046
50-00-0	Formaldehyde	2.4E-04	lb/ton	0.10		B	0.10	0.43
7439-96-5	Manganese (Mn)	0.013	lb/MMBtu	88	99%	A	0.88	3.86
7439-97-6	Mercury (Hg)	1.6E-05	lb/mwhr	0.012		C	0.012	0.054
7440-02-0	Nickel (Ni)	1.4E-03	lb/MMBtu	9.50	99%	A	0.095	0.42
7782-49-2	Selenium (Se)	2.0E-04	lb/MMBtu	1.36	99%	A	0.014	0.059
7440-48-4	Cobalt (Co)	5.0E-04	lb/MMBtu	3.39	99%	A	0.034	0.15
92-52-4	PAH - Biphenyl	1.7E-06	lb/ton	7.03E-04		D	7.0E-04	3.1E-03
83-32-9	PAH - Acenaphthene	5.1E-07	lb/ton	2.11E-04		D	2.1E-04	9.2E-04
208-98-8	PAH - Acenaphthylene	2.5E-07	lb/ton	1.03E-04		D	1.0E-04	4.5E-04
120-12-7	PAH - Anthracene	2.1E-07	lb/ton	8.69E-05		D	8.7E-05	3.8E-04
56-55-3	PAH - Benzo(a)anthracene	8.0E-08	lb/ton	3.31E-05		D	3.3E-05	1.4E-04
50-32-8	PAH - Benzo(a)pyrene	3.8E-08	lb/ton	1.57E-05		D	1.6E-05	6.9E-05
205-99-2	PAH - Benzo(b)fluoranthene	1.1E-07	lb/ton	4.55E-05		D	4.6E-05	2.0E-04
205-82-3	PAH - Benzo(j)fluoranthene	1.1E-07	lb/ton	4.55E-05		D	4.6E-05	2.0E-04
207-08-9	PAH - Benzo(k)fluoranthene	1.1E-07	lb/ton	4.55E-05		D	4.6E-05	2.0E-04
191-24-2	PAH - Benzo(g,h,i)perylene	2.7E-08	lb/ton	1.12E-05		D	1.1E-05	4.9E-05
218-01-9	PAH - Chrysene	1.0E-07	lb/ton	4.14E-05		D	4.1E-05	1.8E-04
206-44-0	PAH - Fluoranthene	7.1E-07	lb/ton	2.94E-04		D	2.9E-04	1.3E-03
86-73-7	PAH - Fluorene	9.1E-07	lb/ton	3.76E-04		D	3.8E-04	1.6E-03
193-39-5	PAH - Indeno(1,2,3-cd)pyrene	6.1E-08	lb/ton	2.52E-05		D	2.5E-05	1.1E-04
91-20-3	PAH - Naphthalene	1.3E-05	lb/ton	5.38E-03		D	5.4E-03	0.024
85-01-8	PAH - Phenanthrene	2.7E-06	lb/ton	1.12E-03		D	1.1E-03	4.9E-03
129-00-0	PAH - Pyrene	3.3E-07	lb/ton	1.37E-04		D	1.4E-04	6.0E-04
3697-24-3	PAH - 5-Methyl chrysene	2.2E-08	lb/ton	9.10E-06		D	9.1E-06	4.0E-05
75-07-0	Acetaldehyde	5.7E-04	lb/ton	0.24		B	0.24	1.03
98-86-2	Acetophenone	1.5E-05	lb/ton	6.21E-03		B	6.2E-03	0.027
107-02-8	Acrolein	2.9E-04	lb/ton	0.12		B	0.12	0.53
71-43-2	Benzene	1.3E-03	lb/ton	0.54		B	0.54	2.36
100-44-7	Benzyl chloride	7.0E-04	lb/ton	0.29		B	0.29	1.27
