ALLEGHENY COUNTY HEALTH DEPARTMENT
AIR QUALITY PROGRAM

October 5, 2011

SUBJECT: **Renewal Title V Operating Permit Application**
Chambers Development Company, Inc. - Monroeville Landfill
600 Thomas Street
Monroeville, PA 15146

RE: **Operating Permit No. 0215**
Municipal Waste Landfill

TO: **Sandra L. Etzel**
Chief Engineer

FROM: **Hafeez A. Ajenifuja.**
Air Quality Engineer

FACILITY DESCRIPTION:

Chambers Development Company, Inc. operates Monroeville Landfill, a municipal solid waste landfill, in Monroeville, Pennsylvania. The landfill is approximately 390 total acres in surface area, comprised of two (2) closed areas (old west and western) and two active areas (eastern and south west expansion). The landfill has an active landfill gas (LFG) collection system with two (2) enclosed ground flares and one (1) utility flare to control the landfill gas emissions collected from closed and active disposal areas. One (1) utility flare and (1) enclosed flare are used only during emergency situations when the other enclosed flare is nonfunctional. The landfill also has small motor oil, hydraulic oil and diesel fuel storage tanks landfill operations (land clearing and earth moving) and construction; and vehicular traffic.

The primary source of emissions at the facility is the landfill itself, which emits VOC's and HAPs as defined in CAA section 112. Since the landfill was modified after May 30, 1991 and has a design capacity of greater than 2.5 million megagrams, this facility is subject to the requirements of the New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills, 40 CFR §60 Subpart WWW. Pursuant to the requirements of 40 CFR 60, Subpart WWW, landfills having design capacities greater than or equal to 2.5 million megagrams must obtain a Part 70 operating permit. This facility is therefore subject to the Part 70 major source operating permit requirements of §2103.20. This notwithstanding, the Monroeville Landfill is a major source of carbon monoxide and a minor source of all other criteria pollutants and HAP emissions, as defined at §2102.20 (Definitions) of Article XXI.

PROCESS DESCRIPTION:

This is a Title V renewal permit for Chambers Development Company, Inc. - Monroeville Landfill located in Municipality of Monroeville, Allegheny County.

The original operating permit was issued on June 29, 2005 and this renewal permit will incorporate some of the requested changes to the permit language/conditions.

The following changes were made during the Title V renewal:

1) The responsible official and facility contact names were changed

2) The emission limitations of source ID S001 (enclosed ground flare) has been revised to reflect accurate emission limit of the flare. The information used to estimate the emission limit during the initial operating permit review in 2005 was not representative of the 4,000 cfm capacity flare. The new emission limits and revised conditions have been incorporated into the renewal permit (see the amended IP 0215-I002 for the revised S001 emission limit).

3) The minimum operating temperature of the enclosed flare S001 was revised from 1600^{o}F to 1500^{o}F. The condition was revised to require flares S001 & S002 to operate at the operating temperature at which 98% destruction efficiency was demonstrated during the most recent stack test or 1500°F, whichever is greater.

4) Condition V.A.1.g (was condition 2.g in IP No. 91-I-002-I) was revised by adding the sentence "**during operation**" to the condition. It reads as "*The flare shall operate with a flame present at all times during operations"*

The facility's operations and processes are still the same as in the original operating permit and it is described below:

The facility consists of the following emission units:

1. One (1) existing stationary municipal solid waste landfill with a design capacity of 19.37 million megagrams.
2. One (1) active landfill gas collection and control system consisting of two (2) enclosed ground flares, each rated at a maximum capacity of 4000 scfm and 3000 scfm of landfill offgas and exhausting through stacks S001 and S002, and one (1) utility flare, rated at a maximum capacity of 500 scfm and exhausting through stack S003.
3. Three (3) above ground motor oil storage tanks, collectively identified as D001, each having a storage capacity of 500 gallons.
4. Two (2) above ground hydraulic oil storage tanks, collectively identified as D002, each having a storage capacity of 500 gallons.
5. Two (2) underground diesel fuel storage tanks, collectively identified as D003, each having a storage capacity of 2000 gallons.
6. Two (2) leachate storage tanks, collectively identified as D004, each having a storage capacity of 700,000 gallons.
7. Landfill operations and landfill construction.
8. Paved and unpaved roads.

