APPENDIX I

Air Quality Technical Report,
EEA Automated Garage Newsletter

TEUTONIA BUENA VISTA DEVELOPMENT
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

AIR QUALITY TECHNICAL REPORT

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1.0 INTRODUCTION

Teutonia Buena Vista, LLC is proposing to construct a residential development in downtown Yonkers, Westchester County, New York. The Buena Vista Development project (the Project) involves the redevelopment of a number of vacant and/or underutilized properties within the Downtown Waterfront Area. The project consists of a 25-story (with three stories below grade), 412 dwelling unit residential building, with an ancillary parking garage and a rooftop hydroponic garden. The proposed multifamily dwelling building would be physically integrated with the adjoining Trolley Barn multifamily live-work building at 92 Main Street. In addition, eight (8) two-bedroom dwelling units would be constructed at 66-72 Buena Vista Avenue in three (3) free-standing existing buildings. The overall site consists of 2.04 acres. The subject property is comprised of the following tax lots: Block 512, Lots 1, 11, 13, 15, 17, 21 and 23, and Block 111, Lots 24, 25 and 27.

The impacts of the Project on air quality resources surrounding the project site are evaluated in this report. Air quality impacts are expected from project-generated traffic and parking at the project site and on area roadways; from stationary sources such as onsite power generation units; and from project construction activities. Impacts from nearby stationary sources were also analyzed.

Traffic and parking related impacts were assessed from traffic data provided by Tim Miller Associates, Inc (TMA). The amount of traffic and its distribution have been defined in Section 3.5 of the Draft Environmental Impact Statement (DEIS). A parking analysis was also provided in Section 3.5. Traffic analysis data, as supplied, was used in an extensive screening analysis, following New York State Department of Transportation (NYSDOT) procedures, to determine the level of air quality analysis appropriate to the proposed action. Based on the screening analysis, none of the selected roadway intersections impacted by the project warranted a quantitative air quality analysis.

Air quality impacts associated with the operation of a combined heat and power (CHP) system was assessed using air dispersion modeling software. A 390 kilowatt (kW) system consisting of six (6) microturbines, each rated at 65 kW, is proposed. The power generated

will be used to feed a geothermal heating, venting and cooling (HVAC) system and the automated parking garage. The heat generated will be used for the proposed hydroponic garden system to be located atop the parking garage.

Finally, construction related air quality impacts were qualitatively analyzed. Construction air quality impacts are associated with dust (particulate matter) generated by the use of heavy construction equipment and wind erosion, as well as construction equipment exhaust.

Proposed air quality mitigation measures and project alternatives and their potential air quality impacts are also addressed in this report. Section 2.0 of this report discusses the existing air quality at the proposed project site; Section 3.0 contains the air quality impact analyses associated with the proposed development, as well as air quality impacts on the Project from nearby sources of air pollution; Section 4.0 discusses proposed mitigation measures that will be used to mitigate air quality impacts; Section 5.0 addresses air quality impacts associated with proposed alternatives; and Section 6.0 provides conclusions.

The project has no proposed build alternatives; however, the DEIS evaluates beneficial and adverse impacts from a "No Build" or "No Action" alternative, which refers to the impacts associated with future conditions (Build year 2014), assuming the Project is not built. This scenario includes already approved projects, such as the River Park Center, Cacae Center Development, Larkin Plaza and Palisades Point. These projects are commonly referred to as the Struever Fidelco Cappelli (SFC) Development. As such, air quality impacts defined under the "No Build" alternative includes the impacts on air quality from the proposed SFC Development.

2.0 EXISTING AIR QUALITY

Ambient air quality is measured and regulated under rules established by the United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC). For this project, baseline air quality conditions at and in the vicinity of the project site were characterized using measured data available from

nearby monitoring stations. These data were used to evaluate the relative impact of proposed activities.

2.1 SITE DESCRIPTION

The project is to be located in the City of Yonkers, Westchester County, New York. The site is located near the waterfront of the Hudson River, within an urban area of the city of Yonkers. The site is regulated under USEPA and NYSDEC air quality regulations and guidelines. Westchester County is located within Region 2 of the USEPA and Region III of the NYSDEC.

The 2.04 acre project site is currently made up of various residential, commercial and retail properties. Every parcel that constitutes the project site has been previously developed. The project site is surrounded by a diverse mix of existing land uses and is classified as "Urban". There are likely minor active air emission sources located on the project site including small residential and commercial boilers and other fossil fuel combustion equipment to support HVAC systems. Since three (3) multi-family residential buildings and the Trolley Barn apartment building will remain as part of the project, any air emission source currently associated with these buildings are expected to remain. Additional details regarding the project and site description is provided in DEIS Section 2.0.

2.2 SENSITIVE LAND USES

Areas that are particularly sensitive to air pollution are typically referred to as "Sensitive Land Uses" or "sensitive receptors," and typically include locations where large masses of people may gather and locations with potentially elevated populations of the elderly or children. Sensitive receptors may include residences, hospitals, schools, parks and places of worship, among others. Ambient air quality standards define non-sensitive receptors as areas where the general public has access, including roadways, sidewalks and railways.

The site is located within an urban environment and is surrounded by public, commercial and residential properties. Within a half mile of the site there are numerous sensitive receptors,

which include churches, schools, parks, Yonkers Public Library, the Philipse Manor Hall State Historic Site, the YMCA of Yonkers, St. Joseph's Hospital and Yonkers City Hall. There are also several sensitive receptors located adjacent or within close proximity (within approximately 500 feet) to the site, which include Queens Daughters Day Nursery, City Harvest Pre-School and Yonkers Train Station.

2.3 REGULATORY GUIDANCE

Air quality regulations have been developed by the USEPA and the NYSDEC to protect air resources. These regulations are based on extensive studies that quantified the effects of exposure to various air pollutants relative to public health and the environment. There are both natural and anthropogenic sources of air pollutants. The sources include stationary sources (such as factories, power plants, residential furnaces, wood burning stoves and fireplaces), mobile sources (such as cars, trucks, buses, trains and planes) and natural sources (such as wildfires, plants, animals and windblown dust). Since the proposed project contains some of these sources, both Federal and State regulations require an analysis to assure all air quality regulations are maintained.

2.3.1 Ambient Air Quality Standards

National and New York State Ambient Air Quality Standards (N/SAAQS) have been issued in accordance with the Clean Air Act and Clean Air Act Amendments for wide-spread pollutants considered harmful to public health and the environment. Six (6) pollutants have been listed with acceptable thresholds; these pollutants are called criteria pollutants. These criteria pollutants are sulfur dioxide (SO_2), nitrogen oxides (NO_x), ozone (O_3), lead (Pb), carbon monoxide (CO) and particulate matter (PM). The PM standards consist of two (2) types of particle pollution standards; one for particles with a diameter of less than 10 microns (PM_{10}) and for those with a diameter less than 2.5 microns ($PM_{2.5}$).

The USEPA set both primary and secondary NAAQS. Primary standards protect human health, while secondary standards protect public welfare. The NYSDEC has adopted limits that apply to this project under 6NYCRR Subpart 257. Table 1 presents the N/SAAQS applicable to the project site and surrounding areas.

Table 1
National and New York State Ambient Air Quality Standards

	NAAQS Primary Standards		NAAQS Secondary Standards		SAAQS	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**	**Level**	**Statistic**
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour (1)	None		9 ppm	Maximum
	35 ppm (40 mg/m^3)	1-hour (1)			35 ppm	Maximum
Lead	0.15 $\mu g/m^3$ (2)	Rolling 3-Month Average	Same as Primary		None	
	1.5 $\mu g/m^3$	Quarterly Average	Same as Primary			
Nitrogen Dioxide	53 ppb (3)	Annual (Arithmetic Average)	Same as Primary		0.05 ppm	Arithmetic Mean
	100 ppb	1-hour (4)	None		None	
Particulate Matter (PM_{10})	150 $\mu g/m^3$	24-hour (5)	Same as Primary		None(12)	
Particulate Matter ($PM_{2.5}$)	15.0 $\mu g/m^3$	Annual (6) (Arithmetic Average)	Same as Primary		None	
	35 $\mu g/m^3$	24-hour (7)	Same as Primary			
Ozone(13)	0.075 ppm (2008 std)	8-hour (8)	Same as Primary		None	
	0.08 ppm (1997 std)	8-hour (9)	Same as Primary		0.08 ppm	Maximum
	0.12 ppm	1-hour (10)	Same as Primary		0.12 ppm	Maximum
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Average)	0.5 ppm	3-hour (1)	0.03 ppm	Arithmetic Mean
	0.14 ppm	24-hour (1)			0.14 ppm	Maximum
	75 ppb (11)	1-hour	None		0.50 ppm	Maximum

(1) Not to be exceeded more than once per year.
(2) Final rule signed October 15, 2008.
(3) The official level of the annual NO_2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.
(4) To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).
(5) Not to be exceeded more than once per year on average over 3 years.
(6) To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m3.
(7) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3 (effective December 17, 2006).
(8) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective May 27, 2008).
(9) (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
(c) EPA is in the process of reconsidering these standards (set in March 2008).
(10) (a) EPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").
(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is $\leq$ 1.
(11) Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.
(12) Federal standard for PM_{10} not yet officially adopted by NYS, but is currently being applied to determine compliance status.
(13) Former NYS Standard for ozone of 0.08 ppm was not officially revised via regulatory process to coincide with the Federal standard of 0.12 ppm, which is currently being applied by NYS to determine compliance status.

Units:
$\mu g/m^3$ = microgram per cubic meter.
ppm = parts per million.
ppb = parts per billion.

The Clean Air Act (CAA) requires EPA to review the latest scientific information and standards every five (5) years. In recent years, there have been several modifications, additions and deletions to the ambient standards. These changes include the following:

- December 17, 2006 - the annual PM_{10} standard was revoked and the $PM_{2.5}$ 24-hour was lowered from 65 micrograms per cubic meter ($\mu g/m^3$) to 35 $\mu g/m^3$;
- May 27, 2008 – 8-hour ozone standard reduced from 0.08 parts per million (ppm) to 0.075 ppm and the 1-hour standard revoked.
- October 15, 2008 – 3-month rolling average lead standard of 0.15 $\mu g/m^3$ introduced;
- January 22, 2010 – 1-hour NO_2 standard of 100 ppb (189 µg/m3) introduced;
- June 2, 2010 – 1-hour SO_2 standard of 75 ppb (196 $\mu g/m^3$) introduced; and 24-hour and annual standards revoked (effective by late 2010).

In addition to the criteria pollutants listed above, New York State has adopted ambient air quality standards for over 1,000 toxic compounds including: Photochemical Oxidants, Non-Methane Hydrocarbons, Fluorides, Beryllium and Hydrogen Sulfide. The standards are known as DAR-1 AGC/SGC Guidelines, which include both annual guideline concentrations (AGCs) and short-term guideline concentrations (SGCs). Ambient monitoring for only a handful these pollutants is conducted by NYSDEC. Projects with air emissions must consider both criteria pollutants and toxic or hazardous air pollutants (HAPs) as part of an impact and/or permitting analysis, and cannot cause or exacerbate an exceedance of N/SAAQS for criteria pollutants of AGC/SGC guideline values for HAPs.

2.3.2 Area Attainment Status

The USEPA uses ambient air quality standards to classify all areas of the country as attainment, non-attainment or unclassified. If an area is considered in attainment or unclassified for a particular pollutant, then new major sources or major modifications of existing sources require permitting under the Prevention of Significant Deterioration (PSD) Attainment Area provision program. However, if an area is designated non-attainment for a given pollutant, then new major sources or major modifications of existing sources of the

non-attainment pollutant are subject to Non-Attainment Area (NAA) provisions under New Source Review (NSR). The NAA provisions have stringent requirements for source emission rates and can require emissions offsets.

The proposed project is located in the Westchester County, New York, which is part of the New Jersey – New York – Connecticut Air Quality Control Region. This region is designated as either attainment or unclassified for SO_2, NO_2, Pb and PM_{10}. The area is designated as a severe non-attainment area for O_3, non-attainment for $PM_{2.5}$ and moderate non-attainment for CO.

2.3.3 State Implementation Plan

If an area in a State does not meet a N/SAAQS, the State must develop a State Implementation Plan (SIP). The SIP is a federally approved and enforceable plan developed by the State to attain and/or maintain the N/SAAQS, thereby bringing an area back into attainment. SIP procedures are outlined in the Code of Federal Regulations and fall under USEPA's jurisdiction, including enforcement.

According to information obtained on the NYSDEC website:

> *"The Federal Environmental Protection Agency (US EPA) designates* as *non-attainment areas those parts of the country where the air exceeds the National Ambient Air Quality Standards (NAAQS) for one of the six criteria contaminants. State Implementation Plans (SIPs) set out control strategies to reduce air pollution in non-attainment areas. EPA requires states to adopt SIPs for all non-attainment areas, and periodically to evaluate the effectiveness of the strategies prescribed in each SIP.*
>
> *At the present time, New York is under mandate to develop SIPs to address ozone and fine particulates less than 2.5 microns in size. New York is also developing state plans for the requirements of the Clean Air Interstate Rule (CAIR), the Clean Air Mercury Rule (CAMR), New Source Review (NSR) and regional haze."*

2.4 EXISTING SITE CHARACTERISTICS AND AIR QUALITY

The meteorological, climatic and ambient air quality data presented in this section have been summarized from data provided by Federal and State agencies. The climate of the area is based on historic data recorded over several years at local National Weather Service (NWS) monitoring locations. The air quality data measured by the State are also presented along with applicable rules and regulations. These data provide a summary of current conditions surrounding the site and the regulatory framework within which the proposed facility must operate.

2.4.1 Climate and Meteorology

The climate of Westchester County is broadly classified as "humid-continental". The climate is dominated by continental influences, which means that air masses and weather systems affecting the Northeast United States have their origin principally over North America. The influence of the Atlantic Ocean is also significant, due to the project site proximity to the East Coast. The primary characteristics of the climate are an extended period of freeze-free temperatures, a moderate range of daily and seasonal temperatures and a precipitation distribution that is fairly uniform throughout the year.

In addition, the project site is located near the eastern banks of the Hudson River, and as such, local meteorology is influenced by the river valley, most notably the wind direction and speed. Additional details regarding local meteorology and climatology are provided below.

Meteorological data are recorded by the National Weather Service (NWS) and climate data, and records are processed and maintained by the National Oceanic and Atmospheric Administration (NOAA). The local NWS station nearest the proposed project is at the Westchester County Airport located near White Plains, NY, and the records extend back to 1946. However, climatological summary data is not available for this site, and therefore, the information presented below is based on data measured at New York's Central Park due to its proximity to the project site and climatological summary availability.

Temperature

There are important coastal influences on the temperature pattern of the project site area: the Atlantic Ocean to the south and east and the Long Island Sound to the east. The proximity of the ocean and the Long Island Sound moderates temperatures and reduces seasonal temperature extremes. This influence causes winter temperatures to be milder than those of mainland areas at similar latitudes to the west; summer temperatures are similarly cooler. The annual average temperature of the area is 53.4^{o} F over a 30-year period beginning in 1980. Seasonal extreme temperatures occur in January and July, with the average monthly temperatures of 31.9^{o} F and 76.2^{o} F, respectively. The normal minimum temperature in January and February is approximately 26^{o} F, with a record low of -6^{o} F that occurred in 1882. In the summer months, the normal maximum temperature is approximately 84^{o} F, with a record high of 106^{o} F that occurred in 1936. The extreme minimum and maximum temperatures are based on 141 years of recorded observations.

Relative Humidity

The area, in general, has a diurnal humidity pattern. The highest average relative humidity in the area generally occurs in the early morning hours. This early morning maximum tends to gradually decrease to a minimum level at about mid-day to early afternoon. As the air is heated, the relative humidity decreases and as air cools, relative humidity increases, assuming the amount of moisture in the air remains the same. The humidity values at this site are typical of a coastal environment.

Precipitation

The prevailing weather systems in the general project site area provide abundant and fairly uniform precipitation throughout the year. Heavy precipitation events result mostly from storms which move northeastward along, or in close proximity to, the East Coast of the United States. Total precipitation averages 49.7 inches per year over a 30-year record beginning in 1980. The peak 24-hour rainfall was 11.2 inches over a 140-year record. The peak snowfall was 26.4 inches in 24 hours over a 41-year record.

Wind

The prevailing westerly winds of the mid-latitudes dominate general air movements in this area. The dominance of the northwest wind is most pronounced in the winter months when polar air masses tend to dominate. In the summer months, however, predominant wind direction becomes southwesterly when tropical air masses prevail. Maximum wind speeds are typically associated with intense storms, such as hurricanes or subtropical cyclones. Ocean sea breeze events do affect the area typically in the spring and summer months. The average wind speed is 6.8 miles per hour (mph) for a 26-year record, and the peak sustained 2-minute wind speed is 40 mph with a 3-second maximum gust of 57 mph over a 14-year record.

Other climatic features are provided in the NWS and NOAA station description packages for both the Westchester and Central Park monitoring sites. The project is not expected to influence the general climatology of local or regional areas.

2.4.2 Existing Air Quality

Ambient air monitoring is conducted by the NYSDEC throughout New York State. Air quality monitoring stations measure existing air quality levels for local areas. The existing air quality is often considered background air quality, meaning the air quality prior to a new project's influence. The stations listed in Table 2 are considered background monitors for the proposed project.

Table 2
NYSDEC Air Monitoring Sites

Station	Site Number	Parameter(s)
Westchester County		
Wallkill	3566-09[(1)]	Pb
Scotchtown	3566-11	Pb
Mamaroneck	5956-01 (C)	$PM_{2.5}$
Bronx County		
Pfizer Plant Research Laboratory (Botanical Gardens)	7094-10 (C)	O_3, SO_2[(2)], CO, NO_x, $PM_{2.5}$, Toxics[(3)]
IS52	7094-07	PM_{10}

Notes:
[(1)]There are two (2) lead monitoring sites in Wallkill, NY. Site 3566-09 was selected based on higher monitoring values.
[(2)]SO_2 plus low level SO_2 monitoring.
[(3)]Total of 42 compounds are monitored once every six (6) days.
(C) = Continuous emissions monitoring.

A summary of the air quality data collected at these locations, including the New York State and Federal ambient air quality standards (AAQS) for each pollutant, is provided below and in Table 3. The data was obtained from the NYSDEC 2009 Ambient Air Quality Report[1]; it primarily summarizes data from 1999 to 2009 (where available) and provides a comparison of the three (3) most recent years of available data to Federal N/SAAQS. This is the most up-to-date report available as of June 2010.

[1] NYSDEC, 2009, "New York State 2009 Ambient Air Quality Report," 2009, <http://www.dec.state.ny.us.>

Table 3
Summary of Ambient Air Quality Data for 2009

Pollutant	Period	Station Location	County	Concentration[(1)]	N/SAAQS
NO_2	1-hour	Botanical Gardens	Bronx	0.086 ppm	0.10 ppm
	Annual Average			0.022 ppm	0.053/0.05 ppm
O_3	1-hour	Botanical Gardens	Bronx	0.095 ppm	0.12 ppm
	8-hour			0.075 ppm	0.08 ppm
SO_2	3-hour Max	Botanical Gardens	Bronx	0.066 ppm	0.5 ppm
	24-hour Max			0.031 ppm	0.14 ppm
	Annual Average			0.0054 ppm	0.03 ppm
CO	1-hour Max	Botanical Gardens	Bronx	3.4 ppm	35 ppm
	8-hour Max			2.5 ppm	9 ppm
PM_{10}	24-hour	IS52 (MS302)	Bronx	57.0 $\mu g/m^3$	150 $\mu g/m^3$
$PM_{2.5}$	24-hour	Botanical Gardens	Bronx	27.4 $\mu g/m^3$	35 $\mu g/m^3$
	Annual			13.2 $\mu g/m^3$	15.0 $\mu g/m^3$
Pb	Quarterly	Wallkill	Orange	0.069 $\mu g/m^3$	1.5 $\mu g/m^3$
	Quarterly	Scotchtown		0.01 $\mu g/m^3$	1.5 $\mu g/m^3$

Note: [(1)] See Table 1 notes to determine how monitored concentrations relate to each standard.

Carbon Monoxide (CO) – The nearest NYSDEC CO monitoring station to the project is the Pfizer Plant Research Center/Botanical Garden station located at 2900 Southern Blvd, Bronx, NY. A review of the NYSDEC 2009 Ambient Air Quality Report indicates that the 1-hour and 8-hour CO measured concentrations complied with applicable 1-hour and 8-hour standards of 35 ppm and 9 ppm, respectively, and have been slightly decreasing over the past 10 years.

Ozone (O_3) - During the period of 2007 through 2009, the O_3 data recorded at the Botanical Gardens station was below the New York State/Federal O_3 AAQS, which states that the "4th highest daily maximum 8-hour average is not to exceed an average of 0.08 ppm during the last three (3) years". This average value for 2007 to 2009 was 0.073 ppm. Although the 3-year average O_3 concentration at this site is in compliance with AAQS, the area (New York Metropolitan Area) remains in non-attainment of the ozone standard. Therefore, the State continues to closely regulate sources of NO_x and VOCs, which are precursors to ozone formation.

Course Inhalable Particulates (PM_{10}) - The nearest PM_{10} monitoring station in relation to the project site is the IS52 station located at 681 Kelly Street, Bronx, NY. According to the 2009 NYSDEC Ambient Air Quality Report, there were no exceedances of the AAQS 24-hour standard of 150 $\mu g/m^3$. The maximum 24-hour concentration in 2009 was 57.0 $\mu g/m^3$.

Fine Particulates ($PM_{2.5}$) - $PM_{2.5}$ is measured at the Botanical Gardens station on a continuous basis. NYSDEC Ambient Air Quality Report data indicates a maximum 24-hour concentration of 27.4 $\mu g/m^3$, which is below the 24-hour NAAQS of 35 $\mu g/m^3$. Although the $PM_{2.5}$ 24-hour concentration is below the standard at this monitoring station, Bronx County remains a non-attainment area (originally designated on April 5, 2005). As such, the State is required to closely regulate sources of $PM_{2.5}$. As provided in Table 3, 2009 monitoring data indicates no exceedances of the annual 15.0 $\mu g/m^3$ standards.

Nitrogen Dioxide (NO_2) - NO_2 is measured at the Botanical Gardens station. The annual average NO_2 concentrations over the past three (3) years from 2007 to 2009 indicates that there were no exceedances of the State/Federal AAQS of 0.05 ppm and 0.053 ppm, respectively. The monitoring data also shows no exceedances with the recently promulgated NO_2 1-hour standard of 0.10 ppm.

Sulfur Dioxide (SO_2) - SO_2 concentrations recorded at the Botanical Gardens station over the 2007 to 2009 period indicate that ambient air concentrations are well within the standards for all regulatory averaging periods 3-hour, 24-hour and annual, at 0.5 ppm, 0.14 ppm and 0.03 ppm, respectively. As shown in Table 3, 2009 average values are well within their respective standards.

Lead (Pb) - Lead concentrations are not monitored in the Bronx. The nearest reporting stations are in Orange County. The reported levels are within the newly promulgated standard of 0.15 $\mu g/m^3$ for a rolling 3-month average (Table 3).

3.0 AIR QUALITY IMPACT ANALYSIS

The air quality analysis presented below is divided into four (4) sections: traffic related impacts, parking impacts, impacts associated with onsite and nearby stationary sources and impacts associated with construction of the project.

3.1. TRAFFIC RELATED AIR QUALITY IMPACTS

The proposed project is expected to generate traffic which will cause emissions of CO, NO_x, VOCs, PM_{10} and $PM_{2.5}$ and HAPs, which are associated primarily with vehicle exhaust. Traffic data collected by TMA. were utilized herein to evaluate air quality impacts from project related traffic. Traffic details are provided in Section 3.5 of the DEIS. Traffic related air quality impacts are maximized at roadway intersections (both signalized and unsignalized) based on the vehicle exhaust stop-and-go profile of an intersection. As such, RTP analyzed traffic information at each intersection that was part of the traffic study conducted in DEIS Section 3.5 to determine if a quantitative air quality analysis was required.

There are two (2) types of traffic related air quality analyses that can be required for a proposed project of this type; microscale analysis and mesoscale analysis. The NYSDOT Environmental Procedures Manual (EPM), Chapter 1.1[2] details the criteria for determining if a project requires either air quality analysis. A microscale analysis focuses on CO, PM_{10} and $PM_{2.5}$ impacts, where as a mesoscale analysis focuses on VOC and NO_x, as well as CO impacts.

Traffic data used as part of the evaluation include existing conditions (traffic data collected in late-2009 and 2010), Build year conditions (2014) when project completion is expected and No Build conditions (Build year without the project). As mentioned earlier, the traffic analysis included Build and No Build traffic scenarios which incorporated approved future projects in the local area. These scenarios are designated as Build w/ SFC and No Build w/ SFC traffic conditions. Therefore, RTP evaluated the four (4) Build/No Build scenarios

[2] NYSDOT Environmental Analysis Bureau, "Environmental Procedure Manual," January 2001, (Albany, New York) Chapter 1.1.

when performing a screening analysis to determine if a quantitative air quality analysis is required.

Existing, No Build and Build traffic data included a peak hour evaluation to determine the hour of day when maximum traffic occurred or was expected to occur. Since a project of this type is expected to generate peak traffic that coincide with morning (AM Peak) and evening (PM Peak) commuters, only weekday data was collected (see DEIS Section 3.5 for further details). Both AM and PM peak traffic data were considered in the screening analysis.

3.1.1 Determination of Carbon Monoxide Traffic Intersection Microscale Analysis

Since one of the major components of vehicle exhaust is CO, air quality impact guidance from traffic focuses mostly on CO impacts. Traffic related CO impacts are typically localized, and therefore, high CO concentrations are generally limited to within a relatively short distance of busy roadways. Consequently, a CO air quality analysis is designed to predict concentrations on a localized (microscale) basis. The determination for a required microscale analysis for roadway intersections containing project related traffic is based on the consideration of various criteria. The criteria are evaluated in the form of an extensive 3-step screening process. The traffic engineers provided a list of 11 intersections (both signalized and unsignalized) that were evaluated through the screening process. A list of evaluated intersections can be found in Table 4.

Level of Service Screening Analysis

A Level of Service (LOS) screen is the first screening step in the NYSDOT procedure. The LOS defines the overall traffic operating ability of an intersection (a complete definition of LOS can be found in the Highway Capacity Manual[3]. The LOS can range over six (6) categories, A through F, and is based on traffic volume, intersection geometry and signal timing/phasing (if intersection contains traffic signal). Traffic LOS, as provided in Table 4 for each intersection/interchange, was provided by the traffic engineers. LOS was calculated

[3] Transportation Research Board, "Highway Capacity Manual," (Washington, D.C.: National Research Council, 2000).

for each intersection approach, as well as the intersection as a whole. Only the overall LOS was used in the following LOS screening analysis.

Table 4 lists each intersection with its corresponding Build and Build w/ SFC LOS for both AM and PM peak hour traffic conditions. Based on the NYSDOT EPM, intersections with an overall projected LOS of A, B or C under Build conditions are generally excluded from a microscale analysis. Intersections with an overall LOS of D or worse must be further evaluated by additional screening criteria procedures. Intersections in Table 4 depicted by bold text and shading, represent a LOS of D or worse, and therefore, were subject to additional screening.

Capture Criteria Screening Analysis

The capture criteria screening analysis is the second screening step in the NYSDOT procedures. The intersections that have been identified as having a LOS of D, E or F were subjected to the NYSDOT capture criteria. The capture criteria apply to the difference between No Build to Build traffic conditions at selected intersections. Namely:

1) a 10% or more reduction in source receptor distance (meaning the straight line distance between the edge of the travel lane closest to the receptor closest to the roadway);
2) a 10% or more increase (Build-No Build) in traffic volume per intersection approach;
3) a 10% increase in vehicle emissions due to changes in speed, vehicle mix, etc.;
4) an increase in the number of queued lanes (i.e. the addition of a lane at an intersection that is subject to passing through a traffic signal); and
5) a 20% reduction in speed, when the Build estimated average is at 30 mph or less.

Table 4
Level of Service (LOS) Screening Analysis

Signalized Intersections

	Intersection	Build AM LOS	Build PM LOS	Build w/SFC AM LOS	Build w/SFC PM LOS
1	Main St. & Buena Vista	B	B	B	B
2	Hudson & Riverdale	B	B	B	C
3	Prospect & Riverdale	C	C	D	F
4	Main St. & Riverdale	B	C	C	D
5	Nepperhan St. & Warburton	B	B	A	B
6	Prospect & S. Broadway	D	D	C	C

Unsignalized Intersections

	Intersection	Build LOS	Build LOS	Build LOS	Build LOS
7	Prospect & Buena Vista	B	B	C	C
8	Hudson & Buena Vista[(1)]	B	C	B	C
9	Hudson & S. Broadway	B	B	C	C
10	Hudson & Hawthorne[(1)]	B	B	B	B
11	Buena Vista & Site Access[(1)]	B	B	C	C

Notes:

[(1)]Level of service for intersection not available, worst-case approach level of service used.