117-81-7	Bis(2-ethylhexyl)phthalate	7.3E-05	lb/ton	0.030		B	0.030	0.13
75-25-2	Bromoform	3.9E-05	lb/ton	0.016		B	0.016	0.071
75-15-0	Carbon disulfide	1.3E-04	lb/ton	0.054		B	0.054	0.24
532-27-4	2-Chloroacetophenone	7.0E-06	lb/ton	2.90E-03		B	2.9E-03	0.013
108-90-7	Chlorobenzene	2.2E-05	lb/ton	9.10E-03		B	9.1E-03	0.040
67-66-3	Chloroform	5.9E-05	lb/ton	0.024		B	0.024	0.11
98-82-8	Cumene	5.3E-06	lb/ton	2.19E-03		B	2.2E-03	9.6E-03
57-12-5	Cyanide	1.3E-05	lb/MMBtu	0.088		E	0.088	0.39
121-14-2	2,4-Dinitrotoluene	2.8E-07	lb/ton	1.16E-04		B	1.2E-04	5.1E-04
77-78-1	Dimethyl sulfide	4.8E-05	lb/ton	0.020		B	0.020	0.087
100-41-4	Ethyl benzene	9.4E-05	lb/ton	0.039		B	0.039	0.17
75-00-3	Ethyl chloride	4.2E-05	lb/ton	0.017		B	0.017	0.076
107-06-2	Ethylene dichloride	4.0E-05	lb/ton	0.017		B	0.017	0.072
106-93-4	Ethylene dibromide	1.2E-06	lb/ton	4.96E-04		B	5.0E-04	2.2E-03
110-54-3	Hexane	6.7E-05	lb/ton	0.028		B	0.028	0.12
78-59-1	Isophorone	5.8E-04	lb/ton	0.24		B	0.24	1.05
74-95-3	Methyl bromide	1.6E-04	lb/ton	0.066		B	0.066	0.29
74-87-3	Methyl chloride	5.3E-04	lb/ton	0.22		B	0.22	0.96
78-93-3	Methyl ethyl ketone	3.9E-04	lb/ton	0.16		B	0.16	0.71
60-34-4	Methyl hydrazine	1.7E-04	lb/ton	0.070		B	7.0E-02	0.31
80-62-6	Methyl methacrylate	2.0E-05	lb/ton	8.27E-03		B	8.3E-03	0.036
1634-04-4	Methyl tert butyl ether	3.5E-05	lb/ton	0.014		B	1.4E-02	0.063
75-09-2	Methylene chloride	2.9E-04	lb/ton	0.12		B	0.12	0.53
108-95-2	Phenol	1.6E-05	lb/ton	6.62E-03		B	6.6E-03	0.029
123-38-6	Propionaldehyde	3.8E-04	lb/ton	0.157		B	0.16	0.69
127-18-4	Tetrachloroethylene	4.3E-05	lb/ton	0.018		B	0.018	0.078
108-88-3	Toluene	2.4E-04	lb/ton	0.099		B	0.10	0.43
71-55-6	1,1,1-Trichloroethane	2.0E-05	lb/ton	8.27E-03		B	8.3E-03	0.036
100-42-5	Styrene	2.5E-05	lb/ton	0.010		B	0.010	0.045
1330-20-7	Xylenes	3.7E-05	lb/ton	0.015		B	0.015	0.067
108-05-4	Vinyl acetate	7.6E-06	lb/ton	3.14E-03		B	3.1E-03	0.014
1746-01-6	2,3,7,8-TCDD	1.43E-11	lb/ton	5.92E-09		F	5.9E-09	2.6E-08
TOTAL							79	