EMISSION CALCULATION:

Pollutants	MSW Landfill (tons/yr)[1]	Three (3) Flares (tons/yr)[1]			Motor oil storage tanks (tons/yr)[1]	Two (2) hydraulic oil storage tanks (tons/yr)[1]	Landfill Operation & Construction (tons/yr)[1]	Total (tons/yr)[1]
		S001 4000 CFM	S002 3000 CFM	S003 500 CFM				
PM/PM_{10}	0.00	8.22	6.17	1.03	0.00	0.00	56.0[2]	71.42
NO_x	0.00	42.05	31.54	4.47	0.00	0.00	0.00	78.06
SO_X	0.00	8.80	6.60	1.10	0.00	0.00	0.00	16.50
CO	0.00	105.12	78.84	24.31	0.00	0.00	0.00	208.27
VOC	35.0	1.11	0.83	0.14	0.14	0.23	0.00	37.45
NMOC	90	2.84	2.13	0.36	0.00	0.00	0.00	95.32
HAPs(single)[3]	2.95	4.12	3.09	0.52	0.00	0.00	0.00	10.68
HAPs (total)					0.00	0.00	0.00	12.8

1. A year is defined as any consecutive 12-month period.
2. PM and PM 10 emissions from this activity are fugitive emissions only.
3. Single HAP for MSW Landfill is toluene; single HAP for flare is HCl.

See Appendix A Tables 1 & 2 for the Fugitive HAP emissions from the landfill operation and landfill gas flares.

The highest single HAP for the enclosed flare S001 is hydrochloric acid (HCL)

Sample calculation for the (4,000 cfm) flare single HAP is shown below:

Molecular Weight of HCL = 35.45lbs/lb-mole
Concentration = 42.0 ppmv
Universal Gas Constant = 0.7302 atm-ft^3/lb-mol^oR
Standard Temperature = 60^oF or 520^oR

(4000ft^3/min)*(60min/hr)*(42ppmv/1000000)*(35.45lbs/lbs-mole)*(lbs-mol^oR/0.7302atm-ft^3)*(1/520^oR)

= **0.94 lb/hr**

0.94 lb/hr * 8760 hrs/yr * tons/2000 lbs = **4.12 tons/yr**

RENEWAL OPERATING APPLICATION COMPONENTS:

1. Renewal Permit Application No. 0215 was received on December 21, 2009.

METHOD OF DEMONSTRATING COMPLIANCE:

Compliance with the landfill gas capture efficiency limitation, control device destruction efficiency, and other operational standards required for this landfill in accordance to 40 CFR 60, Subpart WWW will be demonstrated by complying with the monitoring requirements of §60.756, the reporting requirements of §60.757, and the record keeping requirements of §60.758. Compliance with the fugitive particulate emission limitations for the rock crushing and handling

activities will be demonstrated according to the work practice and fugitive dust control measures established in IP No. 0215-001, as incorporated herein.

REGULATORY APPLICABILITY:

1. **Article XX1 Requirements for Issuance:**

   The requirements of Article XXI, Parts B and C for the issuance of this renewal permits have been met for this facility. Article XXI, Part D, Part E & Part H will have the necessary sections addressed individually.

2. Testing Requirements:

Plan Approval Order and Agreement Upon Consent Number 253, Dated December 30, 1996:

In order to comply with §2105.06.a of Article XXI, Major Sources of NOx and VOCs Reasonably Available Control Technology, the facility will test enclosed ground flares # 1 & 2 for compliance with the established NMOC destruction efficiency (i.e., 98% by weight, as condition 1.4). Such testing will be conducted once every five (5) years according to approved U.S. EPA test methods and Section 2108.02 of Article XXI.