- LOS data provided by Tim Miller Associates, Inc.

- Intersections with a LOS of D or worse are subject to a capture screening analysis, denoted by shading.

- Intersections with a LOS of C or better do not need a microscale air quality analysis and are not subject to further screening.

If an intersection meets *any* one of the applicable criteria above, the intersection will be subject to a volume threshold screening analysis, the third and final microscale analysis determination.

As proposed, the project is not expected to meet criteria 1, 3, 4 and 5 above. However, Table 5 has been prepared to see if any of the intersections that have passed through the LOS screening analysis will meet the 10% or more increase in traffic volume from the No Build to Build scenarios.

Table 5 presents data on each intersection for capture criteria associated with a 10% or more increase in traffic. Traffic volume data per approach for both the No Build and Build traffic conditions are presented (some with the SFC project and some without, depending on the LOS screening presented in Table 4). The Prospect and Riverdale intersection showed an increase in traffic volume of 10% or more per approach, and therefore, is subject to further screening.

Volume Threshold Screening Analysis

The volume threshold screening analysis is the third and final screening step. Since one intersection (Prospect & Riverdale) meets Capture Criteria No. 2 above, NYSDOT EPM volume and emission factor charts were used to perform a volume threshold screening analysis. The vehicle threshold tables (Tables 3a, 3b and 3c from the NYSDOT EPM) tie the volume threshold with localized emission factors.

Table 5
Capture Criteria Screening Analysis

Intersection	Build	No Build				Total No Build	Build				Total Build	% Volume Increase Per Approach				Total
	LOS	EB	WB	NB	SB	Volume	EB	WB	NB	SB	Volume	EB	WB	NB	SB	% Increase
Prospect & Riverdale - w/SFC AM	D	312	985	862	828	2987	350	996	866	828	3040	**10.9**	1.1	0.5	0.0	1.7
Prospect & Riverdale - w/SFC PM	F	222	1114	891	1120	3347	250	1144	902	1120	3416	**11.2**	2.6	1.2	0.0	2.0
Main St. & Riverdale - w/SFC PM	D	373	468	589	1022	2452	381	479	589	1033	2482	2.1	2.3	0.0	1.1	1.2
Prospect & S. Broadway - AM	D	686	1346	339	171	2542	713	1356	340	171	2580	3.8	0.7	0.3	0.0	1.5
Prospect & S. Broadway - PM	D	706	1175	463	215	2559	727	1203	465	215	2610	2.9	2.3	0.4	0.0	2.0

Notes:

- Intersections depicted in bold and shading exceed the 10% or more increase in approach traffic volume capture criteria threshold, and are therefore subject to additional screening.

- Traffic data provided by Tim Miller Associates, Inc.

The first step is to obtain local vehicle emission rates. Vehicle emission rates for Westchester County were derived from NYSDOT MOBILE6.2 emission factor guidance. The NYSDOT interactive MOBILE6.2 Emission Factor Tables – Look up and Calculation Program for Microscale Analysis was used to obtain Build year (2014) CO vehicular emission rates for Westchester County. Figure 1 shows an example of the interactive NYSDOT MOBILE6.2 Calculation Program. The NYSDOT MOBILE6.2 Calculation Program generates representative composite vehicle emission rates based on the following input parameters: county the project is located in, year the project is expected to be completed (Build year), road functional class and vehicle speeds. The program, in this case, was used to calculate vehicle emission rates by multiplying MOBILE6.2 emission factors for each vehicular type by Westchester County's default vehicle mix fractions. In order to obtain all appropriate emission rates to complete the volume threshold screening analysis, roadway classifications and vehicle speeds were determined for each intersection under consideration. For the one intersection that is being screened, roadway types were classified as urban major arterials (road functional class 14). Since site-specific vehicle speeds data were not analyzed by the traffic engineers, Build year speed data for Westchester County were obtained from NYSDEC SIP documentation[4].

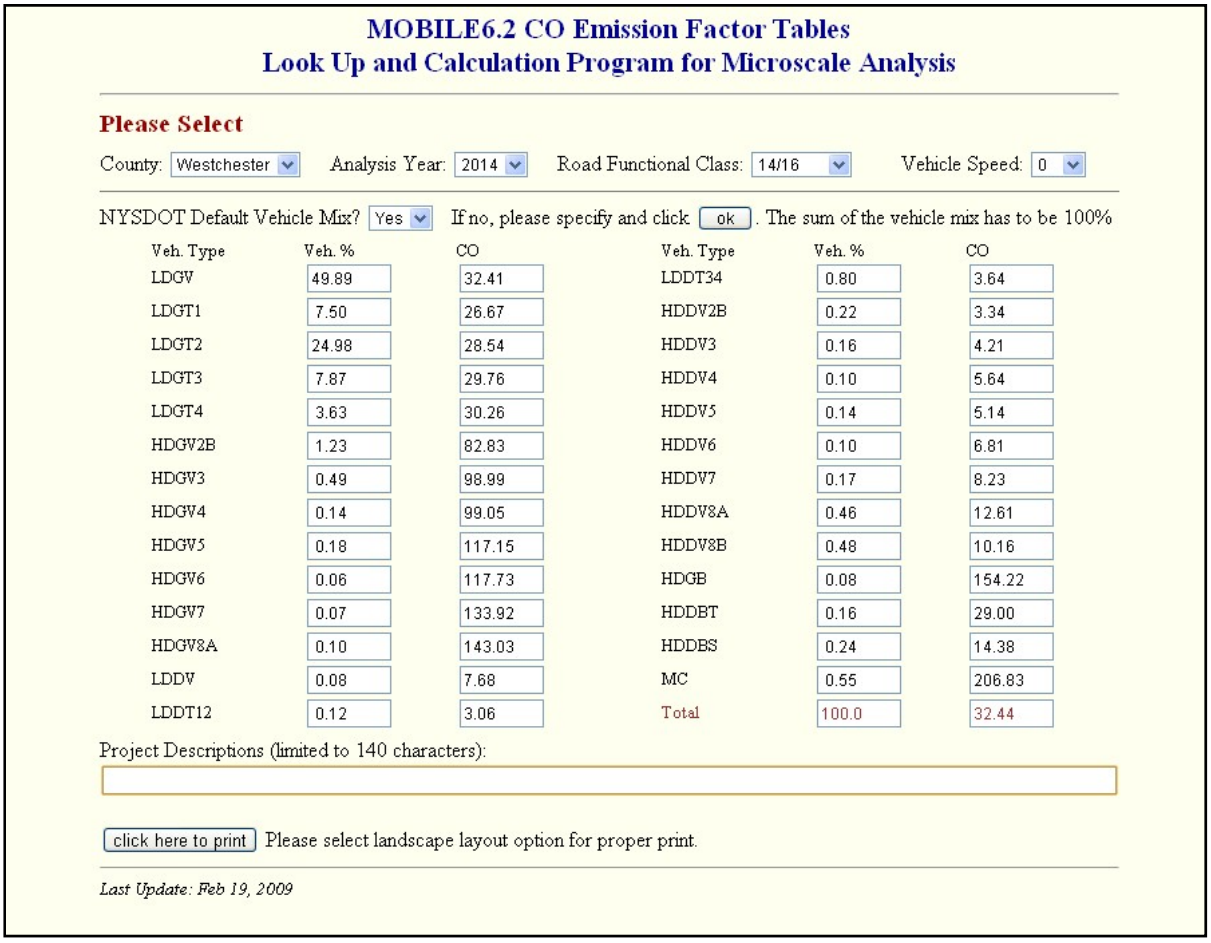
Table 6 provides the MOBILE6.2 emission rate calculations per roadway type and vehicle speeds. Idle emission rates (0 mph) were also determined.

The next step in the volume threshold screening process is to determine the threshold volumes that match the worst-case emission rates for the Build year (2014) that were established in the previous step. From Table 6, the worst-case free-flow emission rate of 3.77 grams/mile (14.4 mph) and the queue (idle) emission factor of 32.44 grams/hour (0 mph) were used to determine volume thresholds.

[4] New York State Department of Transportation (NYSDOT) – Planning Division, "Speed Estimates for Use in 1994 Air Quality State Implementation Plan, Attachment 19 – Speed Tables" (50 Wolf Road, Albany, NY 12232) October 1994.

Figure 1

NYSDOT's MOBILE6.2 Interactive Emission Factor Generator



MOBILE6.2 CO Emission Factor Tables
Look Up and Calculation Program for Microscale Analysis

Please Select

County: Westchester | Analysis Year: 2014 | Road Functional Class: 14/16 | Vehicle Speed: 0

NYSDOT Default Vehicle Mix? Yes | If no, please specify and click ok. The sum of the vehicle mix has to be 100%

Veh. Type	Veh. %	CO	Veh. Type	Veh. %	CO
LDGV	49.89	32.41	LDDT34	0.80	3.64
LDGT1	7.50	26.67	HDDV2B	0.22	3.34
LDGT2	24.98	28.54	HDDV3	0.16	4.21
LDGT3	7.87	29.76	HDDV4	0.10	5.64
LDGT4	3.63	30.26	HDDV5	0.14	5.14
HDGV2B	1.23	82.83	HDDV6	0.10	6.81
HDGV3	0.49	98.99	HDDV7	0.17	8.23
HDGV4	0.14	99.05	HDDV8A	0.46	12.61
HDGV5	0.18	117.15	HDDV8B	0.48	10.16
HDGV6	0.06	117.73	HDGB	0.08	154.22
HDGV7	0.07	133.92	HDDBT	0.16	29.00
HDGV8A	0.10	143.03	HDDBS	0.24	14.38
LDDV	0.08	7.68	MC	0.55	206.83
LDDT12	0.12	3.06	Total	100.0	32.44

Project Descriptions (limited to 140 characters):

click here to print Please select landscape layout option for proper print.

Last Update: Feb 19, 2009

Source: (https://www.nysdot.gov/portal/page/portal/divisions/engineering/environmental-analysis/repository/mobile6/co/cotable.html)

Tables 3a-3c in the NYSDOT EPM provide threshold volumes for various sets of free-flow and queue emission rates for both signalized and unsignalized intersections. Table 3c applies to signalized intersections and represents threshold volumes for any single approach (e.g. total eastbound traffic). Since NYSDOT EPM Table 3 provides emission rates in 2.5 grams/mile increments, the estimated worst-case free-flow emission rate of 3.77 grams/mile was adjusted to the applicable emission rate of 5.0 grams/mile. For the estimated idle emission factor of 32.44 grams/hour, the applicable emission rate for comparison would be 100.0 grams/hour since 100 grams/hour is the lowest idle emission factor in NYSDOT EPM Table 3c. Therefore, the volume threshold for a free-flow emission rate of 5.0 grams/vehicle and a queue emission rate of 100 grams/hour is 4,000 vehicles per approach for signalized.

Table 6
Build Year (2014) Carbon Monoxide (CO) Vehicle Emission Rates

Vehicle Type	Westchester County Vehicle Distribution (%)	CO Emission Factors (g/VMT)[1]			CO Emission Rates (g/VMT)[1]		
	RFC 14	RFC 14	RFC 14 AM	RFC 14 PM	RFC 14	RFC 14 AM	RFC 14 PM
	RFC 14	0 mph	26.0 mph	14.4 mph	0 mph	26.0 mph	14.4 mph
LDGV	49.89	32.41	3.03	3.64	16.169	1.512	1.816
LDGT1	7.50	26.67	2.63	3.15	2.000	0.197	0.236
LDGT2	24.98	28.54	2.82	3.37	7.129	0.704	0.842
LDGT3	7.87	29.76	2.93	3.51	2.342	0.231	0.276
LDGT4	3.63	30.26	2.99	3.57	1.098	0.109	0.130
HDGV2B	1.23	82.83	7.22	12.38	1.019	0.089	0.152
HDGV3	0.49	98.99	8.62	14.80	0.485	0.042	0.073
HDGV4	0.14	99.05	8.63	14.80	0.139	0.012	0.021
HDGV5	0.18	117.15	10.20	17.51	0.211	0.018	0.032
HDGV6	0.06	117.73	10.25	17.60	0.071	0.006	0.011
HDGV7	0.07	133.92	11.66	20.02	0.094	0.008	0.014
HDGV8A	0.10	143.03	12.46	21.38	0.143	0.012	0.021
LDDV	0.08	7.68	0.74	1.25	0.006	0.001	0.001
LDDT12	0.12	3.06	0.30	0.50	0.004	0.000	0.001
LDDT34	0.80	3.64	0.35	0.59	0.029	0.003	0.005
HDDV2B	0.22	3.34	0.32	0.54	0.007	0.001	0.001
HDDV3	0.16	4.21	0.41	0.68	0.007	0.001	0.001
HDDV4	0.10	5.64	0.55	0.92	0.006	0.001	0.001
HDDV5	0.14	5.14	0.50	0.83	0.007	0.001	0.001
HDDV6	0.10	6.81	0.66	1.11	0.007	0.001	0.001
HDDV7	0.17	8.23	0.80	1.34	0.014	0.001	0.002
HDDV8A	0.46	12.61	1.22	2.05	0.058	0.006	0.009
HDDV8B	0.48	10.16	0.99	1.65	0.049	0.005	0.008
HDGB	0.08	154.22	13.43	23.05	0.123	0.011	0.018
HDDBT	0.16	29.00	2.81	4.71	0.046	0.004	0.008
HDDBS	0.24	14.38	1.39	2.34	0.035	0.003	0.006
MC	0.55	206.83	8.91	14.87	1.138	0.049	0.082
		Total Composite Emission Rates:			**32.44**	**3.03**	**3.77**

Notes:

[1]All emissions data are in g/VMT (grams per vehicle mile traveled) except for 0 mph idle emission factors, which are in g/h (grams per hour).

- Emission rates equal emission factors multiplied by vehicle distribution.
- Vehicle distribution and emission factor data obtained from NYSDOT's MOBILE6.2 CO Emission Factor Tables Look Up and Calculation Program for Microscale Analysis Web Applications (http://www.nysdot.gov/portal/page/portal/divisions/engineering/environmental-analysis/repository/mobile6/co/cotable.html).
- Default Westchester County vehicle distributions were used in the analysis.
- RFC = Road Functional Class. An RFC of 14 represents urban principal arterial roadway.
- Vehicle speeds are for Westchester County, urban, morning and evening traffic conditions. Data received from the NYSDEC - Office of Mobile Source Planning.

The final step of the volume threshold screening analysis is to compare the 4,000 vehicle per approach threshold with the predicted Build Condition traffic volumes for each signalized intersection approach. Table 7 presents predicted Build traffic conditions for each approach for the intersection of Prospect and Riverdale, the only intersection that requires inclusion to the volume screening analysis. The approach volumes projected per intersection were compared with the threshold approach volume of 4,000 vehicles to see if a microscale CO analysis was needed for the intersection. If any one of the intersection approaches meets or exceeds the applicable volume threshold, a CO impact assessment is necessary.

Table 7 shows that none of the Build traffic approach volumes exceeded the volume thresholds. As such, the Prospect and Riverdale intersection, or any of the other intersections that were included in the traffic study, do not require a CO microscale air dispersion modeling analysis.

3.1.2 State Implementation Plan (SIP) Intersections

If a SIP intersection (an intersection analyzed in the CO SIP attainment demonstration) is located within a half mile of the project site, then a different set of screening criteria applies when determining if a CO microscale analysis is required. Although two (2) SIP intersections exist in Yonkers, they are not within one half mile of the project site, and therefore, no changes were made to the screening approach.

3.1.3 Fine Particulate and Other Vehicle Emissions Impacts

On December 29, 2003, the NYSDEC issued a policy memorandum CP-33 on fine particulate matter, $PM_{2.5}$. Whenever an application for a permit or major permit modification is reviewed under State Environmental Quality Review (SEQR), the NYSDEC or NYSDOT policy applies. The lead agency staff is directed to evaluate the potential for significant adverse impacts resulting from the emission of fine particulate matter during the operation of the proposed project. If potential operational emissions, including mobile and stationary sources, exceed a threshold of 15 tons per year (TPY), the applicant is required to employ reasonable and necessary mitigative measures to limit emissions to the maximum practicable

Table 7
Volume Threshold Screening Analysis

Intersection	Roadway Type	Build Year Speeds for Westchester County (mph)	Emission Factors		Threshold Volume[(1)] (per approach)	Build (2014) Volume per Approach				Total Volume
			Free-Flow[(2)]	Queued		EB	WB	NB	SB	
Prospect & Riverdale - w/SFC AM	14	26	3.03	32.44	4000	350	996	866	828	3040
Prospect & Riverdale - w/SFC PM	14	14.4	3.77	32.44	4000	250	1144	902	1120	3416

Notes:

- Westchester County speed data obtained from NYSDEC, Office of Mobile Source Planning.
- Emission factor data obtained from NYSDOT's MOBILE6.2 CO Emission Factor Tables Look Up and Calculation Program for Microscale Analysis Web Application (http://www.dot.state.ny.us/eab/tools/mobile6/co/cotable.html).

(1) Data obtained from NYSDOT EPM Mobile6.2 Lookup Table - Table 3c.

(2) Since emission factors from EPM Manual Table 3c are in intervals of 2.5 g/mile, an emission factor of 5.0 g/mile was utilized to represent the worst-case free-flow emission rate of 3.77 g/mile.

extent. A project related fine particulate matter (both PM_{10} and $PM_{2.5}$) air quality analysis is provided below.

The NYSDOT interactive Mobile6.2 PM Emission Factor Model was run for Westchester County for the Build year 2014, and for the roadway classes surrounding the project site. The model estimated idle emission factor for $PM_{2.5}$ is 0.024 grams/hour. Based on all project peak hour traffic operating continuously for the entire year, total $PM_{2.5}$ emissions would equal 0.025 TPY, which is well below the analysis threshold used by the NYSDEC. As such, one therefore can safely conclude the project traffic $PM_{2.5}$ exhaust, brake wear and tire wear emissions will not significantly impact ambient air quality levels. Due to the limited amount of traffic generated by the project, the other traffic related emissions will likewise cause an insignificant impact.

3.1.4 Mesoscale Analysis

In addition to a microscale analysis, the NYSDEC and NYSDOT can require a mesoscale emissions analysis to determine the relative change in regional pollutants expected as a result of a proposed project. A mesoscale analysis focuses on NO_x, VOCs and CO. Based on NYSDOT EPM guidance, in order for a project to need a mesoscale analysis, the project must generate 10% or more vehicle miles traveled (VMT) over a large area (Yonkers). Based on a total peak trip generation rate of 119 trips per hour over all time periods under the proposed action, the Project would not exceed 10% of the trips generated in the general area surrounding the project site. Therefore, a mesoscale analysis is not formally required for the proposed development.

3.1.5 Conformity Determination

The NYSDOT normally conducts Conformity Determinations. As detailed in 6NYCRR Part 240, the proposed action does not involve approval or funding from the Federal Highway Administration/Federal Transit Administration (FHWA/FTA), and therefore, is exempt from a Conformity Determination under Part 240. In addition, based on the NYSDOT Screening Procedure, the project is not expected to cause significant increases to any new localized CO

levels surrounding the project site, and by association, the other pollutants emitted during project operations are also not expected to cause significant increases in local air quality levels.

3.2 PARKING AIR QUALITY IMPACTS

The proposed project will generate a maximum of 119 new vehicle trips during the worst-case hour of operation. Since an automated clean tech parking garage is a part of the project design, the normal air quality impact of parking light duty vehicles will be significantly reduced. The garage will have a total of four (4) lifts, which will distribute traffic into four (4) separate areas, and this will assist in mitigating queuing problems associated with garage access.

A study by EEA Consultants, Inc.[5] indicated that the proposed system, compared to a conventional garage, would result in a 68 to 83% reduction in vehicle emissions depending on the specific pollutant. The study also projected an average fuel savings of 83% for the parking process. Based on this reduction in emissions, the distribution of the vehicle load over four (4) separate lifts and the limited number of vehicles that will access the garage in 1-hour, one can safely conclude that parking operations will not significantly impact air quality in the Project's vicinity.

3.3 STATIONARY SOURCE AIR QUALITY IMPACTS

3.3.1 Onsite Stationary Sources

Proposed project related stationary sources of air emissions include the installation and operation of a CHP system, which will be located within the automated parking garage. A 390 kW system consisting of six (6) microturbines, each rated at 65 kW, is proposed. The power generated will be used to feed a geothermal HVAC system and the automated parking garage. The heat generated will be used for the proposed hydroponic garden system to be located atop the parking garage. The turbines will be manufactured by Capstone and are

[5] EEA, Inc., "Environmental Consulting Insights," Electronic Newsletter of EEA's Environmental Consulting Activities, (Garden City, NY: July 2009).

considered clean, state-of-the-art power and heat generation units. The microturbines will be fueled with natural gas and, will therefore, emit minor quantities of both criteria and hazardous air pollutants. A diesel-fired emergency generator is proposed for back-up emergency power needs.

The potential-to-emit (PTE) from the microturbines and the emergency generator has been estimated and is summarized in Table 8. PTE was calculated from a combination of manufacturer's emissions data and USEPA AP-42[6]. Although the microturbines are expected to operate 95% of the year, PTE was calculated based on 100% annual operations. PTE from the emergency generator assumes 500 hours of operation per year. Facility-wide emission calculations for both criteria and hazardous air pollutants are provided in Attachment 1.

There are also existing minor air emission sources, such as space heating boilers, located at the Trolley Barn apartment complex and at the three (3) multifamily residential buildings located at 66-72 Buena Vista Avenue. None of the existing air emissions equipment currently located at the Trolley Barn or the 66-72 lots are expected to change. These air emission sources are exempt from permitting as per 6NYCRR Part 201-3. Although these sources are insignificant and exempt from permitting, their PTE will need to be quantified as part of the air registration process. Due to their minimal potential emissions, air quality impacts from these existing sources were not evaluated.

As indicated in Table 8, potential emissions from stationary sources will be below major source permitting thresholds and will therefore not be considered a major source. However, the project will require an Air Facility Registration issued by the NYSDEC.

[6] Compilation of Air Pollutant Emission Factors, Volume I, Fifth Edition. http://www.epa.gov/ttn/chief/ap42/index.html.

Table 8
Summary of Project Potential Air Emissions in Tons Per Year (TPY)

Emission Source	PM	PM_{10}	$PM_{2.5}$	SO_2	NOx	CO	VOC	HAPS (Total)
Microturbines - 6 Units (Natural Gas)	0.15	0.15	0.15	0.02	0.29	2.22	0.17	0.02
Emergency Generator (Diesel)	0.01	0.01	0.01	0.24	0.87	0.14	0.01	0.004
Total:	**0.16**	**0.16**	**0.16**	**0.26**	**1.16**	**2.36**	**0.18**	**0.024**
Major Source Thresholds (PSD/Title V)[1, 2]	250/100	250/100	100	250/100	25	250/100	25	25/10[4]
PSD Significant Emission Rates[3]	25	15	N/A	40	40	100	40	N/A

Notes:
- Detailed emission calculations are provided as Attachment 1.
[1] Potential facility emissions over the Prevention of Significant Deterioration (PSD) Major Source Thresholds would require a PSD construction permit. Potential emissions over Title V (Part 70) would require a major source operating permit.
[2] The project is located in a severe ozone non-attainment area and a non-attainment area for $PM_{2.5}$. As such, major source thresholds for NOx, VOC and $PM_{2.5}$ are lower than for attainment pollutants.
[3] If potential emissions from a modification to an existing major facility exceed PSD Significant Emission Rates (SERs), then the modification would be applicable to PSD permitting requirements. Since this project is for a new source, SERs do not apply; however, have been included in the Table 8 for completeness.
[4] The major source threshold for total HAPs is 25 TPY and 10 TPY for any single HAP.

Air quality impacts associated with the four (4) microturbines that make up the CHP project were determined using the USEPA air dispersion screening model SCREEN3. SCREEN3 is a numerical predictive model using Gaussian dispersion principals that allows a user to input air emissions information from a single source and the model will provide the maximum ground level impact and the distance to the maximum. The maximum impact can then be compared to criteria N/SAAQS and NYSDEC short- and long-term toxic guideline values (SGC/AGC). The model does not provide impacts in real time or space, as compared to a refined model such as AERMOD. In order to run the SCREEN3 model, the following information is required:

- Stack parameters such as stack height, stack diameter, exhaust temperature and exhaust flow/velocity;
- Air pollution emission rates; and
- Nearby building (or other structure) dimensions.

SCREEN3 was run using the following options:

- Point Source – Emissions released from stack;
- Full Meteorology - Includes all stability classes and wind speeds;
- Ground level receptors (impact predictions);
- Urban dispersion option;
- Regulatory Building Downwash Option;
- Automated Distance Array Option; and
- Simple terrain option.

The model was run using a normalized emission rate of 1.0 gram per second (g/s) and assumed emissions from all six (6) (micorturbines) were emitted from one stack (although two stacks are proposed). The stack is located in the loading area of the project, just west of the northwest corner of the parking garage. In addition, since exhaust temperature and flow fluctuations were dependent on operating scenario and load, worst-case exhaust parameters were used in the model. Specifically, the lowest exit temperature and lowest velocity was used, which traditionally provides worst-case ground level air quality impacts. The maximum impact from SCREEN3 was then multiplied by potential microturbine emission rates (as calculated in Table 8) to determine maximum ambient air quality impacts on a per pollutant basis. The maximum impacts were then added to criteria pollutant "background" air quality concentrations and compared to N/SAAQS. Background concentrations are based on monitoring data at nearby NYSDEC monitoring stations, as provided in Table 3. Maximum air quality impacts and N/SAAQS comparisons are provided in Table 9. HAPs were also part of the modeling analysis. Maximum HAP-modeled impacts were compared to NYSDEC SGC/AGC guideline values. These are also provided in Table 9. The maximum 1-hour normalized impact is 335.2 $\mu g/m^3$ located at 186 meters downwind (approximately 610 feet from the stack).

The air quality impacts obtained through screen modeling are considered worst-case and highly conservative. This is based on the fact that SCREEN3 only predicts 1-hour concentrations. In order to compare 1-hour concentrations to pollutants which have a

Table 9
Microturbine Modeled Air Quality Impacts and N/SAAQS Comparison

Maximum modeled concentrations @ 1.0 g/s emissions rate:

1-Hour Concentration = 335.2 $\mu g/m^3$
3-Hour Concentration = 301.7 $\mu g/m^3$ - Based on USEPA of adjustment factor 0.9.
8-Hour Concentration = 234.6 $\mu g/m^3$ - Based on USEPA of adjustment factor 0.7.
24-Hour Concentration = 134.1 $\mu g/m^3$ - Based on USEPA of adjustment factor 0.4.
Annual Concentration = 26.8 $\mu g/m^3$ - Based on USEPA of adjustment factor 0.08.

Pollutant	Emission Rate (g/s)	Averaging Period	Maximum Modeled Impact ($\mu g/m^3$)	Background Values ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	N/SAAQS ($\mu g/m^3$)
Criteria Pollutant						
NOx	0.008	1-Hour	2.7	162.5	165.2	189
		Annual	0.2	41.5	41.7	100
CO	0.064	1-Hour	21.5	3,886	3,907	10,000
		8-Hour	15.0	2,778	2,793	40,000
SO2	0.001	3-Hour	0.3	171.6	171.9	1,300
		24-Hour	0.1	80.8	80.9	365
		Annual	0.03	14.4	14.4	80
PM10	0.004	24-Hour	0.5	57.0	57.5	150
PM2.5	0.004	24-Hour	0.5	27.4	27.9	35
		Annual	0.1	13.2	13.3	15.0
Hazardous Pollutant				SGC/AGC ($\mu g/m^3$)		
1,3-Butadiene	2.7E-07	1-Hour	9.05E-05	N/A		
		Annual	7.24E-06	0.03		
Acetaldehyde	2.55E-05	1-Hour	8.55E-03	4,500		
		Annual	6.84E-04	0.45		
Benzene	7.65E-06	1-Hour	2.56E-03	1,300		
		Annual	2.05E-04	0.13		
Ethylbenzene	2.04E-05	1-Hour	6.84E-03	54,000		
		Annual	5.47E-04	1,000		
Formaldehyde	4.53E-04	1-Hour	1.52E-01	30		
		Annual	1.21E-02	0.06		
Naphthalene	8.29E-07	1-Hour	2.78E-04	7,900		
		Annual	2.22E-05	3.0		
PAH	1.4E-06	1-Hour	4.69E-04	N/A		
		Annual	3.75E-05	0.02		
Propylene Oxide	1.85E-05	1-Hour	6.20E-03	3,100		
		Annual	4.96E-04	0.27		
Toluene	8.29E-05	1-Hour	2.78E-02	37,000		
		Annual	2.22E-03	5,000		
Xylenes	4.14E-05	1-Hour	1.39E-02	4,300		
		Annual	1.11E-03	100		

Notes:
- Adjustment factors based on Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised (EPA-454/R-92-019).
- Annual impacts assume units operate 8,760 hours per year at maximum capacity.
- All emission factors from USEPA AP-42 Section 3.1, except for NOx, CO and VOC, which are from the manufacturer.
- N/A - No standard for averaging period.

standard with a different averaging time, EPA approved factors[7] are used to convert 1-hour concentrations to impacts over a longer period of time (i.e. 24 hours, annual, etc.). In addition, the estimated maximum impacts from the model have been directly compared to N/SAAQS. Federal and State modeling guidance is provided on a per pollutant basis, however, exactly how modeled concentrations should be compared to the standard is not necessarily clear. For example, for short-term impacts (i.e. 1-hour), the maximum modeled impact is normally not compared to the standard, but rather the second highest impact or the sixth highest from the 98th percentile of impacts, etc. However for longer term impacts (i.e. annual), the maximum predicted impacts is normally directly compared to the standard.