A = Values based upon coal concentration data from COALQUAL.

B = Emission Factor Source: AP-42, Table 1.1-14, 5th edition (9/98)

C = Emission Factor Source: proposed emission limit

D = Emission Factor Source: AP-42, Table 1.1-13, 5th edition (9/98)

E = Emission Factor Source: EEI EPRI Subcommittee Recommendation

F = Emission Factor Source: AP-42, Table 1.1-12, 5th edition (9/98)

G = Emission Factor Source: AP-42, Table 1.1-16, 5th edition (9/98) [C=25.27, A= .0525, PM=0.027]

H = USEPA, 1998. Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units - Final Report to Congress.

## S03 Main Auxiliary Boiler (Natural Gas-Fired)

Heat Input (MMBtu/hr)	400
Fuel Heating Value (Btu/ft <sup>3</sup> )	1,020
Fuel Flow (MMft <sup>3</sup> /hr)	0.392
Annual Operating Hours	8760
Annual Fuel (MMft <sup>3</sup> /yr)	3,435

CAS	Pollutant	Emission Factor	Units	Notes	Emission Rates	
					lb/hr	tons/year
91-57-6	2-Methylnaphthalene	2.40E-05	lb/MMCF	G	9.4E-06	4.1E-05
56-49-5	3-Methylchloranthrene	1.80E-06	lb/MMCF	G	7.1E-07	3.1E-06
na	7,12-Dimethylbenz(a)anthracene	1.60E-05	lb/MMCF	G	6.3E-06	2.7E-05
83-32-9	Acenaphthene	1.80E-06	lb/MMCF	G	7.1E-07	3.1E-06
203-96-8	Acenaphthylene	1.80E-06	lb/MMCF	G	7.1E-07	3.1E-06
120-12-7	Anthracene	2.40E-06	lb/MMCF	G	9.4E-07	4.1E-06
56-55-3	Benz(a)anthracene	1.80E-06	lb/MMCF	G	7.1E-07	3.1E-06
71-43-2	Benzene	2.10E-03	lb/MMCF	G	8.2E-04	3.6E-03
50-32-8	Benzo(a)pyrene	1.20E-06	lb/MMCF	G	4.7E-07	2.1E-06
205-99-2	Benzo(b)fluoranthene	1.80E-06	lb/MMCF	G	7.1E-07	3.1E-06
191-24-2	Benzo(g,h,i)perylene	1.20E-06	lb/MMCF	G	4.7E-07	2.1E-06
205-82-3	Benzo(k)fluoranthene	1.80E-06	lb/MMCF	G	7.1E-07	3.1E-06
106-97-8	Butane	2.10E+00	lb/MMCF	G	8.2E-01	3.6E+00