3. **New Source Performance Standards (NSPS):**

   a) 40 CFR PART 60, Subpart WWW-Standards of Performance for Municipal Solid Waste Landfills:

   The municipal solid waste landfill is subject to the New Source Performance Standard, Article XXI '2105.05 and '2105.73, (40 CFR 60, Subpart WWW) because the municipal solid waste landfill commenced construction, reconstruction or modification or began accepting waste on or after May 30, 1991. Pursuant to Subpart WWW, the landfill must operate a landfill offgas collection system and the collection system must be operated with a negative pressure head, except under the conditions stated at 40 CFR 60.753. The collected gas must be vented to a control system designed and operated in accordance with '60.752 (b)(2)(iii). This landfill complies with these requirements by using a landfill offgas collection and control system that consists of two (2) enclosed ground flares having a VOC destruction efficiency of at least ninety eight (98) percent by weight. The landfill is also subject to testing, compliance, monitoring, reporting and recordkeeping requirements specified in §60.754, §60.755, §60.756, §60.757 and §60.758, respectively. Pursuant to 40 CFR 60.752, a municipal solid waste landfill with a design capacity greater than 2.5 million megagrams (Mg) shall comply with 40 CFR 60.752(b)(2)(ii) if the non methane organic compound emission (NMOC) rate is greater than 50 Mg/year based on calculation procedures specified in 40 CFR 60.754. Based on 40 CFR 60.754(a)(1); the following values for the NMOC calculations: k = 0.05 /yr, Lo = 170 m3/Mg and NMOC = 4,000 ppmv (as hexane); and using the EPA's LandGEM Model (Version 2.01), the calculation shows that the NMOC emission rate exceeds 50 Mg/year. The proposed gas collection and control systems are therefore required to comply with the requirements of 40 CFR 60, Subpart WWW (Standards of Performance for Municipal Solid Waste Landfills).

b) 40 CFR PART 60, Subpart Ka- Standards of Performance for Volatile Organic Liquid Storage Vessels for Petroleum Liquids:

The three (3) motor oil storage tanks, with capacities of 500 gallons each, are not subject to the New Source Performance Standard, Article XXI '2105.05, (40 CFR 60, Subpart Ka) because the storage capacities of all the tanks are less than the rule applicability threshold of 40,000 gallons. The two (2) hydraulic oil storage tanks, with capacities of 500 gallons each, are not subject to the New Source Performance Standard, Article XXI '2105.05, (40 CFR 60, Subpart Ka) because the storage capacities of all the tanks are less than the rule applicability threshold of 40,000 gallons. The two (2) underground diesel storage tanks, with capacities of 2000 gallons each, are not subject to the New Source Performance Standard, Article XXI '2105.05, (40 CFR 60, Subpart Ka) because diesel fuel oil does not meet the definition of petroleum liquids and also the storage capacities of all the tanks are less than the rule applicability threshold of 40,000 gallons.

c) 40 CFR PART 60, Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels:

The two (2) 700,00 gallons leachate storage tanks are not subject to the New Source Performance Standard, Article XXI '2105.05, (40 CFR 60, Subpart Kb), because leachate does not meet the definition of volatile organic liquid. Further the six (6) tanks described below (Subpart Ka) are not subject to this rule because the storage capacities of all tanks are less than the rule applicability threshold of 75 m3 (19,812.9 gallons).

d) 40 CFR PART 60, Subpart OOO- Standards of Performance for Nonmetallic Mineral Processing Plants:

The landfill clearing and earthmoving activities, including cover soil stockpiling at this plant are not subject to the New Source Performance Standard, Article XXI '2105.05, (40 CFR Part 60, Subpart OOO) because the landfill does not have crushing or grinding operations and it is not considered as a non metallic mineral processing plant, as defined at §60.671.