As indicated in Table 9, air quality impacts from the microturbines are less than both the criteria and hazardous pollutant standards, and as such, the microturbine operations will have no significant impact on the air quality at or in the vicinity of the project. SCREEN3 output file is provided as Attachment 2.

3.3.2 Nearby Stationary Sources

As per the DEIS final scoping document, an air quality impact assessment was performed to determine if nearby sources of air pollution will have a significant impact on the project. This was accomplished by identifying major stationary sources of air emissions (as per 6NYCRR Part 201-2) within 1,000 feet of the project and minor stationary sources of air emissions with 400 feet from the Project. Major and minor sources of air emissions are provided in Figure 2. Locating stationary sources in the vicinity of the project was based on information from the Aerometric Information Retrieval System – Air Facility Subsystem (AIRS/AFS) as part of USEPA's Facility Registry System (FRS). Both graphical (GIS) and informational data were reviewed to determine facility locations. Based on the data reviewed, no minor sources were located within 400 feet of the project site. However, one major source, the American Sugar Refining Company, Inc. (ASRC) is located within 1,000 feet of the project to the south. The northeast corner of the ASRC property intersects the 1,000 foot study radius as shown in Figure 2. As such, an air dispersion modeling analysis

[7] USEPA – Office of Air & Radiation, Office of Air Quality Planning and Standards, "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised,"EPA-454/R-92-019 (Research Triangle Park, NC 27711) October 1992.

N

0 300 600 1,200 Feet

ORTHOIMAGERY SOURCE:
NYSGIS Clearinghouse
DATA SOURCE:
AIRS Facility Subsystem EPA Region 2

RTP Environmental Associates, Inc.
Westbury, New York

FIGURE 2

AERIAL VIEW OF NEARBY STATIONARY SOURCES

BUENA VISTA TEUTONIA DEVELOPMENT
YONKERS, NEW YORK

was performed to determine if ASRC air emissions will have a significant impact on the Project. Based on the DEIS scope, the modeling analysis focused on both criteria pollutant and HAP impacts, and those impacts will be compared to NYSDEC SGC and AGC guideline values.

Emissions from ASRC are associated with the following three (3) combustion sources:

- Gas Turbine with Duct Burner rated at 167.5 MMBtu/hr;
- Boiler #3 rated at 165.5 MMBtu/hr; and
- Boiler #5 (replaced diesel generator in 2007) rated at 214 MMBtu/hr.

Since very little detail regarding emissions are provided in the permit or permit application, potential emissions were calculated from permitted maximum equipment heat input ratings. However, Boiler #5 operations are restricted based on fuel usage caps (both natural gas and diesel). These fuel limits were used to calculate emissions from Boiler #5 in lieu of permitted design rates. In addition, the permit contains a facility-wide emissions cap for NOx, and as such, potential NOx emissions used in the modeling analysis are based on the permit cap rather than equipment heat input ratings.

All combustion equipment is permitted for duel fuel operations, meaning they can operate on either natural gas or No. 2 fuel oil (diesel). Since natural gas and diesel combustion provide different emission profiles, emissions were calculated for both fuels. The fuel that produced the higher emission rate (per pollutant) was selected for the modeling analysis. Emission factors for the boilers and turbine are from USEPA's AP-42 database (except for NOx, as stated above). Emission calculations are provided in Attachment 3.

Similar to Section 3.3.1, the screening air dispersion model SCREEN3 was used to estimate pollutant impacts from ASRC on the project site, specifically the proposed 25-story apartment complex. Again, since SCREEN3 is a single-source model, all emissions from ASRC were conservatively released from the 150 foot stack located on the northeast corner of the ASRC property. Stack parameters were obtained from the ASRC Title V Air Permit (DEC ID: 3551800214) application as provided by the NYSDEC, however certain

assumptions were made since emissions from three (3) combustion sources were combined into one stack discharge. The following stack parameters were used:

- Stack height – 150 feet (45.72 meters)
- Stack diameter – 120 inches (3.048 meters)
- Exhaust Temperature – 300°F (422°K)
- Exhaust Flow Rate – 39,000 acfm

The lowest exhaust temperature and flow rate were selected from the three (3) combustion sources for added conservatism. Although all three (3) sources are being exhausted from a single stack, the flow rates from all three (3) sources were not combined, but rather the single flow rate from Boiler #3 was used. This will keep the stack velocity conservatively low. The model was run with a normalized emission rate of 1.0 g/s.

The same SCREEN3 options as listed in Section 3.1.1 were used for the ASRC analysis, with the exception of the "Regulatory Building Downwash Option" and the "Automated Distance Array Option". Rather than use automated distances in the model to determine where the maximum impact occurs, a fixed distance of 1,300 feet (396 meters) was utilized based on the estimated distance from the ASRC stack to the proposed 25-story apartment building. No building downwash was utilized in the model, because the analysis focuses on impacts approximately 1,300 feet downwind of the stack. If downwash were utilized based on a building structure near the ASRC stack, the plume would be diluted and impacts lowered at the proposed project site.

Since the ASRC stack height is 150 feet high and the proposed building is 250 feet in height located approximately 1,300 feet from the stack, maximum impacts are expected to occur at some elevated level of the building. As such, SCREEN3 was run to predict the maximum impact every 10 meters beginning at ground level (zero meters) and end at the top of building (76 meters) by using the flagpole receptor option in the model. A separate SCREEN3 model run was required for each elevated receptor. SCREEN3 model output is provided in Attachment 4.

The modeling analysis indicates that the maximum impact occurs at 76 meters (the top of the building) and impacts decrease as building height decreases. As such, the impact at the building rooftop was used for NYSDEC AGC/SGC guideline comparison purposes. Table 10 provides the maximum impact adjusted for the potential emission rate of each pollutant from ASRC (same methodology as Table 9). Table 10 also provides a comparison of modeled impacts to AGC/SGC values to determine if emissions from ASRC will have an adverse impact on the proposed 25-story apartment complex. Similar to the modeling performed in Section 3.1.1, SCREEN3 only predicts 1-hour impacts, and as such, a USEPA approved adjustment factor was applied to the 1-hour impacts to calculate annual impacts[8]. As indicated in Table 10, modeled impacts are below both short-term (SGC) and annual (AGC) guidelines, with the exception of arsenic, cadmium, formaldehyde and manganese, which exceed their respective AGCs.

Although the screening modeling analysis indicates that ASRC impacts for four (4) compounds exceed annual guideline values at the proposed apartment building, the likelihood of experiencing actual annual concentrations at these levels is very unlikely. This is based on the ultra conservative nature of the modeling analysis, which can be demonstrated through the following list of modeling assumptions:

1. SCREEN3 is a conservative model based on "worst-case atmospheric conditions" and does not use real meteorology;
2. Emissions from three (3) stacks were combined and released from one stack, which will concentrate emissions. In addition, exhaust flow rate was not increased for the combined flow of the three (3) sources, which indicates the exhaust velocity is conservatively low;

[8] USEPA – Office of Air & Radiation, Office of Air Quality Planning and Standards, "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised (EPA-454/R-92-019)," (Research Triangle Park, NC 27711, October 1992).

Table 10
Nearby Source Modeled Air Quality Impacts and AGC/SGC Comparison

Maximum modeled concentrations @ 1.0 g/s emissions rate:

1-Hour Concentration = 55.0 $\mu g/m^3$

Annual Concentration = 4.4 $\mu g/m^3$ - Based on USEPA adjustment factor of 0.08.

Pollutant	Emission Rate (g/s)	Averaging Period	Maximum Modeled Impact (µg/m3)	SGC/AGC (µg/m3)
1,3-Butadiene	3.38E-04	1-Hour	1.86E-02	---
		Annual	1.49E-03	3.30E-02
2-methylnaphthalene	5.44E-07	1-Hour	2.99E-05	---
		Annual	2.39E-06	7.10E+00
3-methylchloranthene	4.08E-08	1-Hour	2.24E-06	N/A
		Annual	1.79E-07	N/A
7,12-dimthylbenz(a)anthracene	3.62E-07	1-Hour	1.99E-05	N/A
		Annual	1.59E-06	N/A
Acenaphthene	3.85E-06	1-Hour	2.12E-04	N/A
		Annual	1.69E-05	N/A
Acenaphthylene	4.61E-08	1-Hour	2.54E-06	N/A
		Annual	2.03E-07	N/A
Acetaldehyde	8.44E-04	1-Hour	4.64E-02	4.50E+03
		Annual	3.71E-03	4.50E-01
Acrolein	1.35E-04	1-Hour	7.43E-03	1.90E-01
		Annual	5.94E-04	2.00E-02
Anthracene	2.23E-07	1-Hour	1.22E-05	---
		Annual	9.79E-07	2.00E-02
Benz(a)anthracene	7.31E-07	1-Hour	4.02E-05	---
		Annual	3.22E-06	2.00E-02
Benzene	1.21E-03	1-Hour	6.65E-02	1.30E+03
		Annual	5.32E-03	1.30E-01
Benzo(a)pyrene	2.72E-08	1-Hour	1.50E-06	---
		Annual	1.20E-07	9.10E-04
Benzo(b)fluoroanthene	2.70E-07	1-Hour	1.48E-05	N/A
		Annual	1.19E-06	N/A
Benzo(g,h,i)pyrene	2.72E-08	1-Hour	1.50E-06	N/A
		Annual	1.20E-07	N/A
Benzo(k)fluoroanthene	2.70E-07	1-Hour	1.48E-05	N/A
		Annual	1.19E-06	N/A
Carbon Monoxide (CO)	3.63E+00	1-Hour	2.00E+02	1.40E+04
		Annual	1.60E+01	N/A
Chrysene	4.34E-07	1-Hour	2.39E-05	---
		Annual	1.91E-06	2.00E-02
Dibenzo(a,h,)anthracene	3.05E-07	1-Hour	1.68E-05	---
		Annual	1.34E-06	2.00E-02
Dichlorobenzene	2.72E-05	1-Hour	1.50E-03	N/A
		Annual	1.20E-04	N/A
Ethylbenzene	6.87E-04	1-Hour	3.78E-02	5.40E+04
		Annual	3.02E-03	1.00E+03
Fluoranthene	8.83E-07	1-Hour	4.85E-05	N/A
		Annual	3.88E-06	N/A
Fluorene	8.15E-07	1-Hour	4.48E-05	N/A
		Annual	3.59E-06	N/A
Formaldehyde	2.10E-02	1-Hour	1.16E+00	3.00E+01
		Annual	9.24E-02	6.00E-02
Hexane	4.08E-02	1-Hour	2.24E+00	---
		Annual	1.79E-01	7.00E+02

Pollutant	Rate (g/s)	Period	Modeled Impact (µg/m3)	SGC/AGC (µg/m3)
Indeno(1,2,3-cd)pyrene	3.90E-07	1-Hour	2.15E-05	N/A
		Annual	1.72E-06	N/A
Naphthalene	9.45E-04	1-Hour	5.20E-02	7.90E+03
		Annual	4.16E-03	3.00E+00
Nitrogen Dioxide (NO_2)	7.97E+00	1-Hour	4.38E+02	N/A
		Annual	3.51E+01	1.00E+02
PAH	8.44E-04	1-Hour	4.64E-02	---
		Annual	3.71E-03	2.00E-02
PM10	4.25E-01	1-Hour	2.34E+01	3.80E+02
		Annual	1.87E+00	N/A
PM2.5	4.25E-01	1-Hour	2.34E+01	1.60E+02
		Annual	1.87E+00	1.50E+01
Phenanathrene	1.91E-06	1-Hour	1.05E-04	---
		Annual	8.43E-06	2.00E-02
Propylene Oxide	6.12E-04	1-Hour	3.37E-02	3.10E+03
		Annual	2.69E-03	2.70E-01
Pyrene	7.75E-07	1-Hour	4.26E-05	---
		Annual	3.41E-06	2.00E-02
Sulfur Dioxide (SO_2)	7.10E-01	1-Hour	3.91E+01	9.10E+02
		Annual	3.12E+00	8.00E+01
1,1,1-Trichloroethane	4.30E-05	1-Hour	2.37E-03	6.80E+04
		Annual	1.89E-04	1.00E+03
Toluene	3.87E-03	1-Hour	2.13E-01	3.70E+04
		Annual	1.70E-02	5.00E+03
o,Xylene	1.99E-05	1-Hour	1.09E-03	4.30E+03
		Annual	8.75E-05	1.00E+02
Xylenes (Total)	1.35E-03	1-Hour	7.43E-02	4.30E+03
		Annual	5.94E-03	1.00E+02
OCDD (Octachlorodibenzo-p-dioxin	5.65E-10	1-Hour	3.11E-08	N/A
		Annual	2.49E-09	N/A
Arsenic	3.33E-04	1-Hour	1.83E-02	---
		Annual	1.46E-03	2.30E-04
Beryllium	8.20E-05	1-Hour	4.51E-03	1.00E+00
		Annual	3.61E-04	4.20E-04
Cadmium	1.77E-04	1-Hour	9.72E-03	---
		Annual	7.78E-04	2.40E-04
Chromium	2.64E-04	1-Hour	1.45E-02	---
		Annual	1.16E-03	1.20E+00
Cobalt	1.90E-06	1-Hour	1.05E-04	---
		Annual	8.37E-06	1.00E-03
Lead	5.22E-04	1-Hour	2.87E-02	---
		Annual	2.30E-03	3.80E-01
Manganese	1.68E-02	1-Hour	9.25E-01	---
		Annual	7.40E-02	5.00E-02
Mercury	1.01E-04	1-Hour	5.55E-03	1.80E+00
		Annual	4.44E-04	3.00E-01
Nickel	1.73E-04	1-Hour	9.49E-03	6.00E+00
		Annual	7.59E-04	4.20E-03
Selenium	9.05E-04	1-Hour	4.98E-02	---
		Annual	3.98E-03	2.00E+01

Notes:

- Annual adjustment factors based on Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised (EPA-454/R-92-019).
- Annual impacts assume units operate 8,760 hours per year at maximum capacity.
- Emissions and based on information provided in Attachment 3.
- N/A - No standard for averaging period.
- "---" No AGS/SGS values for compound.
- Gray shading indicates modeled impact exceed an Annual Guideline Concentration (AGC).

3. Exhaust temperature was conservatively set at the lowest of the three (3) emission sources (300°F), which will minimize buoyancy driven plume rise;
4. Annual impacts assume all three (3) emission sources operate for the entire year (8,760 hours per year) at maximum capacity, which is highly unlikely;
5. Since all three (3) sources are permitted to combust fuel oil and natural gas, emissions were calculated for both fuels and the maximum emission rate per fuel, per pollutant was selected for the modeling analysis. In the case of the four (4) compounds that exceed annual guidelines, emissions based on fuel oil were selected. As such, the analysis assumed that fuel oil was the fuel used in all three (3) emission sources for the entire year (8,760 hours per year).

In addition, NYSDEC SGC/AGCs ambient air guidelines are not ambient air standards. As such, an exceedance of either a SGC or AGC does not signify an exceedance or violation of a standard. Details regarding how SGC/AGC guidelines are derived can be found in the *DAR-1 AGC/SGC Tables Memorandum* Dated September 10, 2007, which has been provided as Attachment 5.

3.4 CONSTRUCTION AIR QUALITY IMPACTS

The construction of the proposed facility will result in air pollutant emissions that will impact local air quality levels during the construction phase. These impacts primarily result from the operation of construction equipment and fugitive particulate emissions during construction. Construction traffic associated with the labor force and supplies/materials can also affect local air quality.

Impacts to air quality from project construction activities are anticipated to be short-term and relatively insignificant. The project is 2.04 acres in size and will require some demolition/rehabilitation activities, site grading and then construction. Demolition/Construction phasing is expected to be completed in approximately 36 months with completion by 2014, as described in Section 2.2.2.

Construction activities are normally not regulated according to air quality standards because the impacts are temporary and non-recurring in nature, but they are typically regulated under nuisance clauses. As such, project applicants typically implement controls that limit the construction emissions to meet non-nuisance levels.

During construction, the operation of heavy construction equipment is a source of temporary dust and engine exhaust emissions that can impact local air quality. Dust is generated from, but not limited to, demolition (including blasting), land clearing, ground excavation and earth moving. The use of heavy equipment and the emissions generated by off-road engines can add to potential local impacts. The temporary and site-specific nature of construction activities makes it difficult to estimate potential emissions. Further, the varied nature of construction and sequencing of activities also make emission estimates difficult. Specific to this project, several different activities will be occurring at differing intervals at various site locations. To avoid air quality impacts, contractors utilize different types of controls that are useful in the reduction of fugitive dust emissions. Typical dust suppression controls, such as the use of water trucks, covering storage piles and managing truck operation, can greatly reduce construction impacts. In addition, other site controls, such as stormwater pollution prevention activities and good housekeeping, can reduce site dust generation. Stormwater pollution prevention activities, such as phased construction activities, minimizing the extent of disturbed soils, stabilizing soils, gravel road beds, wheel washes, etc., can provide benefits to both offsite water and air impacts. Regular equipment maintenance and upkeep can also reduce negative impacts from onsite equipment usage.

Emissions data for heavy construction operations have been developed by the USEPA[9]. Published emission factors specific to construction were utilized to determine potential air quality impacts associated with the proposed project. USEPA has developed a rudimentary, conservative estimate. The USEPA emission factor for total uncontrolled suspended particulate (TSP) is based on one (1) set of field studies and are considered appropriate for construction operations with medium activity level, moderate silt content and semiarid climate. It is anticipated that this site will have medium activity level. According to the Soil

[9] USEPA, "Heavy Construction Operations: Dust Emission Factors," AP42, Fifth Edition, Volume 1, Chapter 13: Miscellaneous Sources, (Research Triangle Park, North Carolina, 1995).

Survey of Yonkers, the site soils are dominated by "urban fill," which are likely to contain moderate to low silt levels. However, Yonkers is hardly a semiarid climate and is more aptly described as humid-continental. Documentation from the USEPA emission factor guidance indicates that it is highly conservative and will overestimate both TSP, PM_{10} and $PM_{2.5}$ emissions. However, the current lack of specific construction activity information (material transfers, soil cut and fill, etc.) has necessitated that the emission factor of 1.2 tons of TSP per acre per month be utilized to conservatively describe project activities[9].

Typically, PM_{10} comprises less than 25% of TSP. As such, a conservative uncontrolled PM_{10} emission factor for the site was estimated at 0.6 tons per year per month of activity. Further, dust suppression and best management practices will further control fugitive dust. For example, the use of a water truck on facility roads has been shown to reduce fugitive road emissions by more than 95%. As such, a conservative control of 75% was utilized to reflect moderate or typical overall controls at the site. Based on this information, it is estimated that the site will generate 0.15 tons of PM_{10} per acre per month of activity, or 0.3 tons per month (if the entire site was under construction for any given month). Over a 12-month period (assuming the entire site is under construction simultaneously for an entire year), the total PM_{10} emissions are conservatively estimated at 3.6 tons. Considering the period of time, expected construction phasing and the distribution of these emissions over substantial areas and the control measures typically applied during construction, air quality impacts are expected to be minimal and not exceed air quality nuisance guidelines or standards. The air pollutant emissions from construction vehicles and equipment are also regulated under federal and local statutes. The use of low sulfur diesel fuel will aid in reducing emissions from vehicles and the state emissions tests will assure vehicles will operate within acceptable limits.

4.0 PROPOSED MITIGATION

The air quality impact analysis was divided into four (4) subsections that addressed impacts from traffic, stationary sources, the parking facility and construction activities. The mitigation measures proposed for this project are also divided into the corresponding subsections below.

4.1 TRAFFIC RELATED PROPOSED MITIGATION

The air quality analysis of the proposed project has focused on CO and $PM_{2.5}$ associated with traffic generated by the project, which based on experience and Air Quality and NYSDOT Assessment Guidance, are the significant pollutants from an air quality perspective. The preceding analyses show that, based on No Build and Build traffic conditions for year 2014, no quantitative air quality analysis was required. Therefore, the traffic mitigation, as proposed, will be sufficient and appropriate, from an air quality perspective. The traffic analysis Section 3.5 of the DEIS details proposed traffic mitigation measures. No further mitigation was required to meet mesoscale impact guidance or for the conformity determination.

4.2 PARKING FACILITY MITIGATION

The project design incorporates an automated parking garage, which provides for a significant mitigation of air emissions relative to the standard garage. The reductions in vehicle air emissions are achieved by very substantially reducing the vehicle travel distance. Four (4) separate automated lifts are proposed and more details on the emission reductions and functionality improvements are provided in Section 3.57 of this DEIS.

4.3 STATIONARY SOURCE MITIGATION

The project is being designed with a high Leadership in Energy and Environmental Design (LEED) rating in mind. As such, the design includes a thermally and environmentally-efficient CHP system, utilizing natural gas as fuel. This system provides a benefit from an air pollutant emissions perspective. The emergency diesel generator will be designed to meet stringent Tier 3 air emission standards, further reducing the load on current air resources.

The air quality analysis of the stationary sources being proposed, as part of this project along with adjacent stationary sources, demonstrates that the applicable air quality rules and regulations will not be compromised. The air quality analysis of the stationary sources being

proposed, as part of this project along with adjacent stationary sources, demonstrates that the applicable air quality rules and regulations will not be compromised. Additionally, the HVAC system will be equipped with particulate filtration system to filter outdoor air and deliver improved indoor air quality to residents.

4.4 CONSTRUCTION RELATED MITIGATION

The construction of the proposed project would produce minimal incremental air emissions increases at and around the project area. Since no adverse effects to air quality are expected from the proposed project, monitoring has not been included as a component of proposed project activities. Further, mitigation measures beyond a typical dust suppression plan, should not be necessary since the construction air quality impacts will be short-term and relatively small. The overall operation of the project will have, at worst, very minor impacts on the local and regional air quality. As such, additional mitigation measures are not required based on the available information.

5.0 AIR IMPACTS ASSOCIATED WITH PROJECT ALTERNATIVES

The project provides for the rehabilitation of vacant or underutilized properties situated on Buena Vista Avenue. The primary component is a 25-story multifamily residential building with automated parking and three (3) existing buildings that will be rehabilitated into dwelling units. The alternative to the proposed design is the No Action alternative. The No Action alternative assumes full occupancy of the currently available dwelling units. From an air quality perspective, since this alternative would produce less traffic volume than the Build case, No Action alternative air quality impacts would be equal to or very slightly lower than the No Build case, and slightly lower than the Build case.

The No Action case would not affect ambient air quality at future (2014) levels without the proposed project. Without the proposed project, 2014 air quality levels are expected to be similar to current levels; although, as new regulations impacting several sources of air pollutants are implemented, one can expect improved air quality levels along several fronts.

Construction and operational impacts associated with both No Action and No Build alternatives are expected to be less, but likely indistinguishable from the proposed action based on the relatively small size of the project and the differences between possible options and other local major sources that are the major pollutant contributors to the air quality levels in the project area.

6.0 CONCLUSION

As demonstrated in Section 3.0, air quality impacts associated with the Teutonia Buena Vista development project are expected to be insignificant. Traffic and parking related impacts are insignificant based on a small increase in project related traffic as compared to traffic levels if the project was not built. An automated parking garage is proposed, which is expected to lower air quality impacts as compared to a traditional parking facility.

Through the use of USEPA-approved predictive air quality dispersion modeling, air quality impacts from the proposed stationary sources will not have a significant impact on the surrounding community. Air quality dispersion modeling was also used to show that the nearby American Sugar Refining Company, Inc. located to the south of the project will not have an adverse impact on the residents of the proposed 25-story apartment complex. Although the screening modeling analysis indicates that ASRC impacts for four (4) compounds exceed annual guideline values (AGC) at the proposed apartment building, the probability of experiencing actual annual concentrations at these levels is very unlikely. This is based on the ultra conservative nature of the modeling analysis, as explained in Section 3.1.2. In addition, NYSDEC SGC/AGCs ambient air guidelines are not ambient air standards. As such, an exceedance of either a SGC or AGC does not signify an exceedance or violation of a standard. Details regarding how SGC/AGC guidelines are derived can be found in the *DAR-1 AGC/SGC Tables Memorandum* Dated September 10, 2007 located in Attachment 5.

Finally, the relative air pollution burden added by the construction will be insignificant when compared to the current and future background sources in the region.

ATTACHMENT 1

STATIONARY SOURCE AIR EMISSION CALCULATIONS

Attachment 1 - Stationary Source Air Emission Calculations

CHP System Emissions:

Basis:
- Emissions based on six (6) microturbines each rated at 65 kW each for a total of 390 kW (0.39 MW).
- Emission factors for CO, VOC and NOx based on manufacturer's data.
- Emission factors for PM, PM10, PM2.5, SO2 and HAPs based on AP-42, Section 3.1.
- Potential emissions conservatively assume 8,760 hours of operation per year, however units are expected to operate for 95% of year.
- Microturbines will be fueled with natural gas. Maximum gas consumption rate is 5.052 MMBtu/hr and 44,255 MMBtu/yr.
- VOC factor considered conservative as it is for total organic carbon which includes some non-VOC emissions (i.e.: Methane).

Pollutant	E Factors (lb/MWhe)	PTE		
		(lb/hr)	(lb/yr)	TPY
CO	1.3000	0.51	4441.32	2.22
VOC	1.00E-01	0.04	341.64	0.17
NOx	0.17	0.07	580.79	0.29
	(lb/MMBtu)			
PM/PM10/PM2.5	6.60E-03	0.03	292.09	0.15
SO2	0.002	0.01	88.51	0.04

HAPs:

Hazardous Compound	Fuel Consumption Rate (MMBtu/yr)	Emission Factor (lb/MMBtu)	Emissions (lb/yr)	Emissions (TPY)
1,3-Butadiene	44,255.5	4.30E-07	0.02	0.00001
Acetaldehyde		4.00E-05	1.77	0.0009
Acrolein		6.40E-06	0.28	0.0001
Benzene		1.20E-05	0.53	0.0003
Ethylbenzene		3.20E-05	1.42	0.0007
Formaldehyde		7.10E-04	31.42	0.0157
Naphthalene		1.30E-06	0.06	0.00003
PAH		2.20E-06	0.10	0.00005
Propylene Oxide		2.90E-05	1.28	0.0006
Toluene		1.30E-04	5.75	0.0029
Xylenes		6.40E-05	2.83	0.0014
		Totals:	***45.47***	***0.02***

Emergency Diesel Generator Emissions:

Basis:
- Emissions based on proposed 350 kW standby generator operating for no more than 500 hours per year.
- Emission factors for CO, VOC, PM and NOx based on USEPA Tier 3 emission standards.
- Emission factors for SO_2 and HAPs based on AP-42, Section 3.3, Tables 3.3-1 and 3.3-2.
- Emissions of PM_{10} and $PM_{2.5}$ are conservatively assumed to equal PM.
- Unit size = 469 hp (350 kW)
- Max fuel input rating = 3.95 MMBtu/hr

Pollutant	E Factors (lb/hp-hr)	PTE	
		(lb/yr)	(TPY)
CO	0.0012	281.40	0.14
VOC (HC)	0.00009	21.11	0.01
NOx	0.0074	1735.30	0.87
PM/PM10/PM2.5	0.0001	23.45	0.01
SO2	0.0021	480.73	0.24

HAPs:

Organic Compound		Emission Factor (lb/MMBtu)	Emissions (lb/yr)	Emissions (TPY)
1,3-Butadiene		3.91E-05	0.08	0.00004
Acetaldehyde		7.67E-04	1.51	0.0008
Acrolein		9.25E-05	0.18	0.0001
Benzene		9.33E-04	1.84	0.0009
Formaldehyde		1.18E-03	2.33	0.0012
Naphthalene		8.48E-05	0.17	0.0001
Toluene		4.09E-04	0.81	0.0004
Xylenes		2.85E-04	0.56	0.0003
		Totals:	***7.49***	***0.004***

ATTACHMENT 2

SCREEN3 DISPERSION MODELING OUTPUT FOR CHP SYSTEM

06/17/10

09:43:05
  *** SCREEN3 MODEL RUN ***
  *** VERSION DATED 96043 ***

 Buena Vista MicoTurbine Impacts

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE   =   POINT
    EMISSION RATE (G/S)   =   1.00000
    STACK HEIGHT (M)   =   4.5720
    STK INSIDE DIAM (M)   =   .5080
    STK EXIT VELOCITY (M/S)=   17.3330
    STK GAS EXIT TEMP (K) =   422.0000
    AMBIENT AIR TEMP (K)   =   293.0000
    RECEPTOR HEIGHT (M)   =   .0000
    URBAN/RURAL OPTION   =   URBAN
    BUILDING HEIGHT (M)   =   76.2000
    MIN HORIZ BLDG DIM (M) =   38.1000
    MAX HORIZ BLDG DIM (M) =   48.8000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

 BUOY. FLUX =   3.352 M**4/S**3; MOM. FLUX =   13.458 M**4/S**2.