218-01-9	Chrysene	1.80E-06	lb/MMCF	G	7.1E-07	3.1E-06
53-70-3	Dibenzo(a,h)anthracene	1.20E-06	lb/MMCF	G	4.7E-07	2.1E-06
25321-22-6	Dichlorobenzene	1.20E-03	lb/MMCF	G	4.7E-04	2.1E-03
74-84-0	Ethane	3.10E+00	lb/MMCF	G	1.2E+00	5.3E+00
206-44-0	Fluoranthene	3.00E-06	lb/MMCF	G	1.2E-06	5.2E-06
86-73-7	Fluorene	2.80E-06	lb/MMCF	G	1.1E-06	4.8E-06
50-00-0	Formaldehyde	7.50E-02	lb/MMCF	G	2.9E-02	1.3E-01
110-54-3	Hexane	1.80E+00	lb/MMCF	G	7.1E-01	3.1E+00
193-39-5	Indeno(1,2,3-cd)pyrene	1.80E-06	lb/MMCF	G	7.1E-07	3.1E-06
91-20-3	Naphthalene	6.10E-04	lb/MMCF	G	2.4E-04	1.0E-03
109-66-0	Pentane	2.60E+00	lb/MMCF	G	1.0E+00	4.5E+00
85-01-8	Phenanathrene	1.70E-05	lb/MMCF	G	6.7E-06	2.9E-05
74-98-6	Propane	1.60E+00	lb/MMCF	G	6.3E-01	2.7E+00
129-00-0	Pyrene	5.00E-06	lb/MMCF	G	2.0E-06	8.6E-06
108-88-3	Toluene	3.40E-03	lb/MMCF	G	1.3E-03	5.8E-03
7440-38-2	Arsenic	2.00E-04	lb/MMCF	H	7.8E-05	3.4E-04
7440-39-3	Barium	4.40E-03	lb/MMCF	H	1.7E-03	7.6E-03
7440-41-7	Beryllium	1.20E-05	lb/MMCF	H	4.7E-06	2.1E-05
7440-43-9	Cadmium	1.10E-03	lb/MMCF	H	4.3E-04	1.9E-03
7440-47-3	Chromium	1.40E-03	lb/MMCF	H	5.5E-04	2.4E-03
18540-29-9	Chromium VI			I	6.0E-05	2.6E-04
7440-48-4	Cobalt	8.40E-05	lb/MMCF	H	3.3E-05	1.4E-04
7440-50-8	Copper	8.50E-04	lb/MMCF	H	3.3E-04	1.5E-03
7439-96-5	Manganese	3.80E-04	lb/MMCF	H	1.5E-04	6.5E-04
7439-97-6	Mercury	2.60E-04	lb/MMCF	H	1.0E-04	4.5E-04
7439-98-7	Molybdenum	1.10E-03	lb/MMCF	H	4.3E-04	1.9E-03
7440-02-0	Nickel	2.10E-03	lb/MMCF	H	8.2E-04	3.6E-03
7782-49-2	Selenium	2.40E-05	lb/MMCF	H	9.4E-06	4.1E-05
7440-62-2	Vanadium	2.30E-03	lb/MMCF	H	9.0E-04	4.0E-03
7440-66-6	Zinc	2.90E-02	lb/MMCF	H	1.1E-02	5.0E-02
<b>TOTAL</b>					<b>19</b>	