4. **NESHAP and MACT Standards:**

The municipal solid waste landfill is subject to the National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills, 40 CFR 63, Subpart AAAA. This landfill, as an area source of HAP emissions, has a design capacity greater than 2.5 megagrams (Mg) and 2.5 million cubic meters (m^3) and has uncontrolled emissions greater than 50 Mg NMOC as calculated pursuant to 40 CFR 60.754(a) (see above discussion on Subpart WWW applicability). As such, the permittee is required to comply with the applicable requirements for an existing affected source that is an area source. These requirements are incorporated into the permit and primarily require the permittee to comply with all requirements of Subpart WWW. One additional requirement pursuant to Subpart AAAA is for the permittee to prepare and maintain a startup, shutdown and malfunction (SSM) plan, and such is incorporated into the permit.

5. **Compliance Assurance Monitoring:**

The Compliance Assurance Monitoring (CAM) rule found in 40 CFR 64 is not applicable to the facility pursuant to §64.2(b)(1), which states “emission limitations or standards proposed

by the administrator after November 15, 1990 pursuant to section 111 or 112 of the Act". Section 111, which is the NSPS Subpart WWW, is applicable to the facility since it is a landfill and it was promulgated on March 12, 1996, while Section 112 which is the NESHAP (MACT) Subpart AAAA is also applicable to the facility. Subpart AAAA referenced Subpart WWW and it was promulgated on January 16, 2003.

6. Reasonably Available Control Technology (RACT) (§2105.06):

Section 2105.06 of Article XXI requires that RACT be applied to all major sources of VOC (and NOx). This landfill was determined to be subject to this rule as a major source of VOC, since the existing plant off-gas collection and control system was not considered as federally enforceable by the U.S. EPA, and the uncontrolled potential to emit of VOC exceeded 50 tons per year. Plan Approval Order and Agreement No. 253 issued on December 17, 1996, determined RACT to be thermal incineration (i.e., ground flaring), with the flare properly maintained and operated at a minimum destruction efficiency of 98% by weight, and an average off-gas collection system efficiency of 75%. Related testing, recordkeeping, reporting and monitoring were also required. This approval made the existing off-gas collection and control system federally enforceable, with potential VOC emissions thereafter determined by taking the existing collection/control system into account.

7. GREENHOUSE GASES:

Calculations of greenhouse gases are based on methodology found in 40 CFR Part 98, Subpart HH and EPA Climate Leaders Greenhouse Gas Inventory Protocol-Core Module Guidance, October 2004.

The 40 CFR Part 98, Subpart HH only addressed the reporting of methane (CH_4) emission even though CO_2 and CH_4 are made up of approximately equal amounts on a volumetric basis. According to the October 2004, EPA Climate Leaders Greenhouse Gas Inventory Protocol-Core Module Guidance, methane accounts for the majority of the GHG emissions from landfills. It was assumed that waste decomposition does not contribute to the net addition of CO_2 to the atmosphere, and this is consistent with intergovernmental panel on climate change (IPCC) guidance. The EPA guidance believes that CO_2 is produced from combustion of CH_4 in captured LFG, and it is considered biomass CO_2, which does not contribute to CO_2-equivalent emissions. This is evident in Table A–1 to Subpart A of Part 98, that shows the global warming potential of CO_2 is 1, that of while CH_4 is 21.

The CH_4 emission that contributes to CO_2-equivalent emissions is estimated using the equation HH-8 from 40 CFR Part 98, Subpart HH or equation from the EPA Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance, October 2004.

$$CH_4 \text{ Emissions} = \left[\left(\frac{CH_4 \text{ Collected}}{\text{Collection}_{eff}} - CH_4 \text{ Collected}\right) \times (1 - OF)\right] + (CH_4 \text{ Collected} \times \text{Vent}) \quad \text{-eq.1}$$

Equation 1 above is from EPA Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance, October 2004.

Where:

CH_4 Collected = CH_4 Collected by active gas collection system

$Coll_{eff}$ = collection system efficiency

OF = oxidation fraction

Vent = fraction vented

$$\text{Emissions} = \left[\left(\frac{R}{CE \times f_{Rec}} - R\right) \times (1 - OX) + R \times \left(1 - (DE \times f_{Dest})\right)\right] \qquad \text{(Eq. HH-8)}$$

Where:

Emissions (CH_4) = Methane emissions from the landfill in the reporting year (metric tons CH_4).