 *** FULL METEOROLOGY ***

 ****
 *** SCREEN AUTOMATED DISTANCES ***
 ****

 *** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST   CONC   U10M   USTK MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB (M/S) (M/S)   (M)   HT (M)   Y (M)   Z (M)
DWASH
 ------- ---------- ---- ----- ----- ------ ------ ------ ------
-----
     1.   .0000   0   .0   .0   .0   .00   .00   .00
NA
   100.   .0000   0   .0   .0   .0   .00   .00   .00
NA
   200.   314.7   6   1.0   1.0 10000.0   6.07   22.62   44.29
SS
   300.   198.8   6   1.0   1.0 10000.0   6.07   31.18   50.99
SS
   400.   134.3   6   1.0   1.0 10000.0   6.07   40.85   57.69
SS
   500.   98.02   6   1.0   1.0 10000.0   6.07   50.21   64.39
SS
   600.   75.27   6   1.0   1.0 10000.0   6.07   59.27   71.09
SS
   700.   61.01   6   1.0   1.0 10000.0   6.07   68.06   76.42
SS
   800.   52.46   6   1.0   1.0 10000.0   6.07   76.59   78.98

```
SS
    900.   45.89        6     1.0    1.0 10000.0    6.07   84.89   81.47
SS
   1000.   40.70        6     1.0    1.0 10000.0    6.07   92.97   83.91
SS
   1100.   36.50        6     1.0    1.0 10000.0    6.07  100.83   86.28
SS
   1200.   33.04        6     1.0    1.0 10000.0    6.07  108.50   88.60
SS
   1300.   30.14        6     1.0    1.0 10000.0    6.07  115.99   90.86
SS
   1400.   27.68        6     1.0    1.0 10000.0    6.07  123.30   93.08
SS
   1500.   25.57        6     1.0    1.0 10000.0    6.07  130.44   95.25
SS
   1600.   23.74        6     1.0    1.0 10000.0    6.07  137.43   97.38
SS
   1700.   22.14        6     1.0    1.0 10000.0    6.07  144.27   99.47
SS
   1800.   20.73        6     1.0    1.0 10000.0    6.07  150.97  101.52
SS
   1900.   19.48        6     1.0    1.0 10000.0    6.07  157.54  103.53
SS
   2000.   18.37        6     1.0    1.0 10000.0    6.07  163.98  105.51
SS
   2100.   17.37        6     1.0    1.0 10000.0    6.07  170.30  107.45
SS
   2200.   16.47        6     1.0    1.0 10000.0    6.07  176.50  109.36
SS
   2300.   15.65        6     1.0    1.0 10000.0    6.07  182.59  111.24
SS
   2400.   14.90        6     1.0    1.0 10000.0    6.07  188.57  113.10
SS
   2500.   14.22        6     1.0    1.0 10000.0    6.07  194.45  114.92
SS
   2600.   13.60        6     1.0    1.0 10000.0    6.07  200.24  116.72
SS
   2700.   13.03        6     1.0    1.0 10000.0    6.07  205.93  118.50
SS
   2800.   12.50        6     1.0    1.0 10000.0    6.07  211.54  120.25
SS
   2900.   12.01        6     1.0    1.0 10000.0    6.07  217.05  121.97
SS
   3000.   11.55        6     1.0    1.0 10000.0    6.07  222.49  123.67
SS
   3500.   9.702        6     1.0    1.0 10000.0    6.07  248.52  131.88
SS
   4000.   8.347        6     1.0    1.0 10000.0    6.07  272.88  139.62
SS
   4500.   7.315        6     1.0    1.0 10000.0    6.07  295.82  146.98
SS
   5000.   6.504        6     1.0    1.0 10000.0    6.07  317.54  153.99
SS

 MAXIMUM 1-HR CONCENTRATION AT OR BEYOND     1. M:
    186.   335.2        6     1.0    1.0 10000.0    6.07   21.75   43.42
SS

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
```

```
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

 ******************************************
 *  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
 *    SIMPLE ELEVATED TERRAIN PROCEDURE     *
 ******************************************

      TERRAIN        DISTANCE RANGE (M)
       HT (M)       MINIMUM     MAXIMUM
      -------      --------    --------
           0.            1.       5000.

*************************************
     *** REGULATORY (Default) ***
    PERFORMING CAVITY CALCULATIONS
  WITH ORIGINAL SCREEN CAVITY MODEL
          (BRODE, 1988)
*************************************


 *** CAVITY CALCULATION - 1 ***       *** CAVITY CALCULATION - 2 ***
  CONC (UG/M**3)     =    179.3        CONC (UG/M**3)     =    229.6
  CRIT WS @10M (M/S) =     1.00        CRIT WS @10M (M/S) =     1.00
  CRIT WS @ HS (M/S) =     1.00        CRIT WS @ HS (M/S) =     1.00
  DILUTION WS (M/S)  =     1.00        DILUTION WS (M/S)  =     1.00
  CAVITY HT (M)      =   139.85        CAVITY HT (M)      =   129.23
  CAVITY LENGTH (M)  =   112.95        CAVITY LENGTH (M)  =    79.27
  ALONGWIND DIM (M)  =    38.10        ALONGWIND DIM (M)  =    48.80

*************************************
     END OF CAVITY CALCULATIONS
*************************************


     ************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
 -------------    -----------   -------   -------
 SIMPLE TERRAIN      335.2          186.        0.

 BLDG. CAVITY-1      179.3          113.       --  (DIST = CAVITY
LENGTH)

 BLDG. CAVITY-2      229.6           79.       --  (DIST = CAVITY
LENGTH)



 ************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ************************************************
```

ATTACHMENT 3

ASRC EMISSION CALCULATIONS

Attachment 3 - ASRC Emission Calculations

Basis:
- The American Sugar Refining Company, Inc. currently operates three (3) combustion sources as per the facility's Title V permit.
- The three combustion sources are known as "Boiler #3", "Boiler #5" and Gas Turbine".
- All combustion sources are permitted to combust natural gas and fuel oil.
- Emission factors are from the following AP-42 Sections and Tables:
  Section 1.3, Tables 1.3-1, 1.3-9 & 1.3-10 - Boilers firing fuel oil.
  Section 1.4, Tables 1.4-1, 1.4-3 & 1.4-4 - Boilers firing natural gas.
  Section 3.1, Tables 3.1-1, 3.1-2a, 3.1-4 & 3.1-5 - Turbines firing fuel oil.
  Section 3.1, Tables 3.1-1, 3.1-2a, 3.1-3 - Turbines firing natural gas.
- Boiler potential emissions based on equipment fuel input ratings assuming 8,760 operating hours per year at maximum capacity as presented below.
- Turbine potential emissions based on permitted fuel consumption limits as presented below.
- NOx potential emissions are based on permitted facility cap of 277 tons/year. For conservatism, NOx is considered NO2.
- Only those compounds defined as HAPs as per Section 112(b) of the Clean Air Act.
  Certain compounds are considered "Polycyclic Organic Matter (POM)", and are therefore, considered HAPs.

Maximum Annual Fuel Throughputs:

Boiler #3	165.5	MMBtu/hr	1,449,780	MMBtu/yr	
			1,450	MMscf/yr	- Based on 1,000 Btu/scf
			10.51	MMGal/yr	- Based on 138,000 BTU/gallon
Turbine	167.5	MMBtu/hr	1,467,300	MMBtu/yr	
			1,467	MMscf/yr	- Based on 1,000 Btu/scf
			10.63	MMGal/yr	- Based on 138,000 BTU/gallon
Boiler #5					
NG limit:	125	MMscf/yr	125,125	MMBtu/yr	- Based on 1,000 Btu/scf
Fuel Oil limit:	2.17	MMgal/yr	300,000	MMBtu/yr	- Based on 138,000 BTU/gallon

Boiler Total (NG)	1,574,905	MMBtu/yr
	1.57	Trillion Btu/yr
	1,575	MMscf/yr
Boiler Total (Oil)	1,749,780	MMBtu/yr
	1.75	Trillion Btu/yr
	12.7	MMgal/yr
	12,679.6	Mgal/yr

Pollutant Emissions:

	Emission Factors (Natural Gas)		Emission Factors (Fuel Oil)		Emission Rates (Natural Gas)		Emission Rates (Fuel Oil)	
Pollutant	**Boilers #3 & #5**	**Turbine**	**Boilers #3 & #5**	**Turbine**	**Boilers #3 & #5**	**Turbine**	**Boilers #3 & #5**	**Turbine**
Criteria Pollutants	**(lb/MMscf)**	**(lb/MMBtu)**	**(lb/Mgal)**	**(lb/MMBtu)**	**(lb/yr)**	**(lb/yr)**	**(lb/yr)**	**(lb/yr)**
SO2	6.00E-01	3.40E-03	7.10E+00	3.30E-02	**9.45E+02**	4.99E+03	9.00E+01	**4.84E+04**
CO	8.40E+01	8.20E-02	5.00E+00	3.30E-03	**1.32E+05**	**1.20E+05**	6.34E+01	4.84E+03
NOx (see comment above)								
PM10	7.60E+00	6.60E-03	2.00E+00	1.20E-02	**1.20E+04**	9.68E+03	2.54E+01	**1.76E+04**
PM2.5	7.60E+00	6.60E-03	2.00E+00	1.20E-02	**1.20E+04**	9.68E+03	2.54E+01	**1.76E+04**
Hazardous Air Pollutants (HAPs)	**(lb/MMscf)**	**(lb/MMBtu)**	**(lb/trillion Btu)**	**(lb/MMBtu)**	**(lb/yr)**	**(lb/yr)**	**(lb/yr)**	**(lb/yr)**
1,3-Butadiene	---	4.30E-07	---	1.60E-05	---	6.31E-01	---	**2.35E+01**
2-Methylnaphthalene	2.40E-05	---	---	---	3.78E-02	---	---	---
3-Methtlchloranthene	1.80E-06	---	---	---	2.83E-03	---	---	---
7,12-Dimethylbenz(a)anthracene	1.60E-05	---	---	---	2.52E-02	---	---	---
Acenaphthene	1.80E-06	---	2.11E-05	---	2.83E-03	---	**2.68E-01**	---
Acenaphthylene	1.80E-06	---	2.53E-07	---	2.83E-03	---	**3.21E-03**	---
Acetaldehyde	---	4.00E-05	---	---	---	5.87E+01	---	---
Acrolein	---	6.40E-06	---	---	---	9.39E+00	---	---
Anthracene	2.40E-06	---	1.22E-06	---	3.78E-03	---	**1.55E-02**	---
Benz(a)anthracene	1.80E-06	---	4.01E-06	---	2.83E-03	---	**5.08E-02**	---
Benzene	2.10E-03	1.20E-05	2.14E-04	5.50E-05	**3.31E+00**	1.76E+01	2.71E+00	**8.07E+01**
Benzo(a)pyrene	1.20E-06	---	---	---	1.89E-03	---	---	---
Benzo(b)fluoroanthene	1.80E-06	---	1.48E-06	---	2.83E-03	---	**1.88E-02**	---
Benzo(g,h,i)pyrene	1.20E-06	---	---	---	1.89E-03	---	---	---
Benzo(k)fluoroanthene	1.80E-06	---	1.48E-06	---	2.83E-03	---	**1.88E-02**	---
Chrysene	1.80E-06	---	2.38E-06	---	2.83E-03	---	**3.02E-02**	---
Dibenzo(a,h)anthracene	1.20E-06	---	1.67E-06	---	1.89E-03	---	**2.12E-02**	---
Dichlorobenzene	1.20E-03	---	---	---	1.89E+00	---	---	---
Ethylbenzene	---	3.20E-05	6.36E-05	---	---	4.70E+01	8.06E-01	---
Fluoranthene	3.00E-06	---	4.84E-06	---	4.72E-03	---	**6.14E-02**	---
Fluorene	2.80E-06	---	4.47E-06	---	4.41E-03	---	**5.67E-02**	---
Formaldehyde	7.50E-02	7.10E-04	3.30E-02	2.80E-05	1.18E+02	**1.04E+03**	**4.18E+02**	4.11E+01
Hexane	1.80E+00	---	---	---	2.83E+03	---	---	---
Indeno(1,2,3-cd)pyrene	1.80E-06	---	2.14E-06	---	2.83E-03	---	**2.71E-02**	---
Naphthlene	6.10E-04	1.30E-06	1.13E-03	3.50E-05	9.61E-01	1.91E+00	**1.43E+01**	**5.14E+01**
PAH	---	2.20E-06	---	4.00E-05	---	3.23E+00	---	**5.87E+01**
Phenanathrene	1.70E-05	---	1.05E-05	---	2.68E-02	---	**1.33E-01**	---
Propylene Oxide	---	2.90E-05	---	---	---	4.26E+01	---	---
Pyrene	5.00E-06	---	4.25E-06	---	7.87E-03	---	**5.39E-02**	---
1,1,1,-Trichloethane	---	---	2.36E-04	---	---	---	2.99E+00	---
Toluene	3.40E-03	1.30E-04	6.20E-03	---	5.35E+00	1.91E+02	**7.86E+01**	---
o, Xylene	---	---	1.09E-04	---	---	---	1.38E+00	---
Xylenes (Total)	---	6.40E-05	---	---	---	9.39E+01	---	---
OCDD (Octachlorodibenzo-p-dioxin)	---	---	3.10E-09	---	---	---	3.93E-05	---
Metals (HAPs)	**(lb/MMscf)**	**(lb/MMBtu)**	**(lb/trillion Btu)**	**(lb/MMBtu)**	**(lb/yr)**	**(lb/yr)**	**(lb/yr)**	**(lb/yr)**
Arsenic	2.00E-04	---	4.00E+00	1.10E-05	3.15E-01	---	**7.00E+00**	1.61E+01
Beryllium	1.20E-05	---	3.00E+00	3.10E-07	1.89E-02	---	**5.25E+00**	4.55E-01
Cadmium	1.10E-03	---	3.00E+00	4.80E-06	1.73E+00	---	**5.25E+00**	7.04E+00
Chromium	1.40E-03	---	---	1.10E-05	2.20E+00	---	---	1.61E+01
Cobalt	8.40E-05	---	---	---	1.32E-01	---	---	---
Lead	---	---	9.00E+00	1.40E-05	---	---	1.57E+01	2.05E+01
Manganese	3.80E-04	---	6.00E+00	7.90E-04	5.98E-01	---	**1.05E+01**	1.16E+03
Mercury	2.60E-04	---	3.00E+00	1.20E-06	4.09E-01	---	**5.25E+00**	1.76E+00
Nickel	2.10E-03	---	3.00E+00	4.60E-06	3.31E+00	---	**5.25E+00**	6.75E+00
Selenium	2.40E-05	---	1.50E+01	2.50E-05	3.78E-02	---	**2.62E+01**	3.67E+01

Notes:
- Emission rates in bold indicate the higher emission rate of the two (2) fuels if that specific compound is emitted from combustion of both fuels.
- "---" indicates compound not emitted from combustion source.

ATTACHMENT 4

SCREEN3 AIR DISPERSION MODELING OUTPUT FOR ASRC

06/15/10

11:39:38
  *** SCREEN3 MODEL RUN ***
  *** VERSION DATED 96043 ***

 ASRC Impact @ 0 m

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE   =   POINT
    EMISSION RATE (G/S)   =   1.00000
    STACK HEIGHT (M)   =   45.7200
    STK INSIDE DIAM (M)   =   3.0480
    STK EXIT VELOCITY (M/S)=   2.5419
    STK GAS EXIT TEMP (K) =   422.0000
    AMBIENT AIR TEMP (K)   =   293.0000
    RECEPTOR HEIGHT (M)   =   .0000
    URBAN/RURAL OPTION   =   URBAN
    BUILDING HEIGHT (M)   =   .0000
    MIN HORIZ BLDG DIM (M) =   .0000
    MAX HORIZ BLDG DIM (M) =   .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   39300.000   (ACFM)

 BUOY. FLUX =   17.698 M**4/S**3; MOM. FLUX =   10.420 M**4/S**2.

 *** FULL METEOROLOGY ***

 ****
 *** SCREEN DISCRETE DISTANCES ***
 ****

 *** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST   CONC   U10M   USTK MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB (M/S) (M/S)   (M)   HT (M)   Y (M)   Z (M)
DWASH
 ------- ---------- ---- ----- ----- ------ ------ ------ ------
-----
    396.   7.133   4   3.5   5.1 1120.0   75.72   59.80   53.45
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  ****
  * SUMMARY OF TERRAIN HEIGHTS ENTERED FOR *
  *   SIMPLE ELEVATED TERRAIN PROCEDURE   *
  ****

       TERRAIN   DISTANCE RANGE (M)

HT (M)	MINIMUM	MAXIMUM
0.	396.	--

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	7.133	396.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

06/15/10

11:34:41
  *** SCREEN3 MODEL RUN ***
  *** VERSION DATED 96043 ***

 ASRC Impact @ 10 m

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE   =   POINT
    EMISSION RATE (G/S)   =   1.00000
    STACK HEIGHT (M)   =   45.7200
    STK INSIDE DIAM (M)   =   3.0480
    STK EXIT VELOCITY (M/S)=   2.5419
    STK GAS EXIT TEMP (K) =   422.0000
    AMBIENT AIR TEMP (K)   =   293.0000
    RECEPTOR HEIGHT (M)   =   10.0000
    URBAN/RURAL OPTION   =   URBAN
    BUILDING HEIGHT (M)   =   .0000
    MIN HORIZ BLDG DIM (M) =   .0000
    MAX HORIZ BLDG DIM (M) =   .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   39300.000   (ACFM)

 BUOY. FLUX =   17.698 M**4/S**3; MOM. FLUX =   10.420 M**4/S**2.

 *** FULL METEOROLOGY ***

 ****
 *** SCREEN DISCRETE DISTANCES ***
 ****

 *** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST   CONC   U10M   USTK MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB (M/S) (M/S)   (M)   HT (M)   Y (M)   Z (M)
DWASH
 ------- ---------- ---- ----- ----- ------ ------ ------ ------
-----
    396.   7.257   4   3.5   5.1 1120.0   75.72   59.80   53.45
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  ****
  * SUMMARY OF TERRAIN HEIGHTS ENTERED FOR *
  *   SIMPLE ELEVATED TERRAIN PROCEDURE   *
  ****

       TERRAIN   DISTANCE RANGE (M)

HT (M)	MINIMUM	MAXIMUM
0.	396.	--

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	7.257	396.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

```
06/15/10

11:37:59
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 ASRC Impact @ 20 m

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      1.00000
    STACK HEIGHT (M)       =      45.7200
    STK INSIDE DIAM (M)    =       3.0480
    STK EXIT VELOCITY (M/S)=       2.5419
    STK GAS EXIT TEMP (K)  =     422.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =      20.0000
    URBAN/RURAL OPTION     =        URBAN
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   39300.000     (ACFM)

 BUOY. FLUX =   17.698 M**4/S**3;  MOM. FLUX =   10.420 M**4/S**2.

 *** FULL METEOROLOGY ***

 *********************************
 *** SCREEN DISCRETE DISTANCES ***
 *********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
    396.   7.607        4     3.5    5.1  1120.0   75.72   59.80   53.45
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  *****************************************
  *  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
  *    SIMPLE ELEVATED TERRAIN PROCEDURE     *
  *****************************************

       TERRAIN        DISTANCE RANGE (M)
```

HT (M)	MINIMUM	MAXIMUM
0.	396.	--

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	7.607	396.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

```
06/15/10

11:42:51
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 ASRC Impact @ 30 m

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      1.00000
    STACK HEIGHT (M)       =      45.7200
    STK INSIDE DIAM (M)    =       3.0480
    STK EXIT VELOCITY (M/S)=       2.5419
    STK GAS EXIT TEMP (K)  =     422.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =      30.0000
    URBAN/RURAL OPTION     =        URBAN
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   39300.000     (ACFM)

 BUOY. FLUX =   17.698 M**4/S**3;  MOM. FLUX =   10.420 M**4/S**2.

 *** FULL METEOROLOGY ***

 *********************************
 *** SCREEN DISCRETE DISTANCES ***
 *********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
    396.   8.272        4     3.0    4.4   960.0   82.25   60.12   53.81
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  *****************************************
  *  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
  *    SIMPLE ELEVATED TERRAIN PROCEDURE     *
  *****************************************

       TERRAIN        DISTANCE RANGE (M)
```

HT (M)	MINIMUM	MAXIMUM
0.	396.	--

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	8.272	396.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

06/15/10

11:41:19
  *** SCREEN3 MODEL RUN ***
  *** VERSION DATED 96043 ***

 ASRC Impact @ 40 m

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE   =   POINT
    EMISSION RATE (G/S)   =   1.00000
    STACK HEIGHT (M)   =   45.7200
    STK INSIDE DIAM (M)   =   3.0480
    STK EXIT VELOCITY (M/S)=   2.5419
    STK GAS EXIT TEMP (K) =   422.0000
    AMBIENT AIR TEMP (K)   =   293.0000
    RECEPTOR HEIGHT (M)   =   40.0000
    URBAN/RURAL OPTION   =   URBAN
    BUILDING HEIGHT (M)   =   .0000
    MIN HORIZ BLDG DIM (M) =   .0000
    MAX HORIZ BLDG DIM (M) =   .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   39300.000   (ACFM)

 BUOY. FLUX =   17.698 M**4/S**3; MOM. FLUX =   10.420 M**4/S**2.

 *** FULL METEOROLOGY ***

 ****
 *** SCREEN DISCRETE DISTANCES ***
 ****

 *** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST   CONC   U10M   USTK MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB (M/S) (M/S)   (M)   HT (M)   Y (M)   Z (M)
DWASH
 ------- ---------- ---- ----- ----- ------ ------ ------ ------
-----
    396.   11.51   6   2.0   3.2 10000.0   85.31   42.39   28.05
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  ****
  * SUMMARY OF TERRAIN HEIGHTS ENTERED FOR *
  *   SIMPLE ELEVATED TERRAIN PROCEDURE   *
  ****

       TERRAIN   DISTANCE RANGE (M)

HT (M)	MINIMUM	MAXIMUM
0.	396.	--

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	11.51	396.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

06/15/10

11:45:02
  *** SCREEN3 MODEL RUN ***
  *** VERSION DATED 96043 ***

 ASRC Impact @ 50

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE   =   POINT
    EMISSION RATE (G/S)   =   1.00000
    STACK HEIGHT (M)   =   45.7200
    STK INSIDE DIAM (M)   =   3.0480
    STK EXIT VELOCITY (M/S)=   2.5419
    STK GAS EXIT TEMP (K) =   422.0000
    AMBIENT AIR TEMP (K)   =   293.0000
    RECEPTOR HEIGHT (M)   =   50.0000
    URBAN/RURAL OPTION   =   URBAN
    BUILDING HEIGHT (M)   =   .0000
    MIN HORIZ BLDG DIM (M) =   .0000
    MAX HORIZ BLDG DIM (M) =   .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   39300.000   (ACFM)

 BUOY. FLUX =   17.698 M**4/S**3; MOM. FLUX =   10.420 M**4/S**2.

 *** FULL METEOROLOGY ***

 ****
 *** SCREEN DISCRETE DISTANCES ***
 ****

 *** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST   CONC   U10M   USTK MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB (M/S) (M/S)   (M)   HT (M)   Y (M)   Z (M)
DWASH
 ------- ---------- ---- ----- ----- ------ ------ ------ ------
-----
    396.   19.35   6   1.5   2.4 10000.0   91.36   42.78   28.64
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  ****
  * SUMMARY OF TERRAIN HEIGHTS ENTERED FOR *
  *   SIMPLE ELEVATED TERRAIN PROCEDURE   *
  ****

       TERRAIN   DISTANCE RANGE (M)

HT (M)	MINIMUM	MAXIMUM
0.	396.	--

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	19.35	396.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

```
06/15/10

11:46:14
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 ASRC Impact @ 60 m

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      1.00000
    STACK HEIGHT (M)       =      45.7200
    STK INSIDE DIAM (M)    =       3.0480
    STK EXIT VELOCITY (M/S)=       2.5419
    STK GAS EXIT TEMP (K)  =     422.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =      60.0000
    URBAN/RURAL OPTION     =        URBAN
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   39300.000     (ACFM)

 BUOY. FLUX =   17.698 M**4/S**3;  MOM. FLUX =   10.420 M**4/S**2.

 *** FULL METEOROLOGY ***

 *********************************
 *** SCREEN DISCRETE DISTANCES ***
 *********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
    396.   30.19        6     1.0    1.6 10000.0  100.93   43.46   29.65
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  *****************************************
  *  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
  *    SIMPLE ELEVATED TERRAIN PROCEDURE     *
  *****************************************

       TERRAIN        DISTANCE RANGE (M)
```

HT (M)	MINIMUM	MAXIMUM
0.	396.	--

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	30.19	396.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

06/15/10

11:47:45
  *** SCREEN3 MODEL RUN ***
  *** VERSION DATED 96043 ***

 ASRC Impact @ 70 m

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE   =   POINT
    EMISSION RATE (G/S)   =   1.00000
    STACK HEIGHT (M)   =   45.7200
    STK INSIDE DIAM (M)   =   3.0480
    STK EXIT VELOCITY (M/S)=   2.5419
    STK GAS EXIT TEMP (K) =   422.0000
    AMBIENT AIR TEMP (K)   =   293.0000
    RECEPTOR HEIGHT (M)   =   70.0000
    URBAN/RURAL OPTION   =   URBAN
    BUILDING HEIGHT (M)   =   .0000
    MIN HORIZ BLDG DIM (M) =   .0000
    MAX HORIZ BLDG DIM (M) =   .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   39300.000   (ACFM)

 BUOY. FLUX =   17.698 M**4/S**3; MOM. FLUX =   10.420 M**4/S**2.