G = Emission Factor Source: AP-42, Table 1.4-3, 5th edition (7/98)

H = Emission Factor Source: AP-42, Table 1.4-4, 5th edition (7/98)

I = USEPA, 1998. Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units - Final Report



**ATTACHMENT 2**

**Table 6.11 – Screening Thresholds and Maximum Ambient Air Impact Concentrations of TACs**

CAS	Pollutant	Emission Rate (lb/hr) <sup>10</sup>	Combustion Source	Impact Conc. (ug/m <sup>3</sup> )	Threshold (ug/m <sup>3</sup> )	Less than Threshold	Averaging Period	Notes
50-00-0	Formaldehyde	2.06E-01	All	2.68E-02	8.0E-02	Yes	annual	IRSL
50-32-8	Benzo(a)pyrene	1.77E-05	All	8.75E-07	5.0E-04	Yes	annual	IRSL
53-70-3	Dibenzo(a,h)anthracene	2.06E-06	NG, Diesel	1.02E-06	5.0E-04	Yes	annual	IRSL <sup>1</sup>
56-55-3	Benzo(a)anthracene	3.63E-05	All	1.72E-06	5.0E-03	Yes	annual	IRSL <sup>1</sup>
57-12-5	Cyanide	8.82E-02	Coal	6.38E-03	50	Yes	1 hr	
67-66-3	Choroform	2.44E-02	Coal	1.61E-05	4.0E-01	Yes	annual	IRSL
71-43-2	Benzene	5.57E-01	All	1.75E-01	30	Yes	24 hr	
71-43-2	Benzene	5.42E-01	All	2.43E-03	1.0E-01	Yes	annual	IRSL
74-83-9	Methyl bromide	6.62E-02	Coal	6.05E-04	5	Yes	24 hr	
74-87-3	Methylchloride	2.19E-01	Coal	2.00E-03	90	Yes	24 hr	
74-87-3	Methylchloride	2.19E-01	Coal	1.45E-04	1.6	Yes	annual	IRSL
75-00-3	Ethyl chloride	1.74E-02	Coal	1.59E-04	10,000	Yes	24 hr	
75-07-0	Acetaldehyde	2.39E-01	Coal, Diesel	7.55E-03	9	Yes	24 hr	
75-07-0	Acetaldehyde	2.36E-01	Coal, Diesel	1.99E-04	5.0E-01	Yes	annual	IRSL
75-09-2	Methylene Chloride	1.20E-01	Coal	7.92E-05	2	Yes	annual	IRSL
75-15-0	Carbondisulfide	5.38E-02	Coal	4.92E-04	700	Yes	24 hr	
75-25-2	Bromoform	1.61E-02	Coal	1.06E-05	9.0E-01	Yes	annual	IRSL
77-78-1	Dimethyl sulfate	1.99E-02	Coal	4.32E-04	5.0E-01	Yes	8 hr	
78-59-1	Isophorone	2.40E-01	Coal	1.73E-02	280	Yes	1 hr	
78-59-1	Isophorone	2.40E-01	Coal	1.58E-04	3.7	Yes	annual	IRSL
78-93-3	MEK	1.61E-01	Coal	1.06E-04	5,000	Yes	annual	
100-41-4	Ethylbenzene	3.89E-02	Coal	3.55E-04	1,000	Yes	24 hr	
100-41-4	Ethylbenzene	3.89E-02	Coal	2.57E-05	3	Yes	annual	
100-42-5	Styrene	1.03E-02	Coal	9.45E-05	1,000	Yes	24 hr	
100-42-5	Styrene	1.03E-02	Coal	6.83E-06	1.7	Yes	annual	IRSL
100-44-7	Benzylchloride	2.90E-01	Coal	1.91E-04	2.0E-02	Yes	annual	IRSL
106-97-8	Butane	2.99E+00	NG	6.26E+00	23,800	Yes	8 hr	
106-99-0	1,3 Butadiene	1.23E-04	Diesel	1.32E-03	2	Yes	24 hr	
106-99-0	1,3 Butadiene	2.11E-06	Diesel	1.61E-06	3.0E-02	Yes	annual	IRSL
107-02-8	Acrolein	1.20E-01	Coal, Diesel	9.27E-05	2.0E-02	Yes	annual	
107-02-8	Acrolein	1.20E-01	Coal, Diesel	1.89E-02	5	Yes	1 hr	
107-06-2	Ethylene dichloride	1.65E-02	Coal	1.09E-05	4.0E-02	Yes	annual	IRSL
108-88-3	Toluene	1.10E-01	All	6.73E-02	5,000	Yes	24 hr	
109-66-0	Pentane	3.70E+00	NG	7.75E+00	17,700	Yes	8 hr	
110-54-3	Hexane	2.59E+00	Coal, NG	3.27E+00	700	Yes	24 hr	