R = Quantity of recovered CH_4 [from Equation HH–4 of this section in metric tons CH_4] or CH_4 collected for the reporting year.

CE = Collection efficiency estimated at landfill, taking into account system coverage, operation, and cover system materials from Table HH–3 of this subpart. If area by soil cover type information is not available, use default value of 0.75 (CE4 in table HH–3 of this subpart) for all areas under active influence of the collection system.

f_{Rec}= Fraction of hours the recovery system was operating (annual operating hours/8760 hours per year).

OX = Oxidation fraction. Use the oxidation fractions default value of 0.1 (10%).

DE = Destruction efficiency, (lesser of manufacturer's specified destruction efficiency and 0.99). If the gas is transported off-site for destruction, use DE = 1.

f_{Dest}= Fraction of hours the destruction device was operating (device operating hours/8760 hours per year). If the gas is destroyed in a back-up flare (or similar device) or if the gas is transported off-site for destruction, use f_{Dest}= 1.

Step 1: Determine the landfill methane generation rate. This is done using the LandGEM model based on First Order Decomposition Rate Equation below.

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} kL_o \left(\frac{M_i}{10}\right) e^{-kt_{ij}}$$

From the model output result provided by Chambers Landfill, the highest landfill gas produced is 4,852 cfm in the reporting year 2020. Chambers Landfill assumes 50% methane.

Step 2: Determine the amount of methane collected or recovered.

The methane generation rate or methane collected in cubic meter per year (m^3/yr) =

(Landfill gas collected in ft^3/min)*(percent methane in the gas)*(conversion factor from ft^3 to m^3)

(4,852.1 ft^3/min)*(0.50)*(m^3/35.31 ft^3)

= **68.71 m^3/min** or

(68.71 m^3/min)*(60 min/hr)*(8760 hr/yr)

= **36.11 x 10^6 m^3/yr**

Step 3: Determine the collection efficiency:

The collection efficiency is assumed to be 75% by volume from EPA AP-42, Section 2, page 2.4-6

Step 4: Determine the fraction of methane oxidized

The fraction oxidized is assumed to be 10% by volume, according to 40 CFR §98.343 and the October 2004 EPA- Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance (Direct Emissions from Municipal Solid Waste Landfill)

Step 5: Determine the fraction of methane vented

This is the amount of the collected gas that is vented directly to the atmosphere. It could either be through an active venting system, or in some cases gas may also be vented during scheduled startup/shut down and malfunction period.

The amount of methane vented is determined by using part of equation in the equation HH-8 above.

[1-(DE x $f_{Dest.}$)], Where DE = Destruction efficiency = 98% and f_{Dest} = 1 (is the default factor recommended by the equation HH-8)

1 – (0.98 x 1) = 0.02 or 2%

Step 6: Calculate methane emissions:

$$CH_4 \text{ Emissions} = \left[\left(\frac{CH_4 \text{ Collected}}{\text{Collection}_{eff}} - CH_4 \text{ Collected}\right) \times (1 - OF)\right] + (CH_4 \text{ Collected} \times \text{Vent}) \quad \text{– eq. 1}$$

$$= [(\underline{36.11 \times 10^6\ m^3/yr}) - (36.11 \times 10^6\ m^3/yr)] \times [(1-0.1)] + [(36.11 \times 10^6\ m^3/yr * 0.02)]$$
$$0.75$$

$$= [12.04 \times 10^6] * [0.90] + [722{,}200\ m^3/yr]$$

$$= \underline{\mathbf{11.56 \times 10^6\ m^3/yr}}$$

The methane emission is converted from volumetric to mass emission rate using the density of methane. The density of methane is equal to 0.667 kilogram/cubic meter at 1 atmosphere and 59°F

Therefore, the CH_4 Emissions in metric tons =

$[11.56 \times 10^6\ m^3/yr] * [0.667\ kg/\ m^3] * [1\ metric\ ton/1000\ kg]$

= **7,709.32 metric ton/yr of CO_2e**

The highest methane emission from Chambers Landfill is 7,709.32 metric ton and it is below the reporting threshold of 25,000 metric ton of CO_2e. Therefore, the facility is presently not subject to the GHG reporting.