 *** FULL METEOROLOGY ***

 ****
 *** SCREEN DISCRETE DISTANCES ***
 ****

 *** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST   CONC   U10M   USTK MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB (M/S) (M/S)   (M)   HT (M)   Y (M)   Z (M)
DWASH
 ------- ---------- ---- ----- ----- ------ ------ ------ ------
-----
    396.   45.43   6   1.0   1.6 10000.0 100.93   43.46   29.65
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  ****
  * SUMMARY OF TERRAIN HEIGHTS ENTERED FOR *
  *   SIMPLE ELEVATED TERRAIN PROCEDURE   *
  ****

       TERRAIN   DISTANCE RANGE (M)

HT (M)	MINIMUM	MAXIMUM
0.	396.	--

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	45.43	396.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

```
06/15/10

11:49:35
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 ASRC Impact @ 76

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE            =        POINT
    EMISSION RATE (G/S)    =      1.00000
    STACK HEIGHT (M)       =      45.7200
    STK INSIDE DIAM (M)    =       3.0480
    STK EXIT VELOCITY (M/S)=       2.5419
    STK GAS EXIT TEMP (K)  =     422.0000
    AMBIENT AIR TEMP (K)   =     293.0000
    RECEPTOR HEIGHT (M)    =      76.0000
    URBAN/RURAL OPTION     =        URBAN
    BUILDING HEIGHT (M)    =        .0000
    MIN HORIZ BLDG DIM (M) =        .0000
    MAX HORIZ BLDG DIM (M) =        .0000

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    STACK EXIT VELOCITY WAS CALCULATED FROM
    VOLUME FLOW RATE =   39300.000     (ACFM)

 BUOY. FLUX =   17.698 M**4/S**3;  MOM. FLUX =   10.420 M**4/S**2.

 *** FULL METEOROLOGY ***

 *********************************
 *** SCREEN DISCRETE DISTANCES ***
 *********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
    396.   54.97        6     1.0    1.6 10000.0  100.93   43.46   29.65
NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  *****************************************
  *  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
  *    SIMPLE ELEVATED TERRAIN PROCEDURE     *
  *****************************************

       TERRAIN        DISTANCE RANGE (M)
```

HT (M)	MINIMUM	MAXIMUM
0.	396.	--

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	54.97	396.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

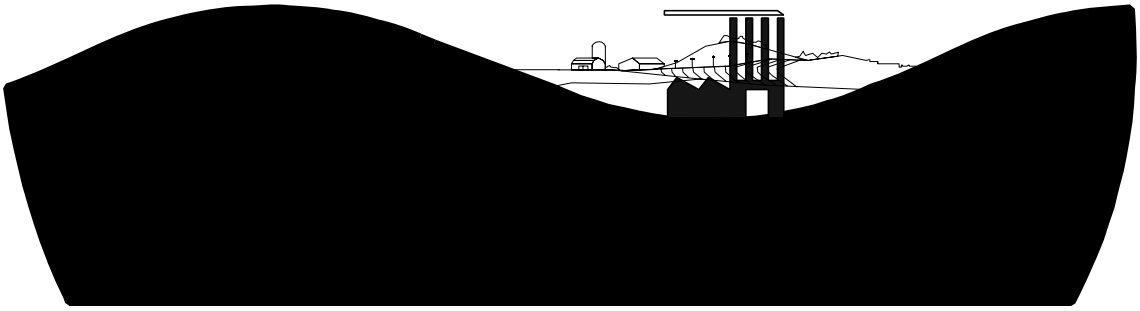
ATTACHMENT 5

NYSDEC DAR-1 AGC/SGC GUIDANCE AND TABLES

New York State Department of Environmental Conservation

DAR-1

AGC/SGC Tables



includes TLV's & STELs for the Year 2007

Division of Air Resources
Air Toxics Section
September 10, 2007

New York State Department of Environmental Conservation
Division of Air Resources
Bureau of Air Quality Analysis and Research
625 Broadway, 2nd Floor, Albany, New York 12233-3259
Phone: (518) 402-8402 • **FAX:** (518) 402-9035
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

September 10, 2007

M E M O R A N D U M

TO: Regional Air Pollution Control Engineers, Bureau Directors & Section Chiefs
FROM: David Shaw, Division of Air Resources, Director
SUBJECT: **DAR-1 AGC/SGC Tables**

Attached to this memo are the official DAR-1 AGC/SGC tables. One sorted alphabetically by contaminant name and the other numerically by Chemical Abstract Service (CAS) registry number. These tables were last revised on December 22, 2003 and originally included in Appendix C of the 1991 draft Edition of Air Guide-1, now DAR-1.

The AGC/SGC tables list all the (I) Short-term (one-hour) and Annual Guideline Concentrations (AGCs & SGCs), (II) Federal and State one-hour and annual air quality standards and (III) DAR-1 "equivalent" one-hour and annual air quality standards. The DAR-1 "equivalent" standards are Federal and State Air Quality Standards that have been adjusted to a one-hour or annual averaging period. These "equivalent" standards serve only as screening surrogates for determining environmental ratings and initially assessing compliance with the Federal and State Air Quality Standards that are based upon 3-hour, 8-hour, 24-hour, 1-month or 3-month averaging periods. Whenever a facility's screening impact is predicted to exceed a DAR-1 "equivalent" standard, compliance should be reassessed with the applicable Federal or State Air Quality Standard and for the correct averaging time using the modeling procedures for air quality impact analysis outlined in DAR-10, previously Air Guide 26, issued on May 9, 2006 and available at http://www.dec.state.ny.us/website/dar/ood/dar10.html.

DAR-10 clarifies the use of DAR-1 modeling software as an initial screening step in analyzing source impacts and emphasizes that the DAR-1 procedures will not be considered the final determination of emission point impacts. For most situations, due to the conservative modeling assumptions incorporated in the screening procedures, the DAR-1 screen provides conservative (overestimated) long-term (annual) average and short-term (1-hr) impacts in relation to corresponding AGCs and SGCs. However, the Industrial Source Complex Long Term (ISCLT2) model is bundled with the screen model of the DAR-1 software. The ISCLT2 model is not appropriate for evaluating predicted ambient impacts for criteria pollutants because in December of 2005, EPA revised their guidance on air quality models to incorporate the use of AERMOD. Source analyses which must undergo both NYSDEC and EPA review for criteria pollutants should adhere strictly to the requirements and preferred modeling procedures described in the EPA Guidelines, with the added requirements of NYSDEC on the application of

AERMOD as described in DAR-10. Therefore, the application of DAR-1 procedures should be limited to a preliminary screening of toxic pollutants and should not be used for criteria pollutant impact analysis.

The AGC/SGC values, standards and "equivalent" standards shall be used for determining the appropriate Environmental Rating and degree of air cleaning required for a source regulated under 6 NYCRR Part 212 as outlined in the DAR-1 guidance document. Any questions about the application or interpretation of these values should be directed to the Air Toxics Section of the Division of Air Resources (518-402-8402).

I. SHORT-TERM AND ANNUAL GUIDELINE CONCENTRATIONS (SGCs & AGCs).

Many organizations and agencies derive short-term or annual exposure limits to protect workers or the general public from adverse exposure to toxic air contaminants. Each one of these exposure limits requires extensive research and development time. As such, the New York State Department of Environmental Conservation (NYSDEC) often uses the limits published by other agencies or organizations to derive Short-term or Annual Guideline Concentrations.

When short-term or annual exposure limits are derived by NYSDEC, the United States Environmental Protection Agency (USEPA) or the New York State Department of Health (NYSDOH), the most conservative (lowest) of these preliminary values will be adopted as the AGC or SGC value. If there are no exposure limits derived by NYSDEC, USEPA or NYSDOH, the AGC/SGC values will be derived from Threshold Limit Values (TLVs), TLV Ceiling Limits or Short-Term Exposure Limits (STELs) published by the American Conference of Governmental Industrial Hygienists (ACGIH). When no exposure limits or ACGIH values are available, NYSDEC will often derive AGC/SGC values based on an analogy to a compound with similar toxicological properties. Lastly, when no exposure limits or ACGIH values are available and no analogies can be made, NYSDEC will assign a conservative *de minimus* limit as the AGC.

SGCs are chosen to protect the general population from adverse acute one-hour exposures. Whereas, AGCs are chosen to protect against adverse chronic exposure and based upon the most conservative carcinogenic or noncarcinogenic annual exposure limit. When an AGC is based upon carcinogenic effects, the concentration is "equivalent" to an excess, lifetime cancer risk of one-in-one-million. These carcinogenic-based AGCs can be identified in the AGC/SGC Tables by a "U" under column "1" of the codes heading.

AGC/SGC values in the attached tables are derived from the following sources. The source of each AGC/SGC assignment can be identified under the "W" (Who derived?) column heading in the attached tables.

(A) New York State Department of Environmental Conservation - NYSDEC, (D).

NYSDEC derives short-term (one hour) and annual exposure limits to protect the general population from adverse acute and chronic inhalation exposure. Some of these limits are

derived independently by NYSDEC and others are based upon the exposure data published by other agencies like the California Environmental Protection Agency (CalEPA). CalEPA derives many acute and chronic Reference Exposure Limits (RELs) and cancer Unit Risk Estimate values to protect the general population from adverse inhalation exposure. These values are available at www.oehha.org/air/html. All exposure limits derived by NYSDEC are adopted as AGC or SGC values unless there is a more conservative exposure limit derived by NYSDOH or USEPA.

(B) United States Environmental Protection Agency - USEPA, (E).

The USEPA derives both carcinogenic and noncarcinogenic annual exposure limits for use in assessing the impact from chronic exposure. Reference Concentrations (RfCs) are exposure limits designed to protect against adverse chronic noncarcinogenic effects. RfCs are "an estimate of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious noncancer effects during a lifetime." Whereas the exposure limits derived from Unit Risk Estimate values are used to protect the public from the additional "one-in-one-million" risk of contracting cancer over a lifetime of continuous exposure. For air contaminants classified by USEPA as "possible" carcinogens, NYSDEC will review the Unit Risk estimated values on a case-by-case basis because of the scientific uncertainty surrounding their validity. RfCs and Unit Risk Estimate values are published on the Integrated Risk Information System (IRIS) website (www.epa.gov/iris/).

NYSDEC will adopt an AGC based upon a USEPA limit when it's less than the most conservative exposure limit derived by NYSDEC or NYSDOH. When a contaminant has both an RfC and Unit Risk Estimate value published on the IRIS website, NYSDEC will choose the more conservative of both limits as the AGC.

(C) New York State Department of Health - NYSDOH, (H).

NYSDEC will adopt NYSDOH one-hour and annual exposure limits as AGC and SGC values when they are more conservative than any limits derived by NYSDEC or USEPA.

(D) 2007 American Conference of Governmental Industrial Hygienists (ACGIH) TLVs, (T).

A significant number of the AGCs in the DAR-1 AGC/SGC Tables are based on the ACGIH TLV-TWA limits published in the *2007 Guide to Occupational Exposure Values* handbook. These limits are published annually and "represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse health effects." This repeated exposure is based on an 8-hour workday and 40-hour workweek. AGCs will be based on TLVs when no annual exposure limits have been derived by the NYSDEC, NYSDOH or USEPA.

For *low toxicity air contaminants* (DAR-1, Appendix C, Section II.C), AGCs are derived by dividing TLVs by a factor of 42. This represents a dosimetric adjustment of 4.2 (40 hour workweek adjusted to 168 hours per week) with an additional safety/uncertainty

factor adjustment of ten (10) to protect the general population including sensitive individuals, children and the elderly. All other AGCs are derived by dividing TLVs by a factor of 420. This includes the dosimetric adjustment of 4.2 and a factor of one-hundred (100) to account for additional data uncertainties for moderate toxicity contaminants.

(E) 20076 ACGIH TLVs Ceiling Limit, (Y).

The ACGIH publishes short-term exposure limits for many contaminants. Each short-term limit is denoted as a TLV Ceiling limit or Short-Term Exposure Limit (STEL). A TLV Ceiling Limit represents a maximum exposure concentration that should never be exceeded at any time during a workday. TLV Ceiling Limits are used to derive SGCs when no one-hour exposure limits have been derived by NYSDEC, NYSDOH or USEPA.

NYSDEC derives SGCs from ACGIH TLV Ceiling Limits by dividing the TLV Ceiling Limits by an additional safety factor of ten (10). This additional safety factor is applied because the Ceiling Limits are applicable to a healthy working population rather than a potentially sensitive general population.

(F) 2007 ACGIH STELs, (Z).

The ACGIH publishes short-term exposure limits for many contaminants. Each short-term limit is denoted as a TLV Ceiling limit or Short-Term Exposure Limit (STEL). A STEL is defined as a 15-minute time-weighted average exposure which should never be exceeded at any time during the workday. STELs are used to derive SGCs when no one-hour exposure limits have been derived by NYSDEC, NYSDOH or USEPA.

NYSDEC divides ACGIH STELs by an additional safety factor of ten (10) to derive SGCs. This additional safety factor is applied because the STELs are applicable to a healthy working population rather than a potentially sensitive general population.

(G) Analogy by the NYSDEC, (A).

When limited or no toxicological data is available from the above cited agency sources (A through F), NYSDEC will sometimes derive an AGC or SGC value based on an analogy to a similar compound. Analogies are made when compounds have similar toxicological properties or similar metabolic pathways. When an analogy is made, both compounds are assumed to cause similar toxic or deleterious effects. However, this may not always be true as even subtle changes in structure (e.g., stereo-chemical differences) can alter a substance's bioactivity.

(H) High Toxicity *de minimus* Limit by NYSDEC, (*).

When a *high toxicity air contaminant* (DAR-1, Appendix C, Section II.A) has no AGC or SGC value, NYSDEC will assign the high toxicity de minimus limit (2.0×10^{-5} $\mu g/m^3$) as the AGC. This limit represents a concentration for which 95% of the carcinogenic AGCs have higher values.

II. FEDERAL AND STATE AIR QUALITY STANDARDS, (S).

Most Federal and State air quality standards are based upon one-hour or annual averaging periods. All of these standards, except ozone and the one-hour carbon monoxide standard, are listed in the AGC/SGC Tables. Each can be identified by a capital letter "S" under the "W" (Who derived?) heading. These standards are not AGC or SGC values and are only included in the tables to facilitate the DAR-1 source screening procedures under 6 NYCRR Part 212.

In previous editions, when a specific compound was classified as a particulate and the PM-10 standard was less than the preliminary AGC value, the annual PM-10 standard would be listed in place of the AGC value in the attached tables. Effective December 17, 2006, the EPA no longer recognizes the annual PM_{10} standard. Therefore, when compounds are classified as particulate, the Department will now use the total suspended particulate standard (NY075-00-0) of 45 $\mu g/m^3$, per 6 NYCRR Part 257-3, for any air contaminant whose is preliminary AGC is greater than 45 $\mu g/m^3$.

The Federal one-hour standard for carbon monoxide is not listed in the AGC/SGC tables. In its place is the more conservative DAR-1 "equivalent" one-hour standard. This "equivalent" standard was derived from the more stringent Federal eight-hour carbon monoxide standard. If sources at a facility can demonstrate compliance with the "equivalent" one-hour carbon monoxide standard it is assumed they meet both the one-hour and eight-hour Federal Standards. "Equivalent" standards are discussed in Section III and are derived for the sole purpose of determining the appropriate Environmental Ratings under Part 212.

No air contaminant emission source may cause an exceedance of a Federal or State Air Quality Standard. Most of these contaminants are present in the environment at relatively high concentrations. As such, all modeling analyses for contaminants with air quality standards must include an estimated background concentration.

Whenever a facility regulated by 6 NYCRR Part 212 is predicted to cause an ambient impact that exceeds a standard using the DAR-1 screening procedures, the source owner should perform a more refined modeling analysis following the procedures specified in DAR-10, previously Air Guide-26 (http://www.dec.state.ny.us/website/dar/ood/dar10.html) . If this analysis still shows an exceedance, a higher Environmental Rating must be assigned to the source contaminant. If this higher Environmental Rating does not require the necessary degree of control to meet the standard, the required air cleaning must be based on compliance with Section 200.6 of Part 200 and not Part 212. Section 200.6 states: *"no person shall allow or permit any air contamination source to emit air contaminants in quantities which alone or in combination with emissions from other air contamination sources would contravene any applicable ambient air quality standard and/or cause air pollution. In such cases where contravention occurs or may occur, the commissioner shall specify the degree and/or method of emission control required."*

In most circumstances, emission points of particulate emissions are given "B" or "C" Environmental Ratings and regulated by the grain loading standards of Part 212. In some instances, these grain loading standards may not be sufficient to maintain compliance with the standards. When this occurs, the source should be assigned an "A" Environmental Rating for which a higher degree of air cleaning is required. If this higher degree of air cleaning (99% or greater or BACT) is not sufficient to meet the standard, the required degree of air cleaning must be based on compliance with Section 200.6 of Part 200 and not Part 212. *NOTE: In some instances (e.g., minor or major source modification), the PSD increment may require a higher level of control than does compliance with the National Ambient Air Quality Standard (NAAQS).*

The following one-hour and annual standards are listed in the AGC/SGC Tables:

(A) Federal Annual PM-2.5 Particulate Standard.

The Federal annual PM-2.5 particulate standard is 15 $\mu g/m^3$ for fine particulate. It has been assigned solely to the New York CAS number for PM-2.5 particulate (NY075-02-5). Unlike the total suspended particulate standard, the more stringent PM-2.5 standard was not assigned to particulate contaminants with less stringent, preliminary AGC values. In addition to the specific particulate AGC and SGC values listed in these tables, the PM-2.5 standard still pertains to all particulate compounds with diameters less than 2.5 microns. Although the annual PM-2.5 standard is listed in the AGC/SGC tables, it is a standard and not a guideline value.

(B) Federal & State Annual Sulfur Dioxide Standard.

The Federal & State annual sulfur dioxide standard is 80 $\mu g/m^3$. This standard has been assigned to the CAS number for sulfur dioxide (07446-09-5). Although the annual sulfur dioxide standard is listed in the AGC/SGC tables, it is a standard and not a guideline value.

(C) Federal & State Annual Nitrogen Dioxide Standard.

The Federal & State annual nitrogen dioxide standard is 100 $\mu g/m^3$. This standard has been assigned to the CAS number for nitrogen dioxide (10102-44-0). Although the annual nitrogen dioxide standard is listed in the AGC/SGC tables, it is a standard and not a guideline value.

(D) Federal One-hour Ozone Standard.

On June 15, 2005, the EPA revoked the one hour ozone standard for all areas except the 8-hour ozone nonattainment Early Action Compact Areas (EAC) areas (those do not yet have an effective date for their 8-hour designations). The one-hour ozone standard is no longer listed in the AGC/SGC tables.

Ozone is generally considered an unstable secondary pollutant formed in the atmosphere by the photochemical reaction of nitrogen oxides and reactive hydrocarbons in the presence of high temperatures and ultraviolet light. As such, USEPA and NYSDEC do not have an appropriate model to calculate ozone impacts from a single source.

(E) State One-hour Hydrogen Sulfide Standard.

The New York State one-hour standard for hydrogen sulfide is 14 $\mu g/m^3$. This standard has been assigned to the CAS number for hydrogen sulfide (07783-06-4). Although the one-hour hydrogen sulfide standard is listed in the AGC/SGC Tables, it is a standard and not a guideline value.

III. DAR-1 "EQUIVALENT" AIR QUALITY STANDARDS, (s).

Many Federal and State air quality standards are not based upon one-hour or annual averaging periods. For these standards, it is more difficult to assess compliance using the DAR-1 screening procedures. As such, DAR-1 "equivalent" one-hour and annual standards have been derived using averaging time conversion factors. These "equivalent" standards only act as screening surrogates for assessing compliance with the applicable Federal or State Air Quality Standard.

A DAR-1 "equivalent" standard will be listed in the AGC/SGC tables when it is more conservative (less) than a preliminary AGC or SGC value (Section I). These "equivalent" standards are not air quality standards. They can be identified by a lowercase letter "s" under the "W" (Who derived?) heading. DAR-1 "equivalent" standards should only be used for determining compliance with Part 212. When a source screening impact exceeds an "equivalent" standard, compliance should be reassessed for the applicable Federal or State air quality standard using a more refined model and for the correct averaging time.

DAR-1 "equivalent" standards were not derived from the State's three-hour nonmethane hydrocarbon standard, one-hour photochemical oxidants standard, one-month beryllium standard or Federal eight-hour ozone standard. The hydrocarbon and oxidants standard are no longer considered technically valid and the latest USEPA health risk assessment data shows that the beryllium standard is not sufficiently protective against adverse public health impacts.

The following DAR-1 "equivalent" standards have been assigned in the AGC/SGC tables. Each is based on the USEPA or NYSDEC averaging time conversion factors stated below in Table 1. Those derived by USEPA are documented in *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised (EPA-454/R-92-019)*. Those derived by NYSDEC represent worst case adjustment factors.

Table 1

Averaging Time Conversion Factors

Source	Federal or State Standard (Convert From:)	Averaging Time Conversion Factor (Divisor)	DAR-1 "Equivalent" Standard (Convert To:)
USEPA	Maximum 3 hour	0.9	Maximum one-hour
USEPA	Maximum 8 hour	0.7	Maximum one-hour
NYSDEC	Maximum 12 hour	0.7	Maximum one-hour
USEPA	Maximum 24 hour	0.4	Maximum one-hour
NYSDEC	Maximum month	12	Maximum Annual
NYSDEC	Maximum 3 month	4	Maximum Annual

Example: DAR-1 Equiv. one-hour PM std. = (Federal 24-hour PM std.) / (0.4)

(A) DAR-1 "Equivalent" One-hour PM_{10} Standard.

The Federal 24 hour PM_{10} standard for particulate is 150 $\mu g/m^3$. This standard can be converted into a DAR-1 "equivalent" one-hour standard to make it easier to determine environmental ratings. The DAR-1 "equivalent" standard has been assigned to the New York CAS number for particulate (NY075-00-0), and other specific particulate compounds for which the DAR-1 "equivalent" standard is more conservative (less) than any preliminary SGC value. Where a specific compound is classified as a particulate, the DAR-1 "equivalent" one-hour PM standard (380 $\mu g/m^3$) will be listed as the contaminant specific "SGC" when it's less than the preliminary SGC value for the contaminant specific particulate compound.

As a guideline for assessing compliance with the Federal 24 hour PM standard, the following DAR-1 "equivalent" one-hour standard was derived from the 24 hour PM standard:

- DAR-1 "equivalent" one-hour PM-10 Standard = 150 / 0.4 = 380 $\mu g/m^3$.

(B) DAR-1 "Equivalent" One-hour PM-2.5 Standard.

The Federal 24 hour PM-2.5 standard for fine particulate is 35 $\mu g/m^3$. It can be converted into a DAR-1 "equivalent" one-hour standard to make it easier to for determining environmental ratings or assessing an initial compliance analysis. This DAR-1 "equivalent" standard has been assigned solely to the New York CAS number for PM-2.5 particulate (NY075-02-5). Unlike the PM standard, the more stringent PM-2.5 standard was not assigned to particulate contaminants with less stringent, preliminary SGC values.

In addition to the specific particulate AGC and SGC values listed in these tables, the PM-2.5 standard still pertains to all particulate compounds with diameters less than 2.5 microns.

As a guideline for determining environmental ratings or assessing an initial compliance analysis with the Federal 24 hour PM-2.5 standard, the following DAR-1 "equivalent" one-hour standard was derived from the 24 hour PM-2.5 standard:

- DAR-1 "Equivalent" one-hour PM-2.5 Standard = 35 / 0.4 = 88 $\mu g/m^3$.

(C) DAR-1 "Equivalent" One-hour Sulfur Dioxide Standard.

There are two sulfur dioxide standards for relatively short-term averaging periods: a 3 hour State standard of 1300 $\mu g/m^3$ and a 24 hour Federal & State standard of 365 $\mu g/m^3$. For both of these standards, DAR-1 "equivalent" one-hour standards can be derived. The 3 hour State standard can be converted into a DAR-1 "equivalent" one-hour standard of 1400 $\mu g/m^3$ (1300/0.9 = 1400 $\mu g/m^3$) and the 24 hour Federal & State standard can be converted into a DAR-1 "equivalent" one-hour standard of 910 $\mu g/m^3$ (365/0.4 = 910 $\mu g/m^3$). A comparison of the two values shows that the 24 hour Federal & State standard has the more conservative (lower) DAR-1 "equivalent" one-hour standard.

As a guideline for determining environmental ratings or assessing an initial compliance analysis with both the 3 hour State and 24 hour Federal & State standards, the following DAR-1 "equivalent" one-hour standard was derived for the short-term sulfur dioxide standards (CAS: 07446-09-5):

- DAR-1 "Equivalent" one-hour Sulfur Dioxide Standard = 910 $\mu g/m^3$.

(D) DAR-1 "Equivalent" One-hour Carbon Monoxide Standard.

There are two carbon monoxide standards for relatively short-term averaging times: a one-hour Federal & State standard of 40,000 $\mu g/m^3$ and a 8 hour Federal & State standard of 10,000 $\mu g/m^3$. Of these two standards, it's often more difficult to demonstrate compliance with the 8 hour standard. This can be seen from a comparison of the actual and DAR-1 "equivalent" one-hour standards. The DAR-1 "equivalent" one-hour carbon monoxide standard can be derived by dividing the 8 hour standard by the 0.7 factor presented in Table 1. Thus, the DAR-1 "equivalent" one-hour standard (10,000/0.7 = 14,000 $\mu g/m^3$) is less than the actual one-hour standard (40,000 $\mu g/m^3$) for carbon monoxide.

As a guideline for determining environmental ratings or assessing an initial compliance analysis with the Federal and State one-hour and 8 hour standards, the following DAR-1 "equivalent" one-hour standard was derived for the short-term Carbon Monoxide

standards (CAS: 00630-08-0):

- DAR-1 "equivalent" one-hour Carbon Monoxide standard = 14,000 $\mu g/m^3$.

(E) DAR-1 "Equivalent" Annual Lead Standard.

The Federal 3 month standard for lead is 1.5 $\mu g/m^3$. This standard can be converted into a DAR-1 "equivalent" annual standard to make it easier to assess compliance. This DAR-1 "equivalent" standard has been assigned to lead (CAS: 07439-92-1) and lead compounds for which the DAR-1 "equivalent" lead standard is less than any preliminary AGC value.

As a guideline for determining environmental ratings or assessing an initial compliance analysis with the Federal 3 month standard, the following DAR-1 "equivalent" annual standard was derived for lead:

- DAR-1 "equivalent" annual Lead Standard = 1.5/4 = 0.38 (Pb) $\mu g/m^3$.

(F) DAR-1 "Equivalent" One-hour and Annual Fluoride Standards.

New York State has several air quality standards for gaseous fluorides. Fluorides are defined as any compound that tests as fluoride by the appropriate method. Therefore, the regulation (Subpart 257-8) applies to all **inorganic** gaseous compounds which contain the element fluoride (F).

There are 4 separate gaseous fluoride standards with different averaging times: one-month (0.8 $\mu g/m^3$), one-week (1.65 $\mu g/m^3$), 24 hour (2.85 $\mu g/m^3$) and 12 hour (3.7 $\mu g/m^3$). None of these standards have one-hour or annual averaging periods.

A DAR-1 "equivalent" annual standard was derived for fluoride compounds as a guideline for determining environmental ratings or assessing an initial compliance analysis with the New York State fluoride standards. This "equivalent" annual standard was assigned to fluorine (CAS: 07782-41-4) and other inorganic gaseous fluoride compounds for which the DAR-1 "equivalent" standard was less than any preliminary AGC value. The DAR-1 "equivalent" annual standard was based solely on the one month standard for gaseous fluoride as it is reasonably protective of both the one month and one week standards.

A DAR-1 "equivalent" one-hour standard was also derived for fluoride compounds as a guideline for assessing compliance with the short-term State Fluoride standards. This "equivalent" standard was assigned to fluorine (CAS: 07782-41-4) and other inorganic contaminants for which the DAR-1 "equivalent" fluoride standard was less than any preliminary SGC value. The DAR-1 "equivalent" one hour standard was based on the 12

hour standard for gaseous fluoride and is protective of both the 24 hour and 12 hour standards.

- DAR-1 “Equivalent” annual Fluoride Standard = 0.8/12 = 0.067 (F) $\mu g/m^3$.
- DAR-1 “Equivalent” one-hour Fluoride Standard = 3.7/0.7 = 5.3 (F) $\mu g/m^3$.