<sup>10</sup> A lb/month emission rate can be obtained by multiplying this lb/hour emission rate by the total hours in a month. This calculation would assume a worst case scenario of the facility operating at 100% load during that time period.

CAS	Pollutant	Emission Rate (lb/hr) <sup>10</sup>	Combustion Source	Impact Conc. (ug/m <sup>3</sup> )	Threshold (ug/m <sup>3</sup> )	Less than Threshold	Averaging Period	Notes
117-81-7	Bis(2-ethylhexyl)phthalate	3.02E-02	Coal	1.99E-05	2.0E-01	Yes	annual	IRSL
121-14-2	2,4-Dinitrotoluene	1.16E-04	Coal	2.52E-06	2	Yes	8 hr	
121-14-2	2,4-Dinitrotoluene	1.16E-04	Coal	7.65E-08	9.0E-03	Yes	annual	IRSL
123-38-6	Propionaldehyde	1.57E-01	Coal	1.04E-04	4	Yes	annual	
127-18-4	Tetrachloroethylene	1.78E-02	Coal	1.17E-05	1.7	Yes	annual	IRSL
193-39-5	Indeno(1,2,3-cd)perylene	2.82E-05	All	1.36E-06	5.0E-03	Yes	annual	IRSL <sup>1</sup>
205-82-3	Benzo(j)fluoranthrene	4.83E-05	All	1.04E-06	5.0E-04	Yes	annual	IRSL
205-99-2	Benzo(b)fluoranthrene	4.91E-05	All	2.57E-06	5.0E-03	Yes	annual	IRSL <sup>1</sup>
207-08-9	Benzo(k)fluoranthrene	4.55E-05	Coal	3.00E-08	5.0E-02	Yes	annual	IRSL <sup>1</sup>
218-01-9	Chrysene	7.03E-05	All	3.28E-06	5.0E-01	Yes	annual	IRSL <sup>1</sup>
1330-20-7	Xylenes	1.94E-02	Coal, Diesel	4.15E-02	100	Yes	24 hr	
1634-04-4	MTBE	1.45E-02	Coal	1.32E-04	3,000	Yes	24 hr	
1746-01-6	2,3,7,8 TCDD	5.92E-09	Coal	3.90E-12	2.30E-08	Yes	annual	IRSL
7439-96-5	Manganese	8.83E-01	Coal, NG	8.75E-03	5.0E-02	Yes	24 hr	
7440-02-0	Nickel	9.80E-02	Coal, NG	8.08E-04	4.2E-03	Yes	annual	IRSL
7440-36-0	Antimony	9.50E-03	Coal	8.68E-05	2.0E-01	Yes	24 hr	
7440-38-2	Arsenic	1.86E-01	Coal, NG	1.94E-04	2.0E-03	Yes	annual	IRSL
7440-41-7	Beryllium	1.43E-02	Coal, NG	1.52E-04	2.0E-02	Yes	24 hr	
7440-41-7	Beryllium	1.71E-05	Coal, NG	4.26E-06	4.0E-04	Yes	annual	IRSL
7440-43-9	Cadmium	3.73E-03	Coal, NG	3.92E-04	6.0E-04	Yes	annual	IRSL
7440-47-3	Chromium III	9.70E-02	Coal, NG	6.24E-03	5.0E+00	Yes	8 hr	
18540-29-9	Chromium VI	1.07E-02	Coal, NG	3.76E-04	0.1	Yes	24 hr	
18540-29-9	Chromium VI	1.07E-02	Coal, NG	6.15E-05	8.3E-05	Yes	annual	IRSL
7440-48-4	Cobalt	3.40E-02	Coal, NG	9.89E-04	2.0E-01	Yes	8 hr	
7647-01-0	HCL	9.16E+00	Coal	8.37E-02	20	Yes	24 hr	
7664-39-3	HF	4.55E+00	Coal	3.29E-01	26	Yes	1 hr	
7664-41-7	NH <sub>3</sub>	2.10E+01	Coal	4.57E-01	10	Yes	8 hr	<sup>3</sup>
7664-93-9	H <sub>2</sub> SO <sub>4</sub>	2.30E+01	Coal	5.01E-01	10	Yes	8 hr	
7782-49-2	Selenium	1.36E-02	Coal, NG	3.67E-04	2	Yes	8 hr	

Notes:

All = coal, natural gas, and diesel

NG = natural gas

<sup>1</sup> Approximate IRSL based on potency relative to 50-32-8 Benzo(a)pyrene.

<sup>2</sup> Impacts of chromium were conservatively compared to the threshold for hexavalent chromium.

<sup>3</sup> Emissions of NH<sub>3</sub> originate from air pollution control equipment (i.e. SCR).

Non-Pollutant Specific Impact Concentrations ( $\mu\text{g}/\text{m}^3$ )				
	1 hr	8 hr	24 hr	annual
Coal Impacts (1 lb/hr)	0.0723	0.0218	0.0091	0.00066
NG Impacts (1 lb/hr)	4.290	2.096	1.280	0.250
Diesel Emergency Generator (1 lb/hr)	78.66	32.11	12.95	1.81
Diesel Fire Pump (1 lb/hr)	35.07	23.29	10.72	0.76

**Table 6.12 – Maximum Ambient Air Impact Concentrations of Mercury from the Proposed Facility**

Location	Maximum Annual Hg Impacts ( $\text{ng}/\text{m}^3$ )				
	2002	2003	2004	2005	2006
Tittabawassee River Watershed	0.0942	0.0779	0.0787	0.0763	0.0777
Sanford Lake	0.00053	0.00078	0.00092	0.00076	0.00086
Kiwassee Lake	0.0057	0.0052	0.0062	0.0055	0.0047
Small Lake East of Facility	0.00342	0.00329	0.00308	0.00342	0.00343