8. EMISSIONS SUMMARY:

The allowable emission summary for the Chambers Landfill is given in Table below:

EMISSION SUMMARY

Pollutant	Annual Emissions (tons/year)
PM/PM_{10}	**71.42**
NO_X	**78.06**
SO_X	**16.50**
CO	**207.27**
VOC	**37.45**
NMOC	**95.33**
Hydrochloric Acid	**7.25**

RECOMMENDATIONS:

All applicable Federal, State and County regulations have been addressed in the permit. The Title V operating permit should be approved with the emission limitations, terms and conditions in the Title Operating Permit No. 0215.

APPENDIX A

HAPS EMISSIONS TABLE FOR LANDFILL OPERATION AND LANDFILL GAS FLARES

Table 1

2020 POTENTIAL FUGITIVE HAP EMISSIONS
MONROEVILLE LANDFILL

Fugitive Emission Estimates

Average LFG Generated =	4,852.11	cfm
Average LFG Collection Efficiency =	75%	
Average LFG Collected =	3639.08	cfm
Fugitive Emission Estimates	1213.0	
Hours of Operation in 2020 =	8760	

CAS #	*LFG Constituent*	*Molecular Weight*	*Median ppmv*	*Uncontrolled Emissions*			
				lb/hr	*lb/yr*	*TPY*	*mg/m³*
71-55-6	1,1,1-Trichloroethane	133.41	0.48	0.012	104.26	0.05	2.62
79-34-5	1,1,2,2-Tetrachloroethane	167.85	1.11	0.035	303.35	0.15	7.62
75-34-3	1,1-Dichloroethane	98.97	2.35	0.043	378.68	0.19	9.51
75-35-4	1,1-Dichloroethene	96.94	0.2	0.004	104.26	0.05	0.79
107-06-2	1,2-Dichloroethane	98.96	0.41	0.008	66.06	0.03	1.66
78-87-5	1,2-Dichloropropane	112.99	0.18	0.004	33.11	0.02	0.83
107-13-1	Acrylonitrile	53.06	6.33	0.062	546.85	0.27	13.74
75-15-0	Carbon disulfide	76.13	0.58	0.008	71.89	0.04	1.81
56-23-5	Carbon tetrachloride	153.84	0.004	0.000	1.00	0.00	0.03
463-58-1	Carbonyl sulfide	60.07	0.49	0.005	47.92	0.02	1.20
75-00-3	Chloroethane	64.52	1.25	0.015	131.31	0.07	3.30
67-66-3	Chloroform	119.39	0.03	0.001	5.83	0.00	0.15
75-09-2	Dichloromethane	84.94	14.3	0.226	1977.64	0.99	49.68
100-41-4	Ethylbenzene	106.16	4.61	0.091	796.82	0.40	20.02
110-54-3	Hexane	86.18	6.57	0.105	921.87	0.46	23.16
7439-97-6	Mercury	200.61	0.000292	0.000	0.10	0.00	0.00
108-10-1	Methyl isobutyl ketone	100.16	1.87	0.035	304.95	0.15	7.66
127-18-4	Perchloroethylene	165.83	3.73	0.115	1007.10	0.50	25.30
79-01-6	Trichloroethene	131.4	2.82	0.069	603.32	0.30	15.16
75-01-4	Vinyl chloride	62.5	7.34	0.085	746.92	0.37	18.76
1330-20-7	Xylene	106.16	12.1	0.239	2091.44	1.05	52.54
71-43-2	Benzene	78.11	1.91	0.028	242.91	0.12	6.10
108-88-3	Toluene	92.13	39.3	0.673	5895.13	2.95	148.09
108-90-7	Chlorobenzene	112.56	0.25	0.005	45.82	0.02	1.15
	Total HAPs			1.87		8.21	
NA	NMOC (as hexane)	86.18	595	9.531	83487.84	41.74	2097.22