Attachments:

1. DAR-1 AGC/SGC table (ALPHABETICALLY by Contaminant Name)
2. DAR-1 AGC/SGC table (NUMERICALLY by CAS Number)

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
ACETALDEHYDE	00075-07-0			4500.0	Y	4.5E-01	E	M U HCI	
ACETAMIDE	00060-35-5			---		5.0E-02	D	M U H	
ACETIC ACID	00064-19-7			3700.0	Z	60.0	T		
ACETIC ACID,COBALT	00071-48-7	Co	07440-48-4	---		3.0E-03	D	H	R Q
ACETIC ACID,LEAD	00301-04-2	Pb	07439-92-1	---		6.0E-01	s	H H	R Q
ACETIC ANHYDRIDE	00108-24-7			---		50.0	T	M	
ACETOIN	00513-86-0		00078-93-3	13000.0	A	5000.0	A	M	RR
ACETONE	00067-64-1			180000.0	Z	28000.0	T	L I	
ACETONE CYANOHYDRIN	00075-86-5			500.0	Y	---	X	H C	
ACETONITRILE	00075-05-8			---		60.0	E	M HI	
ACETONITRILE,CHLOR0	00107-14-2		00075-05-8	---		60.0	A	H	R
ACETOPHENONE	00098-86-2			---		120.0	T	H	
ACETYL CHLORIDE	00075-36-5		07647-01-0	2100.0	A	20.0	A	M	RR
ACETYLENE TETRABROM	00079-27-6			---		3.3	T		
ACRIDINE	00260-94-6		13049829-2	---		2.0E-02	A	U H	R
ACROLEIN	00107-02-8			1.9E-01	D	2.0E-02	E	H HCI	
ACRYLAMIDE	00079-06-1			---		7.7E-04	E	H U HI	
ACRYLIC ACID	00079-10-7			6000.0	D	1.0	E	M HI	
ACRYLIC MONOMERS	09081-82-7		00080-62-6	41000.0	A	700.0	A	M	RR
ACRYLONITRILE	00107-13-1			---		1.5E-02	E	H U HI	
ACTINOLITE	77536-66-4		01332-21-4	---		1.6E-05	A	H U HAI	R
ADIPIC ACID	00124-04-9			---		12.0	T		
ADIPONITRILE	00111-69-3			---		21.0	T		
ALACHLOR	15972-60-8			---		2.4	T	M I	
ALDRIN	00309-00-2			---		2.0E-04	E	H U I	
ALLYL ALCOHOL	00107-18-6			---		2.8	T	H I	
ALLYL CHLORIDE	00107-05-1			600.0	Z	1.0	E	M HI	
ALLYL GLYCIDYL ETHER	00106-92-3			---		11.0	T	I	
ALLYL PROPYL DISULFI	02179-59-1			---		7.1	T		
ALPHAMETHRIN	67375-30-8		08003-34-7	---		12.0	A	M	R
ALUMINUM	07429-90-5	Al	Al*SALTALK	---		4.8	A	K	R
ALUMINUM OXIDE	01344-28-1	Al2		---		45.0	T	I	Q
ALUMINUM, TRIETHYL	00097-93-8	Al	Al*SALTALK	---		20.0	T	H	R Q
AMINODIPHENYL, P-	00092-67-1			---		2.0E-05	*	H HA	
AMINOPROPYLTRIETSI,g	00919-30-2		07803-62-5	---		160.0	A	L	R
AMINOPYRIDINE, 2-	00504-29-0			---		4.8	T		
AMITROLE	00061-82-5			---		4.8E-01	T	I	
AMMONIA	07664-41-7			2400.0	Z	100.0	E	L	
AMMONIUM BISULFATE	07803-63-6			120.0	D	---	X		
AMMONIUM BROMIDE	12124-97-9		12125-02-9	380.0	s	24.0	A	M	RR
AMMONIUM CHLORIDE	12125-02-9			380.0	s	24.0	T	M	
AMMONIUM PERFLUOROOC	03825-26-1			---		2.4E-02	T	I	
AMMONIUM PERSULFATE	07727-54-0	S2O8		---		2.8E-01	T		Q
AMMONIUM SULFAMATE	07773-06-0			---		240.0	T	L	
AMMONIUM SULFATE	07783-20-2			120.0	D	---	X	L	
AMOSITE	12172-73-5		01332-21-4	---		1.6E-05	A	H U HAI	R
AMYL ACETATE, N-	00628-63-7			53000.0	Z	630.0	T		
AMYL ACETATE, SEC-	00626-38-0			53000.0	Z	630.0	T		
AMYL ACETATE, tert-	00625-16-1			53000.0	Z	630.0	T		
AMYL ACETATE,3-	00620-11-1			53000.0	Z	630.0	T		
AMYLMETHYLETHER,tert	00994-05-8			---		200.0	T		
ANILINE	00062-53-3			---		6.0E-01	D	H U HI	
ANISIDINE	29191-52-4			---		1.2	T	M	

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
ANISIDINE, O-	00090-04-0			---		1.2	T	M	HI
ANISIDINE, P-	00104-94-9			---		1.2	T	M	I
ANTHOPHYLLITE	77536-67-5		01332-21-4	---		1.6E-05	A	H U	HAI R
ANTHRACENE	00120-12-7		13049829-2	---		2.0E-02	A	H U	H R
ANTIMONATE,HEXAFL,Na	16925-25-0	Sb	07440-36-0	---		2.5	T		H R Q
ANTIMONY	07440-36-0	Sb		---		1.2	T	M	H
ANTIMONY OXIDE	01314-60-9	Sb	07440-36-0	---		1.3	T		H R Q
ANTIMONY TRICHLORIDE	10025-91-9	Sb	07440-36-0	---		2.2	T		H R Q
ANTIMONY TRIOXIDE	01309-64-4	Sb2		---		2.4E-01	E	M	HB Q
ANTIMONY TRISULFIDE	01345-04-6	Sb2	07440-36-0	---		1.7	T		H R Q
ANTU	00086-88-4			---		7.1E-01	T		I
AQUA AMMONIA	01336-21-6		07664-41-7	2400.0	A	100.0	A	L	RR
ARAMITE	00140-57-8			---		1.4E-01	E	U	
ARSENIC	07440-38-2	As		---		2.3E-04	E	H U	HA
ARSENIC ACID	01327-52-2	As	07440-38-2	---		4.4E-04	E	H U	H R Q
ARSENIC ACID	07778-39-4	As	07440-38-2	---		4.4E-04	E	H U	HA R Q
ARSENIC PENTOXIDE	01303-28-2	As2	07440-38-2	---		3.6E-04	E	H U	HA R Q
ARSENIC TRIOXIDE	01327-53-3	As4	07440-38-2	---		3.1E-04	E	H U	HA R Q
ARSENOUS ACID	13464-58-9	As		---		4.7E-02	T	H	HA Q
ARSENOUS ACID,TRIMET	03141-12-6	As	07440-38-2	---		6.5E-04	E	U H	R Q
ARSENOUS TRICHLORIDE	07784-34-1	As	07440-38-2	---		5.6E-04	E	H U	H R Q
ARSENOUS TRIFLUORIDE	07784-35-2	As	07440-38-2	---		4.1E-04	E	H U	H R Q
ARSENOZO III	01668-00-4	As2	As*ORGANIC	---		1.2E-03	E	H U	H R Q
ARSINE	07784-42-1			160.0	D	5.0E-02	E	H	H
ASBESTOS	01332-21-4			---		1.6E-05	D	H U	HAI
ASPHALT	08052-42-4			---		1.2	T		I
ATRAZINE	01912-24-9			---		12.0	T		I
AURAMINE	02465-27-2			---		2.0E-05	*	H	
AZINPHOS-METHYL	00086-50-0			---		4.8E-01	T		I
AZOBENZENE	00103-33-3			---		3.2E-02	E	U	
B A P	00050-32-8			---		9.1E-04	D	H U	HBI
BARIUM	07440-39-3	Ba		---		1.2	T	M	I
BARIUM CHROMATE	10294-40-3	Cr	18540-29-9	---		9.8E-05	H	H U	H R Q
BARIUM CYANIDE	00542-62-1	C2N2	00057-12-5	380.0	s	45.0	S	H	H RRQQ
BARIUM LEAD SULFATE	42579-89-5	Pb	07439-92-1	---		8.1E-01	s	H	H R Q
BARIUM SULFATE	07727-43-7			---		24.0	T	M	
BE ETHYL DIAM CL	13497-34-2	Be	07440-41-7	22.0	Z	9.3E-03	E	H U	H RRQQ
BENOMYL	17804-35-2			---		24.0	T		I
BENZ METHBIS ISOCYAN	26447-40-5		00101-68-8	14.0	A	6.0E-01	A	H	RR
BENZENE	00071-43-2			1300.0	D	1.3E-01	E	H U	HA
BENZENEARSONIC ACID	00098-05-5	As	07440-38-2	---		6.3E-04	E	H U	H R Q
BENZIDINE	00092-87-5			---		1.5E-05	E	H U	HAI
BENZO(A)ANTHRACENE	00056-55-3		13049829-2	---		2.0E-02	A	H U	HBI R
BENZOTRICHLORIDE	00098-07-7			80.0	Y	---	X		HCB
BENZOYL CHLORIDE	00098-88-4			280.0	Y	---	X		CI
BENZOYL PEROXIDE	00094-36-0			---		12.0	T		I
BENZYL ACETATE	00140-11-4			---		150.0	T		I
BENZYL ALCOHOL	00100-51-6			1300.0	D	350.0	D	M	
BENZYL CHLORIDE	00100-44-7			240.0	D	2.0E-02	D	H U	HI
BERULLIUM ZINC SILIC	39413-47-3	Be	07440-41-7	18.0	Z	7.7E-03	E	H U	HB RRQQ
BERYLLIUM	07440-41-7	Be		1.0	Z	4.2E-04	E	H U	HA
BERYLLIUM FLUORIDE	07787-49-7	Be	07440-41-7	5.2	Z	2.2E-03	E	H U	H RRQQ
BERYLLIUM OXIDE	01304-56-9	Be	07440-41-7	2.8	Z	1.2E-03	E	H U	H RRQQ

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 123456789012345
BERYLLIUM SULFATE	13510-49-1	Be	07440-41-7	12.0	Z	4.9E-03	E H U H	RRQQ
BIFENTHRIN	82657-04-3		08003-34-7	---		12.0	A M	R
BIPHENYL	00092-52-4			---		3.1	T M H	
BISMUTH TELLURIDE	01304-82-1		Bi2Te3*und	---		24.0	A K	R
BORATE	10043-35-3			---		4.8	T	
BORATES,ANHYDROUS	01330-43-4			---		4.8	T	
BORATES,DECAHYDRATE	01303-96-4			---		4.8	T	
BORATES,PENTAHYDRATE	12179-04-3			---		4.8	T	
BORON OXIDE	01303-86-2			---		24.0	T	
BORON TRIBROMIDE	10294-33-4			380.0	s	---	X C	
BORON TRIFLUORIDE	07637-07-2	F3	*FLUORIDE*	6.3	s	8.0E-02	s C	RRQQ
BROMACIL	00314-40-9			---		24.0	T I	
BROMADIOLONE	28772-56-7			---		2.0E-05	* H	
BROMINE	07726-95-6			130.0	Z	1.6	T M	
BROMINE PENTAFLUORID	07789-30-2	F5	*FLUORIDE*	9.8	s	1.2E-01	s	RRQQ
BROMODICHLOROMETHANE	00075-27-4			---		2.0E-02	D H U	
BROMOFORM	00075-25-2			---		9.1E-01	E M U HI	
BROMOPROPANE, 1-	00106-94-5			---		35.0	D M	
BUTADIENE POLYMER	69102-90-5		00106-99-0	---		3.3E-02	A H U	R
BUTADIENE, 1,3	00106-99-0			---		3.3E-02	E H U HB	
BUTANE	00106-97-8			---		57000.0	T L	
BUTANOL	35296-72-1		00071-36-3	---		1500.0	A L	R
BUTANOL,SEC	00078-92-2			---		710.0	T	
BUTOXYETHANOL, 2-	00111-76-2			14000.0	D	13000.0	E M HI	
BUTOXYETHYL ACETATE	00112-07-2			---		310.0	T M HI	
BUTYL ACETATE	00123-86-4			95000.0	Z	17000.0	T L	
BUTYL ACETATE, SEC-	00105-46-4			---		2300.0	T	
BUTYL ACETATE, TERT-	00540-88-5			---		2300.0	T	
BUTYL ACRYLATE, N-	00141-32-2			---		26.0	T I	
BUTYL ALCOHOL, N-	00071-36-3			---		1500.0	T L	
BUTYL ALCOHOL, TERT	00075-65-0			---		720.0	T I	
BUTYL BENZYL PHTHALA	00085-68-7		00084-66-2	---		12.0	A M	R
BUTYL CARBITOL	00112-34-5		00110-80-5	670.0	A	360.0	A M H	RR MM
BUTYL CARBITOL ACETA	00124-17-4		00110-80-5	840.0	A	450.0	A M H	RR MM
BUTYL CHROMATE, TERT	01189-85-1	Cr	18540-29-9	23.0	Y	8.9E-05	H H U HC	R QQ
BUTYL GLYCIDYL ETHER	02426-08-6			---		38.0	T	
BUTYL LACTATE, N-	00138-22-7			---		71.0	T	
BUTYL MERCAPTAN	00109-79-5			---		4.3	T M	
BUTYL PHTHALATE GLYC	00085-70-1		00084-66-2	---		12.0	A M	R
BUTYLAMINE, N-	00109-73-9			1500.0	Y	---	X M C	
BUTYLPHENOL,O-SEC	00089-72-5			---		74.0	T	
BUTYLTOLUENE,P-TERT	00098-51-1			---		15.0	T	
BUTYROLACTONE,gamma-	00096-48-0		00057-57-8	---		3.6	A M	R
CADMIUM	07440-43-9	Cd		---		2.4E-04	D H U HB	
CADMIUM CHLORIDE	10108-64-2	Cd	07440-43-9	---		3.9E-04	D H U H	R Q
CADMIUM CHLORIDE HYD	07790-78-5	Cd	07440-43-9	---		3.9E-04	D H U H	R Q
CADMIUM CYANIDE	00542-83-6	C2N2	00057-12-5	380.0	s	3.5E-04	D H U H	RRQQ
CADMIUM IODIDE	07790-80-9	Cd	07440-43-9	---		7.8E-04	D H U H	R Q
CADMIUM NITRATE	10325-94-7	Cd	07440-43-9	---		5.1E-04	D H U H	R Q
CADMIUM NITRATE TET	10022-68-1	Cd	07440-43-9	---		5.9E-04	D U H	R Q
CADMIUM OXIDE	01306-19-0	Cd	07440-43-9	---		2.7E-04	D H U H	R Q
CADMIUM SELENIDE	01306-24-7	Cd	07440-43-9	---		4.1E-04	D H U H	R Q
CADMIUM STEARATE	02223-93-0	Cd2	07440-43-9	---		8.5E-04	D H U H	R Q

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	W	codes T	codes 123456789012345
CADMIUM SULFATE	10124-36-4	Cd	07440-43-9	---		4.5E-04	D	H U H	R Q
CADMIUM SULFIDE	01306-23-6	Cd	07440-43-9	---		3.1E-04	D	H U H	R Q
CADMIUM ZINC SULFATE	12442-27-2	Cd	07440-43-9	---		4.5E-04	D	H U H	R Q
CADMIUMMERCURYSULFID	01345-09-1	Cd	07440-43-9	---		7.4E-04	D	H U H	R Q
CALCIUM ARSENATE	07778-44-1	As2	07440-38-2	---		6.3E-04	E	H U H	R Q
CALCIUM CHROMATE	13765-19-0	Cr	18540-29-9	---		6.1E-05	H	H U HB	R Q
CALCIUM CYANAMIDE	00156-62-7			---		1.2	T	HI	
CALCIUM CYANIDE	00592-01-8	C2N2		380.0	s	---	X	H HC	Q
CALCIUM DIHYDROXIDE	01305-62-0			---		12.0	T		
CALCIUM OXIDE	01305-78-8			---		4.8	T		
CALCIUM SILICATE	01344-95-2			---		24.0	T	I	
CALCIUM SULFATE	07778-18-9			---		24.0	T		
CAMPHOR	00076-22-2			1900.0	Z	29.0	T	I	
CAPROLACTAM	00105-60-2			---		12.0	T	I	
CAPTAFOL	02425-06-1			---		2.4E-01	T	I	
CAPTAN	00133-06-2			---		12.0	T	HI	
CARBARYL	00063-25-2			---		12.0	T	HI	
CARBENDAZIM	10605-21-7		01563-66-2	---		2.4E-01	A	M	R
CARBITOL CELLOSOLVE	00111-90-0		00110-80-5	550.0	A	300.0	A	M H	RR MM
CARBOFURAN	01563-66-2			---		2.4E-01	T	M I	
CARBON BLACK	01333-86-4			---		8.3	T	M I	
CARBON DIOXIDE	00124-38-9			5400000.0	Z	21000.0	T		
CARBON DISULFIDE	00075-15-0			6200.0	D	700.0	E	M HI	
CARBON MONOXIDE	00630-08-0			14000.0	s	---	X		
CARBON TETRABROMIDE	00558-13-4			410.0	Z	3.3	T		
CARBON TETRACHLORIDE	00056-23-5			1900.0	D	6.7E-02	E	H U HB	
CARBONIC ACID Ni SLT	03333-67-3	Ni	07440-02-0	11.0	D	7.5E-03	E	H U H	RRQQ
CARBONIC ACID,MnSALT	00598-62-9		07439-96-5	---		5.0E-02	A	H	R
CARBONYL FLUORIDE	00353-50-4	F2	*FLUORIDE*	9.2	s	1.2E-01	s		RRQQ
CARBONYL SULFIDE	00463-58-1			250.0	D	28.0	D	M H	
CARENE, 3-	13466-78-9			---		270.0	T	I	
CATECHOL	00120-80-9		00108-95-2	5800.0	A	55.0	T	HI	R
CD DIETHDITHIOCARB	14239-68-0	Cd	07440-43-9	---		8.7E-04	D	H U H	R Q
CELLULOSE	09004-34-6			---		24.0	T		
CESIUM HYDROXIDE	21351-79-1			---		4.8	T		
CHLORBENZMALONONIT,O	02698-41-1			39.0	Y	---	X	CI	
CHLORDANE	00057-74-9			---		1.2	T	H HI	
CHLORDANE, TECHNICAL	12789-03-6			---		1.0E-02	E	H U	
CHLORDECONE	00143-50-0			---		2.0E-05	*	H	
CHLORINATED DIPH OX	31242-93-0			---		1.2	T		
CHLORINE	07782-50-5			290.0	Z	2.0E-01	D	M HI	
CHLORINE DIOXIDE	10049-04-4			83.0	Z	2.0E-01	E	M	
CHLORINE TRIFLUORIDE	07790-91-2	F3	*FLUORIDE*	8.6	s	1.1E-01	s	C	RRQQ
CHLORO DIFLUOROETHAN	00075-68-3			---		50000.0	E	L	
CHLORO NITROANILINE	00121-87-9		00100-01-6	---		7.1	A	M	R
CHLORO NITROPROPANE	00600-25-9			---		24.0	T		
CHLORO-1-PROPANOL,2-	00078-89-7			---		9.5	T	I	
CHLORO-2-PROPANOL,1-	00127-00-4			---		9.5	T	I	
CHLOROACETALDEHYDE	00107-20-0			320.0	Y	---	X	C	
CHLOROACETIC ACID	00079-11-8			30.0	D	7.0	D	H HI	
CHLOROACETONE	00078-95-5			380.0	Y	---	X	C	
CHLOROACETOPHENONE,2	00532-27-4			---		3.0E-02	E	M HI	
CHLOROACETYLCHLORIDE	00079-04-9			69.0	Z	5.5E-01	T		

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T 123456	codes 789012345
CHLOROANILINE, P-	00106-47-8		00062-53-3	---		8.2E-01	A M U	R M
CHLOROBROMOMETHAN	00074-97-5			---		2500.0	T	
CHLORODIFLUOROMETHAN	00075-45-6			---		50000.0	E I	
CHLOROFORM	00067-66-3			150.0	D	4.3E-02	E M U HI	
CHLOROMETHANE	00074-87-3			22000.0	D	90.0	E M HI	
CHLOROMETHYL ETH,BIS	00542-88-1			---		1.6E-05	E H U HA	
CHLORONITROBENZENE,P	00100-00-5			---		1.5	T M I	
CHLOROPENTAFLUOROETH	00076-15-3			---		15000.0	T	
CHLOROPICRIN	00076-06-2			29.0	D	4.0E-01	D I	
CHLOROPRENE, B-	00126-99-8			---		86.0	T H	
CHLOROPROPIONICACI,2	00598-78-7			---		1.0	T	
CHLOROSTYRENE, O-	02039-87-4			43000.0	Z	670.0	T	
CHLOROTOLUENE,ORTHO	00095-49-8			---		620.0	T	
CHLORPYRIFOS	02921-88-2			---		2.4E-01	T I	
CHROMATE	13907-45-4	Cr	18540-29-9	---		4.5E-05	H H U H	R Q
CHROME TANNED COWHID	68131-98-6		18540-29-9	---		2.0E-05	A H U H	R
CHROMIC (VI) ACID	07738-94-5	Cr	18540-29-9	---		4.5E-05	H H U HA	R Q
CHROMIC ACID	11115-74-5	Cr	18540-29-9	---		4.5E-05	H H U H	R Q
CHROMIC ACID	13530-68-2	Cr2	18540-29-9	---		4.2E-05	H H U H	R Q
CHROMIC ACID, DIAMMO	07789-09-5	Cr2	18540-29-9	---		4.8E-05	H H U H	R Q
CHROMIC ACID, DILITH	14307-35-8	Cr	18540-29-9	---		5.1E-05	H H U H	R Q
CHROMIC ACID, DISODI	07789-12-0	Cr2	18540-29-9	---		5.2E-05	H H U H	R Q
CHROMIC ACID,Na SALT	07775-11-3	Cr	18540-29-9	---		6.3E-05	H H U H	R Q
CHROMIUM	07440-47-3	Cr	16065-83-1	---		1.2	T H HI	
CHROMIUM CHLORIDE	10025-73-7	Cr	16065-83-1	---		45.0	S H	R Q
CHROMIUM CHLORIDE	10060-12-5	Cr	16065-83-1	---		45.0	S H	R Q
CHROMIUM DIOXIDE	12018-01-8	Cr	16065-83-1	---		45.0	S H	R Q
CHROMIUM HYDROXIDE	01308-14-1	Cr	16065-83-1	---		45.0	S H	R Q
CHROMIUM III	16065-83-1	Cr		---		45.0	S M HI	
CHROMIUM K SULFATE	10141-00-1	Cr	16065-83-1	---		45.0	S H	R Q
CHROMIUM OXIDE	01308-38-9	Cr2	16065-83-1	---		45.0	S M H	R Q
CHROMIUM OXIDE	01333-82-0	Cr	18540-29-9	---		3.8E-05	H H U H	R Q
CHROMIUM OXIDE PYRID	20492-50-6	Cr	18540-29-9	---		9.9E-05	H U H	R Q
CHROMIUM OXYCHLORIDE	14977-61-8	Cr	18540-29-9	---		6.0E-05	H H U H	R Q
CHROMIUM SULFATE	10101-53-8	Cr2	16065-83-1	---		45.0	S H	R Q
CHROMIUM ZINC OXIDE	12018-19-8	Cr	18540-29-9	---		9.0E-05	H U H	R Q
CHROMIUM ZINC OXIDE	50922-29-7	Cr2	18540-29-9	---		4.5E-05	H H U H	R Q
CHROMIUM(VI)	18540-29-9	Cr		---		2.0E-05	H H U HAK	
CHROMYL FLUORIDE	07788-96-7	Cr	18540-29-9	---		4.7E-05	H H U H	R Q
CHRYSENE	00218-01-9		13049829-2	---		2.0E-02	A H U HI	R
CHRYSOTILE	12001-29-5		01332-21-4	---		1.6E-05	A H U H	R
CHRYSOTILE	13220732-0		01332-21-4	---		1.6E-05	A H U HAI	R
CLOPIDOL	02971-90-6			---		24.0	T I	
COAL TAR PITCH VOLAT	65996-93-2			---		4.8E-01	T A	
COBALT	07440-48-4	Co		---		1.0E-03	D M HI	
COBALT ALUMINATE	01345-16-0	Co	07440-48-4	---		3.0E-03	D H	R Q
COBALT CARBONATE	00513-79-1	Co	07440-48-4	---		2.1E-03	D H	R Q
COBALT CARBONYL	10210-68-1	Co2	07440-48-4	---		2.9E-03	D H	R Q
COBALT CHLORINE	07646-79-9	Co	07440-48-4	---		2.2E-03	D H	R Q
COBALT COMPLEX	53108-50-2	Co	07440-48-4	---		4.2E-03	D M H	R Q
COBALT HYDROCARBONYL	16842-03-8	Co	07440-48-4	---		2.9E-03	D H	R Q
COBALT NAPTHA	61789-51-3		07440-48-4	---		1.0E-03	A M H	R
COBALT OXIDE	01307-96-6	Co	07440-48-4	---		1.3E-03	D M H	R Q

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
COBALT SULFATE	10124-43-3	Co	07440-48-4	---		2.7E-03	D	H	R Q
COBALT SULFIDE	01317-42-6	Co	07440-48-4	---		1.5E-03	D M	H	R Q
COBALT TRIFLUORIDE	10026-18-3	Co	07440-48-4	---		2.0E-03	D	H	R Q
COKE	65996-77-2		08007-45-2	---		1.6E-03	A	U H	R
COKE OVEN EMISSIONS	08007-45-2			---		1.6E-03	E H	U H	
COKE(PETROLEUM)	64741-79-3		08007-45-2	---		1.6E-03	A	U H	R
COPPER	07440-50-8	Cu	Cu*FUME***	100.0	D	2.0E-02	D M	K	
COPPER CYANIDE	00544-92-3	CN	00057-12-5	380.0	s	45.0	S H	H	RRQQ
COUMAPHOS	00056-72-4			---		1.2E-01	T	I	
CRESOL	01319-77-3			---		52.0	T M	H	
CRESOL, M-	00108-39-4			---		52.0	T M	H	
CRESOL, O-	00095-48-7			---		52.0	T M	H	
CRESOL, P-	00106-44-5			---		52.0	T M	H	
CROCIDOLITE	12001-28-4		01332-21-4	---		1.6E-05	A H	U HAI	R
CROTONALDEHYDE	04170-30-3			86.0	Y	---	X	CI	
CROTONALDEHYDE,trans	00123-73-9		04170-30-3	86.0	A	---	X		R
CRUFORMATE	00299-86-5			---		12.0	T	I	
CUMENE	00098-82-8			---		400.0	E	H	
CYANAMIDE	00420-04-2			---		4.8	T M		
CYANIC ACID	00420-05-3	CN	00057-12-5	380.0	s	45.0	S	H	RRQQ
CYANIDE	00057-12-5	CN		380.0	s	45.0	S H	HC	
CYANOGEN	00460-19-5		00074-90-8	520.0	A	3.0	D M		R
CYANOGEN BROMIDE	00506-68-3		00074-90-8	75.0	D	3.0	A M	H	R
CYANOGEN CHLORIDE	00506-77-4		00074-90-8	75.0	Y	3.0	A M	HC	R
CYCLIC DEXADIENE	00080-56-8			---		270.0	T		
CYCLOHEXANE	00110-82-7			---		6000.0	E L		
CYCLOHEXANOL	00108-93-0			---		490.0	T		
CYCLOHEXANONE	00108-94-1			20000.0	Z	190.0	T M	I	
CYCLOHEXENE MIXTURE	00110-83-8			---		2400.0	T		
CYCLOHEXYLAMINE	00108-91-8			---		98.0	T	I	
CYCLONITE	00121-82-4			---		1.2	T	I	
CYCLOPENTADIENE, 1,3	00542-92-7			---		480.0	T M		
CYCLOPENTANE	00287-92-3			---		4100.0	T		
CYHEXATIN	13121-70-5			---		12.0	T	I	
CYPERMETHRIN	52315-07-8		08003-34-7	---		12.0	A M		R
Cd CYCLOHEXANE BUTY	55700-14-6	Cd	07440-43-9	---		6.0E-04	D H	U H	R Q
DDE	00072-55-9		00050-29-3	---		1.0E-02	A	U H	R
DDT	00050-29-3			---		1.0E-02	E H	U I	
DECABORANE	17702-41-9			75.0	Z	6.0E-01	T		
DECAMETHYLCYCLOPENTA	00541-02-6		00556-67-2	---		360.0	A L		R
DECANE	00124-18-5		00110-54-3	---		700.0	A M		R
DEMETON	08065-48-3			---		1.2E-01	T	I	
DEMETON-S-METHYL	00919-86-8			---		1.2E-01	T	I	
DEUTERIUM SULFATE	13813-19-9		07664-93-9	120.0	A	1.0	A M		RR
DI(ME)TETRA(MEO)DISI	18186-97-5		00681-84-5	---		14.0	A M		R
DIACETONE ALCOHOL	00123-42-2			---		570.0	T M		
DIALKYL PHTHALATES	39393-37-8		00084-66-2	---		12.0	A M		R
DIALLYLAMALEATE	00999-21-3		00108-31-6	---		7.0E-01	A M		R
DIAZINON	00333-41-5			---		2.4E-02	T	I	
DIAZOMETHANE	00334-88-3			---		8.1E-01	T M	HB	
DIBENZ(a,h)ANTHRACEN	00053-70-3		13049829-2	---		2.0E-02	A	U	R
DIBENZOFURANS	00132-64-9		13049829-2	---		2.0E-02	A	U H	R
DIBORANE	19287-45-7			---		2.6E-01	T		