Table 2
Landfill Gas Flares- HAP Emission Estimate

CAS #	LFG Constituent	Molecular Weight	Median ppmv	Uncontrolled Emissions lb/hr	lb/yr	TPY	mg/m3	Avg. Control	Controlled Emissions lb/hr	lb/yr	TPY
71-55-6	1,1,1-Trichloroethane	133.41	0.48	0.036	312.79	0.16	2.62	85%	0.0054	46.92	0.02
79-34-5	1,1,2,2-Tetrachloroethane	167.85	1.11	0.104	910.05	0.46	7.62	85%	0.0156	136.51	0.07
75-34-3	1,1-Dichloroethane	98.97	2.35	0.130	1136.04	0.57	9.51	98%	0.0026	22.72	0.01
75-35-4	1,1-Dichloroethene	96.94	0.2	0.011	312.79	0.16	0.79	99%	0.0001	0.95	0.00
107-06-2	1,2-Dichloroethane	98.96	0.41	0.023	198.18	0.10	1.66	89%	0.0025	21.80	0.01
78-87-5	1,2-Dichloropropane	112.99	0.18	0.011	99.34	0.05	0.83	98%	0.0002	1.99	0.00
107-13-1	Acrylonitrile	53.06	6.33	0.187	1640.56	0.82	13.74	98%	0.0037	32.81	0.02
75-15-0	Carbon disulfide	76.13	0.58	0.025	215.68	0.11	1.81	98%	0.0005	4.31	0.00
56-23-5	Carbon tetrachloride	153.84	0.004	0.000	3.01	0.00	0.03	95%	0.0000	0.15	0.00
463-58-1	Carbonyl sulfide	60.07	0.49	0.016	143.77	0.07	1.20	98%	0.0003	2.88	0.00
75-00-3	Chloroethane	64.52	1.25	0.045	393.94	0.20	3.30	98%	0.0009	7.88	0.00
67-66-3	Chloroform	119.39	0.03	0.002	17.49	0.01	0.15	93%	0.0001	1.22	0.00
75-09-2	Dichloromethane	84.94	14.3	0.677	5932.93	2.97	49.68	98%	0.0135	118.66	0.06
100-41-4	Ethylbenzene	106.16	4.61	0.273	2390.47	1.20	20.02	98%	0.0055	47.81	0.02
110-54-3	Hexane	86.18	6.57	0.316	2765.62	1.38	23.16	98%	0.0063	55.31	0.03
7439-97-6	Mercury	200.61	0.000292	0.000	0.29	0.00	0.00	0%	0.0000	0.29	0.00
108-10-1	Methyl isobutyl ketone	100.16	1.87	0.104	914.86	0.46	7.66	98%	0.0021	18.30	0.01
127-18-4	Perchloroethylene	165.83	3.73	0.345	3021.29	1.51	25.30	98%	0.0069	60.43	0.03
79-01-6	Trichloroethene	131.4	2.82	0.207	1809.95	0.90	15.16	96%	0.0083	72.40	0.04
75-01-4	Vinyl chloride	62.5	7.34	0.256	2240.77	1.12	18.76	98%	0.0051	44.82	0.02
7647-01-0	HCl	35.45	42	0.830	7272.55	3.64	60.90	0%	0.8302	7272.55	3.64
1330-20-7	Xylene	106.16	12.1	0.716	6274.33	3.14	52.54	99%	0.0072	62.74	0.03
71-43-2	Benzene	78.11	1.91	0.083	728.72	0.36	6.10	90%	0.0083	72.87	0.04
108-88-3	Toluene	92.13	39.3	2.019	17685.39	8.84	148.09	94%	0.1211	1061.12	0.53
108-90-7	Chlorobenzene	112.56	0.25	0.016	137.45	0.07	1.15	98%	0.0003	2.75	0.00
	Total HAPs					28.28				9170.17	4.59
NA	NMOC (as hexane)	86.18	595	28.592	250463.53	125.23	2097.22	98%	0.5718	5009.27	2.50