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
DIBROMOCHLOROPROPANE	00096-12-8			---		2.0E-01	E	H	
DIBROMOETHANE, 1,2-	00106-93-4			---		1.7E-03	E	H U HI	
DIBUTYL CARBITOL	00112-73-2		00110-80-5	900.0	A	480.0	A	M H	RR MM
DIBUTYL PHENYL PHOSP	02528-36-1			---		8.3	T		
DIBUTYL PHOSPHATE	00107-66-4			1700.0	Z	20.0	T		
DIBUTYL PHTHALATE	00084-74-2			---		12.0	T	H	
DIBUTYLAMINOETOL,2-N	00102-81-8			---		8.3	T		
DICHLORDIMEHYDANTOIN	00118-52-5			40.0	Z	4.8E-01	T		
DICHLORO-2-BUTENE,14	00764-41-0			---		6.0E-02	T	B	
DICHLOROACETIC ACID	00079-43-6			---		6.3	T	I	
DICHLOROACETYLENE	07572-29-4			39.0	Y	---	X	CI	
DICHLOROANILINE,2,5-	00095-82-9		00062-53-3	---		6.0E-01	A	M U	R
DICHLOROBENZENE, O-	00095-50-1			30000.0	Z	360.0	T	M I	
DICHLOROBENZENE, m-	00541-73-1		00095-50-1	30000.0	A	360.0	A	M	RR
DICHLOROBENZENE,P-	00106-46-7			---		9.0E-02	D	M U HI	
DICHLOROBENZIDINE33'	00091-94-1			---		3.0E-03	D	H H	
DICHLORODIFLUOROMETH	00075-71-8			---		12000.0	T	I	
DICHLOROETHANE,1,1	00075-34-3			---		6.3E-01	D	L U HI	
DICHLOROETHANE,1,2	00107-06-2			---		3.8E-02	E	M U HI	
DICHLOROETHYL ETHER	00111-44-4			5800.0	Z	3.0E-03	E	U HI	
DICHLOROETHYLENE, 12	00540-59-0			---		63.0	D	M	
DICHLOROETHYLENE,cis	00156-59-2			---		63.0	D	M	
DICHLOROETHYLENEtran	00156-60-5			---		63.0	D	M	
DICHLOROFLUOROMETHAN	00075-43-4			---		100.0	T		
DICHLOROMETHANE	00075-09-2			14000.0	D	2.1	E	M U HI	
DICHLORONITROETHANE	00594-72-9			---		29.0	T		
DICHLOROPROPANOL,1,3	00096-23-1		00056-23-5	1900.0	A	6.7E-02	A	U	RR
DICHLOROPROPENE, 1,3	00542-75-6			---		2.5E-01	E	U HI	
DICHLOROPROPIONICACI	00075-99-0			---		12.0	T	I	
DICHLORPHENOXY,2,4	00094-75-7			---		24.0	T	HI	
DICHLORTETRAFLUORETH	00076-14-2			---		17000.0	T	I	
DICHLORVOS	00062-73-7			---		5.0E-01	E	M HI	
DICROTOPHOS	00141-66-2			---		1.2E-01	T	I	
DICYCLOPENTADIENE	00077-73-6			---		64.0	T		
DICYCPENTDIENYL IRON	00102-54-5			---		24.0	T		
DIELDRIN	00060-57-1			---		2.2E-04	E	H U I	
DIETHANOLAMINE	00111-42-2			---		3.0	D	H	
DIETHYL CARBITOL	00112-36-7		00110-80-5	670.0	A	360.0	A	M H	RR MM
DIETHYL KETONE	00096-22-0			110000.0	Z	1700.0	T		
DIETHYL PHTHALATE	00084-66-2			---		12.0	T	M I	
DIETHYL SULFATE	00064-67-5		00077-78-1	---		1.2	A	H H	R
DIETHYLAMINE	00109-89-7			4500.0	Z	36.0	T	I	
DIETHYLAMINOETHANOL	00100-37-8			---		23.0	T		
DIETHYLEN GLYCOL ADP	58984-19-3		00110-80-5	370.0	A	200.0	A	H	RR
DIETHYLENE GLY DIETH	00111-96-6		00109-86-4	160.0	A	35.0	A	M H	RR MM
DIETHYLENE GLY MET	00629-38-9		00110-80-5	670.0	A	360.0	A	M H	RR MM
DIETHYLENE TRIAMINE	00111-40-0			---		10.0	T	M	
DIFLUORDIBROMOMETHAN	00075-61-6			---		2000.0	T		
DIFLUOROETHANE	00075-37-6			---		40000.0	E	L	
DIGLYCID AMINO...	05026-74-4		00122-60-1	---		1.4	A	M	R
DIGLYCIDYL ETHER	02238-07-5			---		1.2E-01	T	I	
DIISOBUTYL KETONE	00108-83-8			---		350.0	T		
DIISODECYL PHTHALATE	26761-40-0		00084-66-2	---		12.0	A	M	R

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 123456	codes 789012345
DIISOOCTYLPHTHALATE	27554-26-3		00084-66-2	---		12.0	A M		R
DIISOPROPYLAMINE	00108-18-9			---		50.0	T		
DIMETHYL AMINE	00124-40-3			2800.0	Z	22.0	T	I	
DIMETHYL DISULFIDE	00624-92-0		07783-06-4	14.0	A	4.8	T M		R
DIMETHYL ETHER	00115-10-6		00060-29-7	150000.0	A	29000.0	A L		RR
DIMETHYL HYDRAZINE	00057-14-7			---		6.0E-02	T M	HI	
DIMETHYL PHTHALATE	00131-11-3			---		12.0	T	H	
DIMETHYL SULFATE	00077-78-1			---		1.2	T H	HI	
DIMETHYL SULFIDE	00075-18-3		07783-06-4	14.0	A	60.0	T M		R
DIMETHYLACETAMIDE	00127-19-5			---		86.0	T M	I	
DIMETHYLAMINO ETH,2-	00108-01-0			---		26.0	D M		
DIMETHYLAMINOAZOBENZ	00060-11-7			---		8.0E-04	D M U H		
DIMETHYLANILINE	00121-69-7			5000.0	Z	60.0	T M	HI	
DIMETHYLBUTANE, 2,2-	00075-83-2			350000.0	Z	4200.0	T M		
DIMETHYLBUTANE, 2,3-	00079-29-8			350000.0	Z	4200.0	T		
DIMETHYLCARBMYLCHLOR	00079-44-7			---		4.8E-02	T M	HB	
DIMETHYLDICHLOROSILA	00075-78-5		07803-62-5	---		16.0	A M		R
DIMETHYLFORMAMIDE	00068-12-2			---		30.0	E M	HI	
DIMETHYLFURAN,2,5-	00625-86-5		00098-00-0	6000.0	A	95.0	A M		RR
DIMETHYLPROPANE	00463-82-1			---		4200.0	T		
DIMTHYLETHOXYSILANE	14857-34-2			380.0	s	5.0	T		
DINITRO-O-CRESOL	00534-52-1			---		4.8E-01	T	H	
DINITRO-O-TOLUAMIDE	00148-01-6			---		2.4	T	I	
DINITROBENZENE	00100-25-4			---		2.4	T		
DINITROBENZENE	00528-29-0			---		2.4	T		
DINITROBENZENE, M-	00099-65-0			---		2.4	T M		
DINITROPHENOL, 2,4-	00051-28-5			---		2.0E-05	* H	H	
DINITROTOLUENE	25321-14-6			---		1.1E-02	D H U	HI	
DINITROTOLUENE,2,4-	00121-14-2			---		1.1E-02	D H U	H	
DIOCTYL ADIPATE	00103-23-1		00084-66-2	---		12.0	A M		R
DIOCTYL PHTHALATE	00117-81-7			---		4.2E-01	D M U	HI	
DIOXANE,1,4	00123-91-1			3000.0	D	1.3E-01	D M U	HI	
DIOXATHION	00078-34-2			---		2.4E-01	T	I	
DIOXOLANE	00646-06-0			---		1500.0	T L		
DIPHENYL HYDRAZINE	00122-66-7		00057-14-7	---		4.5E-03	E H U	H	
DIPHENYL MERCURY	00587-85-9	Hg	Hg*ALKYL**	---		4.2E-02	T H	H	R Q
DIPHENYLAMINE	00122-39-4			---		24.0	T	I	
DIPROPGLYCOLMETHETHR	34590-94-8			91000.0	Z	1400.0	T		
DIPROPYL KETONE	00123-19-3			---		550.0	T		
DIQUAT	02764-72-9		DIQUAT*RES	---		2.4E-01	A	KI	R
DIQUAT DIBROMIDE	00085-00-7		DIQUAT*RES	---		2.4E-01	A	K	R
DIQUATDIBROMIDEMONOH	06385-62-2		DIQUAT*RES	---		2.4E-01	A	K	R
DISTILL.HYDR0 LIGHT	64742-47-8			---		480.0	T	I	
DISULFIRAM	00097-77-8			---		4.8	T	I	
DISULFOTON	00298-04-4			---		1.2E-01	T	I	
DITERT BUTLY-P-CRES	00128-37-0			---		48.0	T L	I	
DITERTBUTYPHENOL,2,6	00128-39-2		00108-95-2	5800.0	A	45.0	A		RR
DIURON	00330-54-1			---		24.0	T	I	
DIVINYL BENZENE, MIX	01321-74-0			---		130.0	T		
DIVINYL BENZENE,1,3	00108-57-6		01321-74-0	---		130.0	A		R
DMAEE	03033-62-3			98.0	Z	7.9E-01	T		
DODECYL MERCAPTAN	00112-55-0			---		1.9	T		
EMERY	01302-74-5			---		24.0	T		

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 123456789012345
ENDOSULFAN	00115-29-7			---		2.4E-01	T	I
ENDRIN	00072-20-8			---		2.4E-01	T	I
ENFLURANE	13838-16-9			---		1300.0	T	I
EPICHLOROHYDRIN	00106-89-8			1300.0	D	8.3E-01	E M U	HI
EPN	02104-64-5			---		2.4E-01	T	I
EPOXYBUTANE, 1,2	00106-88-7			3000.0	D	20.0	E M	H
ET HEXYLMETHACRYLATE	00688-84-6		00096-33-3	---		17.0	A M	R
ETBE	00637-92-3			---		45.0	S	
ETHANE	00074-84-0			---		2900.0	T	G
ETHANOL	00064-17-5			---		45000.0	T L	I
ETHANOL,2-(PHENYLMET	00622-08-2		00110-80-5	620.0	A	340.0	A	H RR MM
ETHANOL,2-PHENOXY-	00122-99-6		00110-80-5	570.0	A	310.0	A M	H RR MM
ETHANOLAMINE	00141-43-5			1500.0	Z	18.0	T M	
ETHION	00563-12-2			---		1.2E-01	T	I
ETHOXYETHYL ACETATE2	00111-15-9			140.0	D	64.0	T M	H
ETHOXYLATED ALCOHOLS	09002-92-0		00110-80-5	1500.0	A	800.0	A M	RR MM
ETHOXYLATED ALCOHOLS	74432-13-6		00110-80-5	1500.0	A	800.0	A M	RR MM
ETHOXYPROPANOL,3-	00111-35-3		00107-98-2	55000.0	A	2000.0	A M	RR
ETHYL 4-OXAHEXANOATE	00763-69-9		00111-15-9	140.0	A	64.0	A M	RR
ETHYL ACETATE	00141-78-6			---		3400.0	T M	
ETHYL ACRYLATE	00140-88-5			6100.0	Z	48.0	T	HI
ETHYL AMINE	00075-04-7			2800.0	Z	22.0	T	
ETHYL AMYL KETONE	00106-68-3		00541-85-5	---		120.0	A	R
ETHYL AMYL KETONE	00541-85-5			---		120.0	T	
ETHYL BENZENE	00100-41-4			54000.0	Z	1000.0	E M	HI
ETHYL BROMIDE	00074-96-4			---		52.0	T	I
ETHYL BUTYL KETONE	00106-35-4			35000.0	Z	560.0	T	
ETHYL CHLORIDE	00075-00-3			---		10000.0	E L	HI
ETHYL CYANOACRYLATE	07085-85-0			---		2.4	T	
ETHYL ETHER	00060-29-7			150000.0	Z	29000.0	T L	
ETHYL FORMATE	00109-94-4			---		720.0	T	
ETHYL HEXANOIC	00149-57-5			---		12.0	T	I
ETHYL MERCAPTAN	00075-08-1			---		3.1	T M	
ETHYL MERCURIC PHOSP	02235-25-8	Hg	Hg*ALKYL**	---		3.9E-02	T H	H R Q
ETHYL SILICATE	00078-10-4			---		200.0	T	
ETHYLENE	00074-85-1			---		550.0	T	GI
ETHYLENE CHLOROHYDRN	00107-07-3			330.0	Y	---	X	CI
ETHYLENE DIAMINE	00107-15-3			---		60.0	T M	I
ETHYLENE GLY DIBUT	00112-48-1		00110-80-5	720.0	A	390.0	A M	H RR MM
ETHYLENE GLY DIMET	00629-14-1		00109-86-4	140.0	A	31.0	A M	H RR MM
ETHYLENE GLYCOL	00107-21-1			10000.0	Y	400.0	D	HCI
ETHYLENE GYLCOL MONO	00111-45-5		00110-80-5	420.0	A	230.0	A M	H RR MM
ETHYLENE OXIDE	00075-21-8			18.0	D	1.9E-02	D H U	HB
ETHYLENE THIOUREA	00096-45-7			---		7.7E-02	D H U	H
ETHYLENEGLY MONOPR E	02807-30-9		00110-80-5	430.0	A	230.0	A M	H RR MM
ETHYLENEGLYCOLDINITR	00628-96-6			---		7.4E-01	T	
ETHYLENEIMINE	00151-56-4			---		2.1	T H	HI
ETHYLHEXYL ACRYLATE	00103-11-7		00096-33-3	---		17.0	A M	R
ETHYLIDENENORBORNENE	16219-75-3			2500.0	Y	---	X	C
ETHYLMORPHOLINE,N-	00100-74-3			---		57.0	T	
FENAMIPHOS	22224-92-6			---		1.2E-01	T	I
FENSULFOTHION	00115-90-2			---		2.4E-02	T	I
FENTHION	00055-38-9			---		1.2E-01	T	I

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 123456789012345
FERBAM	14484-64-1			---		24.0	T	I
FERRIC SULFATE	10028-22-5		07664-93-9	120.0	A	1.0	A L	RR
FERROVANADIUM DUST	12604-58-9			300.0	Z	2.4	T	
FLUORIDE NY STANDARD	*FLUORIDE*	F		5.3	s	6.7E-02	s	I
FLUORINE	07782-41-4			5.3	s	6.7E-02	s M	
FONOFOS	00944-22-9			---		2.4E-01	T	I
FORMALDEHYDE	00050-00-0			30.0	H	6.0E-02	H H U	HBC
FORMAMIDE	00075-12-7			---		43.0	T M	
FORMIC ACID	00064-18-6			1900.0	Z	22.0	T M	
FREON 13	00075-72-9		00071-55-6	68000.0	A	1000.0	A L	RR
FURFURAL	00098-01-1			---		19.0	T M	I
FURFURYL ALCOHOL	00098-00-0			6000.0	Z	95.0	T M	
GALLIUM ARSENIDE	01303-00-0	As	07440-38-2	---		4.5E-04	E H U	H R Q
GASOLINE	08006-61-9		86290-81-5	150000.0	A	2100.0	A	RR
GASOLINE	86290-81-5			150000.0	Z	2100.0	T	I
GERMANIUMTETRAHYDRID	07782-65-2			---		1.5	T	
GLUTARALDEHYDE	00111-30-8			20.0	Y	8.0E-02	D	CI
GLYCERIN	00056-81-5			---		240.0	T L	
GLYCIDOL	00556-52-5			---		15.0	T	I
GLYCOL ETHER	00111-46-6		00110-80-5	440.0	A	240.0	A	H RR MM
GLYCOL MONOETHYLETHR	00110-80-5			370.0	D	200.0	E M	H
GLYCOLONITRILE	00107-16-4		00075-05-8	---		60.0	A	R
GLYOXAL	00107-22-2			---		2.4E-01	T	I
GOLD CYANIDE	00506-65-0	CN	00057-12-5	380.0	s	45.0	S	H RRQQ
GOLD CYANIDE	37187-64-7	CN	00057-12-5	380.0	s	45.0	S H	H RRQQ
GOLD POTASSIUM CYAN	00554-07-4	C2N2	00057-12-5	380.0	s	45.0	S H	H RRQQ
GRAPHITE	07782-42-5			---		4.8	T	
GYPSUM	13397-24-5			---		24.0	T	I
HAFNIUM HF	07440-58-6	Hf		---		1.2	T	
HALOTHANE	00151-67-7			---		960.0	T	I
HDI POLYMER	28182-81-2			75.0	D	6.0E-01	D M	
HDI-BIURET POLYMER	04035-89-6			75.0	D	6.0E-01	D M	
HDI-CYANURATE POLYME	03779-63-3			75.0	D	6.0E-01	D M	
HEPTACHLOR	00076-44-8			---		7.7E-04	E H U	HI
HEPTACHLOR EPOXIDE	01024-57-3			---		3.8E-04	E H U	I
HEPTANE, N-	00142-82-5			210000.0	Z	3900.0	T M	
HEPTYL ACETATE	00112-06-1		00108-84-9	---		7000.0	A L	R
HEXA-CDD	19408-74-3			---		7.7E-07	E U	
HEXA-CDD	57653-85-7			---		7.7E-07	E U	
HEXACHLOROBENZENE	00118-74-1			---		2.2E-03	E H U	HI
HEXACHLOROBUTADIENE	00087-68-3			---		4.5E-02	E M U	HI
HEXACHLOROETHANE	00067-72-1			---		23.0	T H	HI
HEXACHLORONAPTHALENE	01335-87-1			---		4.8E-01	T M	
HEXACHLOROPHENE	00070-30-4			---		1.0	D H	
HEXAFLUOROACETONE	00684-16-2			---		1.6	T	
HEXAFLUOROPROPYLENE	00116-15-4			---		1.4	T	
HEXAHYDROPHTHA.ANHYD	00085-42-7			5.0E-01	Y	---	X	CI
HEXAMETHYLDISILOXANE	00107-46-0		07803-62-5	---		16.0	A M	R
HEXAMETHYLENE DIISOC	00822-06-0		26471-62-5	14.0	A	1.0E-02	E H	H R
HEXANE	00110-54-3			---		700.0	E M	H
HEXANEDIAMINE, 1,6-	00124-09-4			---		5.5	T M	
HEXANOIC ACID,COBALT	00136-52-7	Co	07440-48-4	---		5.9E-03	D	H R Q
HEXCHLORCYCPENTDIENE	00077-47-4			---		2.0E-01	E M	HI

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	W	codes T	codes 123456789012345
HEXENE,-1	00592-41-6			---		410.0	T		
HEXYL ACETATE, SEC-	00108-84-9			---		7000.0	T	L	
HEXYL CARBITOL	00112-59-4		00110-80-5	780.0	A	420.0	A	M H	RR MM
HEXYLENE GLYCOL	00107-41-5			12000.0	Y	---	X	L C	
HYDRAZINE	00302-01-2			---		2.0E-04	E	H U HI	
HYDROGEN BROMIDE	10035-10-6			680.0	Y	---	X	L C	
HYDROGEN CHLORIDE	07647-01-0			2100.0	D	20.0	E	L HCI	
HYDROGEN CYANIDE	00074-90-8			520.0	Y	3.0	E	H HC	
HYDROGEN FLUORIDE	07664-39-3	F	*FLUORIDE*	5.6	s	7.1E-02	s	M HC	RRQQ
HYDROGEN PEROXIDE	07722-84-1			---		3.3	T	I	
HYDROGEN SELENIDE	07783-07-5			5.0	D	8.0E-02	D	H	
HYDROGEN SULFIDE	07783-06-4			14.0	S	2.0	E	M	
HYDROGENATED TERPHEN	61788-32-7			---		12.0	T		
HYDROQUINONE	00123-31-9			---		4.8	T	M HI	
HYDROXYPROPYLACRYLAT	00999-61-1			---		6.7	T		
INDENE	00095-13-6			---		110.0	T		
INDIUM IN	07440-74-6	In		---		2.4E-01	T	H	
INDIUM, TRIETHYL	00923-34-2	In	07440-74-6	---		4.2E-01	T	H	R Q
IODINE	07553-56-2			100.0	Y	---	X	L C	
IODOFORM	00075-47-8			---		24.0	T		
IRON OXIDE	01309-37-1			---		12.0	T	I	
IRON PENTACARBONYL	13463-40-6			160.0	Z	1.9	T		
ISO-OCTANE	00540-84-1			---		3300.0	T	M H	
ISO-PENTANE	00078-78-4			---		42000.0	T	L	
ISOAMYL ACETATE	00123-92-2			53000.0	Z	6300.0	T	L	
ISOAMYL ALCOHOL	00123-51-3			45000.0	Z	8600.0	T	L	
ISOBUTANE	00075-28-5		00106-97-8	---		57000.0	A	L	R
ISOBUTANOLAMINE	00124-68-5		00141-43-5	1500.0	A	18.0	A	M	RR
ISOBUTYL ACETATE	00110-19-0			---		17000.0	T	L	
ISOBUTYL ALCOHOL	00078-83-1			---		360.0	T		
ISOBUTYL NITRITE	00542-56-3			380.0	s	---	X	CI	
ISOBUTYRALDEHYDE	00078-84-2		04170-30-3	86.0	A	---	X	M	R
ISOOCTYL ALCOHOL	26952-21-6			---		630.0	T		
ISOPHORONE	00078-59-1			2800.0	Y	---	X	M HCI	
ISOPHORONE DIISOCYAN	04098-71-9		26471-62-5	14.0	A	1.1E-01	T		R
ISOPROPOXYETHANOL,2-	00109-59-1			---		250.0	T		
ISOPROPYL ACETATE	00108-21-4			84000.0	Z	1000.0	T		
ISOPROPYL ALCOHOL	00067-63-0			98000.0	Z	7000.0	D	M	
ISOPROPYL ETHER	00108-20-3			130000.0	Z	2500.0	T		
ISOPROPYLAMINE	00075-31-0			2400.0	Z	29.0	T	M	
ISOPROPYLANILINE, N-	00768-52-5			---		26.0	T		
ISOPROPYLGLYCIDYLETH	04016-14-2			36000.0	Z	570.0	T		
KAOLIN (CLAY)	01332-58-7			---		4.8	T	I	
KEROSENE	08008-20-6			---		480.0	T	I	
KEROSENE	64742-81-0			---		480.0	T	I	
KETENE	00463-51-4			260.0	Z	2.0	T	M	
LEAD	07439-92-1	Pb		---	X	3.8E-01	s	H HI	
LEAD ACETATE	01335-32-6	Pb3	07439-92-1	---		4.9E-01	s	H H	R Q
LEAD ACETATE	51404-69-4	Pb3	07439-92-1	---		4.9E-01	s	H H	R Q
LEAD ALLOY,SN ,DROSS	69011-60-5	Pb	07439-92-1	---		6.0E-01	s	H H	R Q
LEAD ARSENATE	03687-31-8	As2	07440-38-2	---		1.4E-03	E	H U H	R Q
LEAD ARSENATE	07645-25-2	As	07440-38-2	---		1.1E-03	E	H U H	R Q
LEAD ARSENATE	07784-40-9	As	07440-38-2	---		1.1E-03	E	H U H	R Q

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 123456789012345
LEAD CARBONATE	00598-63-0	Pb	07439-92-1	---		4.9E-01	s H	H R Q
LEAD CARBONATE	01319-46-6	Pb3	07439-92-1	---		4.7E-01	s H	H R Q
LEAD CARBONATE	25510-11-6	Pb	07439-92-1	---		4.9E-01	s H	H R Q
LEAD CHLORIDE	07758-95-4	Pb	07439-92-1	---		5.1E-01	s H	H R Q
LEAD CHROMATE	07758-97-6	Cr	18540-29-9	---		1.2E-04	H H U	HB R Q
LEAD CHROMATE OXIDE	18454-12-1	Cr	18540-29-9	---		2.1E-04	H H U	H R Q
LEAD FLUOROBORATE	13814-96-5	Pb	07439-92-1	---		5.4E-01	s H	H R Q
LEAD MOLYBDATE	10190-55-3	Pb	07439-92-1	---		6.7E-01	s H	H R Q
LEAD NAPHTHENATE	61790-14-5	Pb	07439-92-1	---		6.2E-01	s H	H R Q
LEAD OXIDE	01309-60-0	Pb	07439-92-1	---		4.4E-01	s H	H R Q
LEAD OXIDE	01317-36-8	Pb	07439-92-1	---		4.1E-01	s H	H R Q
LEAD OXIDE	01335-25-7	Pb	07439-92-1	---		4.1E-01	s H	H R Q
LEAD OXIDE SULFATE	12202-17-4	Pb	07439-92-1	---		6.4E-01	s H	H R Q
LEAD PHOSPHATE SALT	07446-27-7	Pb2	07439-92-1	---		5.3E-01	s H	HI R Q
LEAD SILICATE	11120-22-2	Pb3	07439-92-1	---		4.8E-01	s H	H R Q
LEAD STEARATE SALT	07428-48-0	Pb	07439-92-1	---		9.0E-01	s H	H R Q
LEAD SULFATE	07446-14-2	Pb	07439-92-1	---		5.6E-01	s H	H R Q
LEAD SULFOCHROMATE	01344-37-2	Cr	18540-29-9	---		2.0E-05	A H U	H R
LEAD TETROXIDE	01314-41-6	Pb3	07439-92-1	---		4.2E-01	s H	H R Q
LEAD TITANATE ZIRCON	12626-81-2	Pb	07439-92-1	---		7.2E-01	s H	H R Q
LEAD TITANIUM OXIDE	12060-00-3	Pb	07439-92-1	---		5.6E-01	s H	H R Q
LEAD ZIRCONIUM OXIDE	12060-01-4	Pb	07439-92-1	---		6.4E-01	s H	H R Q
LEAD,BENZENEDICARBOX	69011-06-9	Pb3	07439-92-1	---		5.0E-01	s H	H R Q
LEADSTEARATE	56189-09-4	Pb2	07439-92-1	---		9.3E-01	s H	H R Q
LINDANE, ALPHA-	00319-84-6			---		5.6E-04	E M U	H
LINDANE, BETA-	00319-85-7			---		1.9E-03	E M U	H
LINDANE, GAMMA-	00058-89-9			---		1.2	T M	HI
LINDANE-TECHNICAL	00608-73-1			---		2.0E-03	E U	
LIQUIFIED GAS	68476-85-7			---		2400.0	T	
LITHIUM HYDRIDE LIH	07580-67-8			---		6.0E-02	T	
MAGNESIUM OXIDE	01309-48-4			---		24.0	T	I
MALATHION	00121-75-5			---		2.4	T M	I
MALEIC ANHYDRIDE	00108-31-6			---		7.0E-01	D M	HI
MALONONITRILE	00109-77-3		00075-05-8	---		60.0	A	R
MANGANESE	07439-96-5	Mn		---		5.0E-02	E M	H
MANGANESE NAPTHENAT	01336-93-2		07439-96-5	---		5.0E-02	A	H R
MANGANESE NITRATE	10377-66-9	Mn	07439-96-5	---		1.1E-01	E	H R Q
MANGANESE OXIDE	01313-13-9	Mn	07439-96-5	---		3.8E-01	E	H R Q
MANGANESE OXIDE	01317-34-6	Mn2	07439-96-5	---		7.2E-02	E	H R Q
MANGANESE OXIDE	01344-43-0	Mn	07439-96-5	---		6.5E-02	E	H R Q
MANGANESE PHOSPHATE	10124-54-6	Mn	07439-96-5	---		1.4E-01	E	H R Q
MANGANESE ROSINATE	09008-34-8		07439-96-5	---		5.0E-02	A	H R
MANGANESE SULFATE	07785-87-7	Mn	07439-96-5	---		1.4E-01	E	H R Q
MANGANESE TETROXIDE	01317-35-7	Mn3	07439-96-5	---		6.9E-02	E	H R Q
MANGANESECYCLOPENTAD	12079-65-1	Mn		---		8.8E-01	T	H Q
MAPP	59355-75-8			210000.0	Z	3900.0	T	
MEK PEROXIDE	01338-23-4			150.0	Y	---	X	C
MELAMINEFORMALDEHYDE	68891-01-0		00050-00-0	30.0	A	6.0E-02	A M U	RR
MERCURIC OXIDE	21908-53-2	Hg	07439-97-6	1.9	D	3.2E-01	E H	H RRQQ
MERCURIC SULFATE	07783-35-9	Hg	07439-97-6	2.7	D	4.4E-01	E H	H RRQQ
MERCUROUS NITRATE	10415-75-5	Hg	07439-97-6	2.4	D	3.9E-01	E H	H RRQQ
MERCUROUS OXIDE	15829-53-5	Hg2	07439-97-6	1.9	D	3.1E-01	E H	H RRQQ
MERCURY	07439-97-6	Hg		1.8	D	3.0E-01	E H	HKI

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T 123456789012345
MERCURY "NUCLEATE"	12002-19-6			1.8	D	---	X H
MERCURY CHLORIDE	07487-94-7	Hg	07439-97-6	2.4	D	4.1E-01	E H H RRQQ
MERCURY IODINE	07774-29-0	Hg	07439-97-6	4.1	D	6.8E-01	E H H RRQQ
MERCURY NITRATE	10045-94-0	Hg	07439-97-6	2.9	D	4.9E-01	E H H RRQQ
MERCURY SULFIDE	01344-48-5	Hg	07439-97-6	2.1	D	3.5E-01	E H H RRQQ
MERCURY,NEODEC.,PHEN	26545-49-3	Hg	Hg*ALKYL**	---		5.3E-02	T H H R Q
MESITYENE	00108-67-8		25551-13-7	---		290.0	A M R
MESITYL OXIDE	00141-79-7			10000.0	Z	140.0	T
METH ACRY AC METH ES	00080-62-6			41000.0	Z	700.0	E M HI
METH BIS-O-CHLORANIL	00101-14-4			---		2.3E-03	D U HB
METHACRYLIC ACID	00079-41-4			---		170.0	T
METHANE	00074-82-8			---		1600.0	T G
METHANESULFONIC ACID	00075-75-2		07664-93-9	120.0	A	1.0	A L RR
METHANOL	00067-56-1			33000.0	Z	4000.0	D M H
METHOMYL	16752-77-5			---		6.0	T I
METHOXYCHLOR	00072-43-5			---		24.0	T HI
METHOXYETHYL ACET,2-	00110-49-6			---		1.2	T
METHOXYPHENOL, 4-	00150-76-5			---		12.0	T
METHOXYPROPYLACETATE	00108-65-6		00107-98-2	55000.0	A	2000.0	A L RR
METHYL ACETATE	00079-20-9			76000.0	Z	1400.0	T
METHYL ACETYLENE	00074-99-7			---		3900.0	T M
METHYL ACRYLATE	00096-33-3			---		17.0	T M I
METHYL AMYL KETONE	00110-43-0			---		550.0	T
METHYL ANILINE	00100-61-8			---		5.2	T M
METHYL BROMIDE	00074-83-9			3900.0	D	5.0	E M HI
METHYL BUTYL KETONE	00591-78-6			4000.0	Z	48.0	T
METHYL CARBITOL	00111-77-3		00109-86-4	150.0	A	32.0	A M H RR MM
METHYL CELLOSOLVE	00109-86-4			93.0	D	20.0	E M H
METHYL CHLOROFORM	00071-55-6			68000.0	D	1000.0	D L HI
METHYL CHLOROMETHETH	00107-30-2		00542-88-1	---		1.6E-05	A M U HBI R
METHYL CYANOACRYLATE	00137-05-3			---		2.4	T H
METHYL DEMETON	08022-00-2			---		1.2E-01	T
METHYL ETHYL KETONE	00078-93-3			13000.0	D	5000.0	E M H
METHYL FORMATE	00107-31-3			37000.0	Z	590.0	T M
METHYL IODIDE	00074-88-4			---		29.0	T H
METHYL ISOBUTYL KETO	00108-10-1			31000.0	Z	3000.0	E M H
METHYL ISOCYANATE	00624-83-9			---		1.1E-01	T H H
METHYL MERCAPTAN	00074-93-1		07783-06-4	14.0	A	2.3	T M R
METHYL PARATHION	00298-00-0			---		4.8E-01	T I
METHYL PENTANE, 2-	00107-83-5			350000.0	Z	4200.0	T M
METHYL PROPYL KETONE	00107-87-9			53000.0	Z	---	X
METHYL PYRROLIDONE	00872-50-4			---		100.0	D M
METHYL SILICATE	00681-84-5			---		14.0	T M
METHYL STYRENE	00098-83-9			48000.0	Z	580.0	T
METHYL TETRAMER	00556-67-2			---		360.0	D M
METHYL VINYL KETONE	00078-94-4			60.0	Y	---	X C
METHYLACRYLONITRILE	00126-98-7			---		6.4	T
METHYLAL	00109-87-5			---		7400.0	T
METHYLAMINE	00074-89-5			1900.0	Z	15.0	T M
METHYLBUTYLACETATE,2	00624-41-9			53000.0	Z	630.0	T
METHYLCYCLOHEXANE	00108-87-2			---		3800.0	T M
METHYLCYCLOHEXANOL	25639-42-3			---		560.0	T
METHYLCYCLOHEXANON,O	00583-60-8			34000.0	Z	550.0	T

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
METHYLCYCLOPENTADIEN	12108-13-3	Mn		---		1.5	T	H	Q
METHYLCYCLOPENTADIEN	26519-91-5		00542-92-7	---		480.0	A	M	R
METHYLCYCLOPENTANE	00096-37-7		00110-54-3	---		700.0	A	L	R
METHYLENE BISPH ISCY	00101-68-8			14.0	D	6.0E-01	E	H H	
METHYLENEBIS4CYCLOHE	05124-30-1			---		1.3E-01	T	H	
METHYLENEDIANILINE44	00101-77-9			---		2.0E-03	D	M U HI	
METHYLFURAN,2-	00534-22-5		00098-00-0	6000.0	A	95.0	A	M	RR
METHYLISOAMYLKETONE	00110-12-3			---		560.0	T		
METHYLISOBUTYLCARBIN	00108-11-2			17000.0	Z	250.0	T		
METHYLISOPROPYLKETON	00563-80-4			---		1700.0	T		
METHYLMERCURY	22967-92-6	Hg	Hg*ALKYL**	3.0	Z	2.4E-02	T	H H	
METHYLNAPHTHALENE,1-	00090-12-0			---		7.1	T	I	
METHYLNAPHTHALENE,2-	00091-57-6			---		7.1	T	I	
METHYLPENTANE,3-	00096-14-0			350000.0	Z	4200.0	T		
METHYLTERTBUTYLETHER	01634-04-4			---		3000.0	E	M HI	
METHYLTRIMETHOXYSILA	01185-55-3		07803-62-5	---		160.0	A	L	R
METHYLVINYLTETRAMER	02554-06-5		07803-62-5	---		16.0	A	M	R
METRIBUZIN	21087-64-9			---		12.0	T	I	
MEVINPHOS	07786-34-7			---		2.4E-02	T	I	
MICA	12001-26-2			---		7.1	T		
MIREX	02385-85-5			---		2.0E-05	*	H	
MOLYBDENUM	07439-98-7	Mo	Mo*SOLUBLE	---		1.2	A	K	R
MONOCHLOROBENZENE	00108-90-7			---		110.0	T	M HI	
MONOCROTOPHOS	06923-22-4			---		1.2E-01	T	I	
MONOMETHYL HYDRAZINE	00060-34-4			---		4.5E-02	T	M HI	
MONOSODIUM PHOSPHATE	07558-80-7		07664-38-2	300.0	A	10.0	A	L	RR
MORPHOLINE	00110-91-8			---		170.0	T	I	
N,N-DIETHYL ANILINE	00091-66-7		00100-61-8	---		5.2	A	M	R
N-ETHYLANILINE	00103-69-5		00100-61-8	---		5.2	A	M	R
N-PROPYLBENZENE	00103-65-1		00100-41-4	54000.0	A	1000.0	A	M	RR
NALED (DIBROM)	00300-76-5			---		2.4E-01	T	I	
NAPHTHA (COAL TAR)	08030-30-6			---		3800.0	T		
NAPHTHA HEAVY	64742-94-5		08030-30-6	---		3800.0	A	M	R
NAPHTHA LIGHT	64742-95-6		08030-30-6	---		3800.0	A	M	R
NAPHTHALELEDIISOCYAN	03173-72-6		26471-62-5	14.0	A	7.0E-02	A		RR
NAPHTHALENE	00091-20-3			7900.0	Z	3.0	E	M HI	
NAPHTHYLAMINE, 2-	00091-59-8			---		2.0E-05	*	H A	
NATURAL GAS	08006-14-2			---		1600.0	T		
NICKEL	07440-02-0	Ni		6.0	D	4.2E-03	E	H U HKI	
NICKEL (+2) SULFATE	07786-81-4	Ni	Ni*INORG**	16.0	D	1.1E-02	E	H U HI	R QQ
NICKEL ACETATE	00373-02-4	Ni	07440-02-0	18.0	D	1.3E-02	E	H U H	RRQQ
NICKEL AZO YELLOW	51931-46-5	Ni	07440-02-0	67.0	D	4.7E-02	E	H U H	RRQQ
NICKEL BORIDE	12007-02-2	Ni3	Ni*INORG**	---		4.4E-03	E	H U H	R Q
NICKEL BROMIDE	13462-88-9	Ni	Ni*INORG**	---		1.6E-02	E	H U H	R Q
NICKEL CARBIDE	12710-36-0	Ni	Ni*INORG**	---		5.9E-03	E	H U H	R Q
NICKEL CARBONYL	13463-39-3	Ni	Ni*INORG**	---		1.2E-02	E	H U H	R Q
NICKEL CHLORIDE	07718-54-9	Ni	Ni*INORG**	13.0	D	9.2E-03	E	H U HI	R QQ
NICKEL CYANIDE	00557-19-7	C2N2	00057-12-5	380.0	s	7.9E-03	E	H U H	RRQQ
NICKEL DIACETATE TET	06018-89-9	Ni	07440-02-0	26.0	D	1.8E-02	E	H U H	RRQQ
NICKEL HYDROXIDE	12054-48-7	Ni	Ni*INORG**	---		6.6E-03	E	H U H	R Q
NICKEL NITRATE	13138-45-9	Ni	Ni*INORG**	---		1.3E-02	E	H U H	R Q
NICKEL OXIDE	01313-99-1	Ni	Ni*INORG**	7.6	D	5.3E-03	E	H U HAI	R QQ
NICKEL OXIDE	01314-06-3	Ni2	Ni*INORG**	---		5.9E-03	E	H U HI	R Q

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
NICKEL PHOSPHATE	10381-36-9	Ni3	Ni*INORG**	---		8.8E-03	E	H U H	R Q
NICKEL SUBSULFIDE	12035-72-2	Ni3	Ni*INORG**	8.2	D	2.8E-03	E	H U HAI	QQ
NICKEL SULFAMIDE	13770-89-3	Ni	Ni*INORG**	---		1.1E-02	E	H U H	R Q
NICKEL SULFATE	10101-97-0	Ni	Ni*INORG**	---		1.9E-02	E	H U H	R Q
NICKEL TITANATE	12653-76-8	Ni	Ni*INORG**	---		1.1E-02	E	H U H	R Q
NICKEL,BIS(1-(4-DIME	38465-55-3	Ni	07440-02-0	64.0	D	4.5E-02	E	H U H	RRQQ
NITRAPYRIN	01929-82-4			2000.0	Z	24.0	T	I	
NITRIC ACID	07697-37-2			86.0	D	12.0	T	M	
NITRIC ACID,LEADSALT	10099-74-8	Pb	07439-92-1	---		5.0E-01	s	H H	R Q
NITRO-O-TOLUIDINE,5	00099-55-8			---		2.4	T	I	
NITROANILINE, P-	00100-01-6			---		7.1	T	M I	
NITROBENZENE	00098-95-3			---		9.0	D	M HI	
NITRODIPHENYL, 4-	00092-93-3			---		2.0E-05	*	H HB	
NITROETHANE	00079-24-3			---		730.0	T		
NITROGEN DIOXIDE	10102-44-0			---	X	100.0	S	I	
NITROGEN MUSTARD	00051-75-2			---		2.0E-05	*	H	
NITROGEN OXIDE	10102-43-9			---		74.0	T		
NITROGEN TRIFLUORIDE	07783-54-2	F3	*FLUORIDE*	6.6	s	8.3E-02	s		RRQQ
NITROGLYCERINE	00055-63-0			---		1.1	T	M	
NITROMETHANE	00075-52-5			---		120.0	T	I	
NITROPROPANE, 1-	00108-03-2			---		220.0	T	M I	
NITROPROPANE, 2-	00079-46-9			---		20.0	E	H HI	
NITROSO-N-BUTYLAMINE	00924-16-3			---		6.3E-04	E	U	
NITROSODIETHYLAMINE	00055-18-5			---		2.3E-05	E	U	
NITROSODIMETHYLAMINE	00062-75-9			---		7.1E-05	E	H U HI	
NITROSOMORPHOLINE,N	00059-89-2			---		5.0E-04	D	M U H	
NITROSOPYRROLIDINE	00930-55-2			---		1.6E-03	E	U	
NITROTOLUENE, M-	00099-08-1			---		26.0	T		
NITROTOLUENE, O-	00088-72-2			---		26.0	T		
NITROTOLUENE, P-	00099-99-0			---		26.0	T	M	
NITROUS OXIDE	10024-97-2			---		210.0	T	I	
NONANE	00111-84-2			---		25000.0	T	L	
NONPINNE	00127-91-3			---		270.0	T		
OCTACHLORONAPHTHALEN	02234-13-1			30.0	Z	2.4E-01	T	M	
OCTANE	00111-65-9			---		3300.0	T		
OIL MIST (MINERAL)	08012-95-1			380.0	s	12.0	T	M	
OSMIUM TETROXIDE	20816-12-0	Os		6.3E-01	Z	5.1E-03	T		QQ
OSYBIS(BENZ.SULF.HYD	00080-51-3			---		2.4E-01	T	I	
OXALIC ACID	00144-62-7			200.0	Z	2.4	T	M	
OXOPHENYL ARSINE	00637-03-6	As	07440-38-2	---		5.2E-04	E	H U H	R Q
OXYGEN DIFLUORIDE	07783-41-7	F2	*FLUORIDE*	7.5	s	9.5E-02	s	C	RRQQ
PAH(s)	13049829-2			---		2.0E-02	H	H U HI	
PARAFFIN WAX	08002-74-2			---		4.8	T		
PARAQUAT	04685-14-7		PARAQUAT*R	---		2.4E-01	A	M K	R
PARAQUAT DICHLORIDE	01910-42-5		PARAQUAT*R	---		2.4E-01	A	M	R
PARAQUAT DIMETHYLSUL	02074-50-2		PARAQUAT*R	---		2.4E-01	A		R
PARATHION	00056-38-2			---		1.2E-01	T	H HI	
PARTICULATE	NY075-00-0			380.0	s	45.0	S	K	
PARTICULATE (PM-10)	NY075-00-5			380.0	s	---	X	K	
PARTICULATE (PM-2.5)	NY075-02-5			160.0	s	15.0	S	K	
PCB	01336-36-3		11096-82-5	---		2.0E-03	A	H U H	R
PCB AROCLOR 1016	12674-11-2			---		1.0E-02	E	H U H	
PCB AROCLOR 1221	11104-28-2			---		1.0E-02	E	H U H	

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 111111 123456789012345
PCB AROCLOR 1232	11141-16-5			---		1.0E-02	E H U H	
PCB AROCLOR 1242	53469-21-9			---		1.0E-02	E H U H	
PCB AROCLOR 1248	12672-29-6			---		2.0E-03	E H U H	
PCB AROCLOR 1254	11097-69-1			---		2.0E-03	E H U HI	
PCB AROCLOR 1260	11096-82-5			---		2.0E-03	E H U H	
PCB AROCLOR 1262	37324-23-5			---		2.0E-03	E H U H	
PCB AROCLOR 1268	11100-14-4			---		2.0E-03	E H U H	
PENTABORANE	19624-22-7			3.9	Z	3.1E-02	T	
PENTACHLORONAPHTHALE	01321-64-8			---		1.2	T	
PENTACHLORONITROBENZ	00082-68-8			---		1.2	T HI	
PENTACHLOROPHENOL	00087-86-5			---		2.0E-01	D M U HI	
PENTAERYTHRITOL	00115-77-5			---		24.0	T	
PENTAFLUORO-ARSORANE	07784-36-3	As	07440-38-2	---		5.3E-04	E H U H	R Q
PENTANE	00109-66-0			---		4200.0	T	
PENTANOL	00071-41-0		00071-36-3	---		1500.0	A L	R
PENTEN-2-OL,4-	00625-31-0		00107-18-6	---		2.8	A H	R
PENTENE,1-	00109-67-1		00110-54-3	---		700.0	A M	R
PERACETIC ACID	00079-21-0		07722-84-1	---		3.3	A	R
PERCHLORMETHMERCAPTN	00594-42-3			---		1.8	T	
PERCHLORYL FLUORIDE	07616-94-6	F	*FLUORIDE*	29.0	s	3.6E-01	s	RRQQ
PERFLUOROBUTYL ETHY.	19430-93-4			---		2400.0	T	
PERFLUOROISOBUTYLENE	00382-21-8			8.2	Y	---	X C	
PERMETHRIN	52645-53-1		08003-34-7	---		12.0	A M	R
PETROLEUM SULFONATE	68425-94-5		00110-54-3	---		700.0	A L	R
PHENANTHRENE	00085-01-8		13049829-2	---		2.0E-02	A H U H	R
PHENARSINE OXIDE	00058-36-6	As2	07440-38-2	---		7.8E-04	E H U H	R Q
PHENOL	00108-95-2			5800.0	D	45.0	T M HI	
PHENOTHIAZINE	00092-84-2			---		12.0	T	
PHENY GLYCIDYL ETHER	00122-60-1			---		1.4	T M I	
PHENYL DICHLOROARSIN	00696-28-6	As	07440-38-2	---		6.9E-04	E H U H	R Q
PHENYL ETHER	00101-84-8			1400.0	Z	17.0	T	
PHENYL MERCAPTAN	00108-98-5			---		1.1	T	
PHENYLENEDIAMINE, M-	00108-45-2			---		2.4E-01	T M I	
PHENYLENEDIAMINE, O-	00095-54-5			---		2.4E-01	T I	
PHENYLENEDIAMINE, P-	00106-50-3			---		2.4E-01	T M HI	
PHENYLHYDRAZINE	00100-63-0			---		1.0	T M I	
PHENYLMERCURICACETAT	00062-38-4	Hg	Hg*ALKYL**	---		3.7E-02	T H H	R Q
PHENYLPHOSPHINE	00638-21-1		07803-51-2	23.0	Y	3.0E-01	A C	R
PHORATE	00298-02-2			---		1.2E-01	T	
PHOSGENE	00075-44-5			4.0	D	4.0E-01	E M H	
PHOSPH OXYCHLORIDE	10025-87-3			---		1.5	T	
PHOSPH PENTACHLORIDE	10026-13-8			---		2.0	T	
PHOSPH PENTASULFIDE	01314-80-3			300.0	Z	2.4	T	
PHOSPHINE	07803-51-2			140.0	Z	3.0E-01	E M H	
PHOSPHORIC ACID	07664-38-2			300.0	Z	10.0	E M	
PHOSPHORIC ACID, REA	92203-02-6		07664-38-2	300.0	A	10.0	A H	RR
PHOSPHOROUS TRICHLOR	07719-12-2			280.0	Z	2.6	T	
PHOSPHORUS (YELLOW)	07723-14-0			---		7.0E-02	D M H	
PHOSPHORUS (YELLOW)	12185-10-3			---		7.0E-02	D M H	
PHTHALIC ANHY.,trans	14166-21-3			5.0E-01	Y	---	X CI	
PHTHALIC ANHYD.,cis-	13149-00-3			5.0E-01	Y	---	X CI	
PHTHALIC ANHYDRIDE	00085-44-9			---		20.0	D HI	
PHTHALODINITRILE, M-	00626-17-5			---		12.0	T	

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	-----codes----- W T 123456789012345
PICLORAM	01918-02-1			---		24.0	T I
PICRIC ACID	00088-89-1			---		2.4E-01	T M
PIGMENT RED	35355-77-2		07439-96-5	---		5.0E-02	A H R
PINDONE	00083-26-1			---		2.4E-01	T
PIPERAZINE DIHYDROCH	00142-64-3			---		12.0	T
PLATINUM	07440-06-4	Pt	Pt*SOLSALT	---		4.8E-03	A K R
POLYACRYLIC ACID	09003-01-4		00079-10-7	6000.0	A	1.0	A M RR
POLYETHYLENEGLYCOLDI	24991-55-7		00110-80-5	370.0	A	200.0	A M RR MM
POLYMERIC MDI	09016-87-9			75.0	D	6.0E-01	E H
POLYOXYPROPYLENE	25791-96-2		00110-80-5	1100.0	A	590.0	A M RR MM
POLYPROPYLENE	09003-07-0		NY075-00-5	380.0	s	---	X L R
POLYSTYRENE DUST	09003-53-6		00100-42-5	380.0	s	45.0	S M RR
PORTLAND CEMENT	65997-15-1			---		24.0	T
POTASSIUM ARSENITE	10124-50-2	As	07440-38-2	---		5.1E-04	E H U H R Q
POTASSIUM CHROMATE	07789-00-6	Cr	18540-29-9	---		7.5E-05	H H U H R Q
POTASSIUM CYANATE	00590-28-3	CN	00057-12-5	380.0	s	45.0	S M RRQQ
POTASSIUM CYANIDE	00151-50-8	CN	00057-12-5	380.0	s	45.0	S H HC RRQQ
POTASSIUM DICHROMAT	07778-50-9	Cr2	18540-29-9	---		5.7E-05	H H U H R Q
POTASSIUM FERRICYANI	13746-66-2	CN	00057-12-5	380.0	s	45.0	S H RRQQ
POTASSIUM FERROCYANI	13943-58-3	CN	00057-12-5	380.0	s	45.0	S H RR
POTASSIUM GOLD CYANI	13967-50-5	C2N2	00057-12-5	380.0	s	45.0	S H RRQQ
POTASSIUM HYDROXIDE	01310-58-3			200.0	Y	---	X C
POTASSIUM NICKELCYN	14220-17-8	Ni	Ni*INORG**	---		1.7E-02	E H U H R Q
POTASSIUM PERMANGANA	07722-64-7	Mn	07439-96-5	---		1.4E-01	E M H R Q
POTASSIUM PERSULFATE	07727-21-1	S2O8		---		3.4E-01	T Q
POTASSIUMGOLDCYANIDE	14263-59-3	C4N4	00057-12-5	380.0	s	45.0	S H H RRQQ
PRIMIDONE	00125-33-7			---		3.6	D M
PROPANE	00074-98-6			---		43000.0	T L
PROPANE SULTONE	01120-71-4			---		1.4E-03	D M U HI
PROPANEDIAMINE,1,3-	00109-76-2		00107-15-3	---		60.0	A M R
PROPANEDIOL-1,2	00057-55-6		00107-98-2	55000.0	A	2000.0	A L RR
PROPANOIC ACID	00079-09-4			---		71.0	T
PROPANOL	00071-23-8			---		590.0	T
PROPANOL, BUTOXYMET-	55934-93-5		00110-80-5	1000.0	A	550.0	A H RR MM
PROPANOL, OXYBIS	25265-71-8		00110-80-5	550.0	A	300.0	A L H RR MM
PROPANOL-2,PROPOXY-1	01569-01-3		00107-98-2	55000.0	A	2000.0	A M RR
PROPARGYL ALCOHOL	00107-19-7			---		5.5	T
PROPIOLACTONE,BETA-	00057-57-8			---		3.6	T M HI
PROPIONALDEHYDE	00123-38-6			---		110.0	T H
PROPIONITRILE	00107-12-0		00075-05-8	---		60.0	A R
PROPOXUR (BAYGON)	00114-26-1			---		1.2	T HI
PROPYL ACETATE	00109-60-4			100000.0	Z	20000.0	T L
PROPYL NITRATE, N-	00627-13-4			17000.0	Z	250.0	T
PROPYLENE	00115-07-1			---		3000.0	D GI
PROPYLENE DICHLORIDE	00078-87-5			---		4.0	E M H
PROPYLENE GLYCOL DIN	06423-43-4			---		8.1E-01	T H
PROPYLENE GLYCOL MON	00107-98-2			55000.0	Z	2000.0	E M
PROPYLENE IMINE	00075-55-8			---		11.0	T HI
PROPYLENE OXIDE, 1,2	00075-56-9			3100.0	D	2.7E-01	E M U HI
PTFE (DECOMPOSITION)	** PTFE **			---		2.0E-05	* H
PYRENE	00129-00-0		13049829-2	---		2.0E-02	A H U H R
PYRETHRIN	00121-29-9		08003-34-7	---		12.0	A M R
PYRETHRUM	08003-34-7			---		12.0	T M I

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 111111 123456789012345
PYRIDINE	00110-86-1			---		74.0	T L	
QUINONE	00106-51-4			---		1.0	T M	H
RESORCINOL	00108-46-3			9000.0	Z	1100.0	T L	I
RHODIUM RH	07440-16-6	Rh	Rh*SOLCOMP	---		2.4E-02	A	KI R
RONNEL	00299-84-3			---		12.0	T	
ROTENONE	00083-79-4			---		12.0	T M	I
RUBBER DUST	09006-04-6			---		2.4E-03	T	I
SELENIC ACID DISOD	13410-01-0	Se	07782-49-2	---		45.0	S	R Q
SELENIOUS ACID	07783-00-8	Se	07782-49-2	---		33.0	D	H R Q
SELENIUM	07782-49-2	Se		---		20.0	D M	H
SELENIUM CHLORIDE	10026-03-6	Se	07782-49-2	---		45.0	S	H R Q
SELENIUM DIOXIDE	07446-08-4	Se	07782-49-2	---		28.0	D	R Q
SELENIUM DISULFIDE	07488-56-4	Se	07782-49-2	---		36.0	D M	H R Q
SELENIUM HEXAFLUORID	07783-79-1	F6	*FLUORIDE*	9.0	s	1.1E-01	s	H RRQQ
SELENIUM SULFIDE	07446-34-6	Se	07782-49-2	---		28.0	D	H R Q
SELENOUREA	00630-10-4	Se	07782-49-2	---		31.0	D	H R Q
SESONE	00136-78-7			---		24.0	T	I
SILANE, CHLORETHENYL	01719-58-0		07803-62-5	---		16.0	A M	R
SILICA - CRYSTALLINE	14464-46-1			---		6.0E-02	T	BI
SILICA - QUARTZ	14808-60-7			---		6.0E-02	T	HBI
SILICON CARBIDE	00409-21-2			---		7.1	T	KI
SILICON TETRAHYDRIDE	07803-62-5			---		16.0	T M	
SILOXANESSILICONDIME	63148-62-9		07803-62-5	---		16.0	A M	R
SILVER	07440-22-4	Ag	Ag*SOLCOMP	---		2.4E-02	A	K R
SILVER CYANIDE	00506-64-9	CN	00057-12-5	380.0	s	45.0	S H	H RRQQ
SODIUM ARSENATE	07631-89-2	As	07440-38-2	---		5.1E-04	E H U	H R Q
SODIUM ARSENITE	07784-46-5	As	07440-38-2	---		4.0E-04	E H U	HA R Q
SODIUM AZIDE	26628-22-8			29.0	Y	---	X	CI
SODIUM BISULFITE	07631-90-5			---		12.0	T	I
SODIUM CARBONATE	00497-19-8		01310-73-2	200.0	A	---	X L	R
SODIUM CHROMATE(VI)	10034-82-9	Cr	18540-29-9	---		9.1E-05	H H U	H R Q
SODIUM CUPRICCYANIDE	13715-19-0	C2N2	00057-12-5	380.0	s	45.0	S	H RRQQ
SODIUM CYANATE	00917-61-3	CN	00057-12-5	380.0	s	45.0	S M	RRQQ
SODIUM CYANIDE	00143-33-9	CN	00057-12-5	380.0	s	45.0	S H	HC RRQQ
SODIUM DICHROMATE	10588-01-9	Cr2	18540-29-9	---		5.1E-05	H H U	H R Q
SODIUM FERRICYANIDE	14217-21-1	C6N6	00057-12-5	380.0	s	45.0	S H	H RRQQ
SODIUM FERROCYANIDE	13601-19-9	C6N6	00057-12-5	380.0	s	45.0	S H	H RRQQ
SODIUM FLUOROACETATE	00062-74-8			---		1.2E-01	T	
SODIUM HYDROXIDE	01310-73-2			200.0	Y	---	X	C
SODIUM METABISULFITE	07681-57-4			---		12.0	T	I
SODIUM MONOXIDE	12401-86-4			---		5.0	D	
SODIUM NITRITE	07632-00-0			---		2.0E-05	* H	
SODIUM NITROBENZSULF	00127-68-4		00098-95-3	---		9.0	A M	R
SODIUM PERSULFATE	07775-27-1	S2O8		---		3.0	T L	Q
SODIUM SULFATE	07757-82-6			120.0	D	---	X	
SODIUM XYLENESULFNTE	01300-72-7		01330-20-7	4300.0	A	100.0	A L	RR
SODIUM ZINC CYANIDE	15333-24-1	C4N4	00057-12-5	380.0	s	45.0	S H	H RRQQ
SODIUMACODYLATE	00124-65-2	As	07440-38-2	---		5.0E-04	E H U	H R Q
STARCH	09005-25-8			---		24.0	T	I
STIBINE	07803-52-3			---		1.2	T	H
STODDARD SOLVENT	08052-41-3			---		1300.0	T	
STONNOUS OXIDE	21651-19-4	Sn		---		5.4	T	Q
STRONTIUM CHROMATE	07789-06-2	Cr	18540-29-9	---		7.9E-05	H H U	HB R Q

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	W	codes T	codes 123456789012345
STRYCHNINE	00057-24-9			---		3.6E-01	T		
STYRENE	00100-42-5			17000.0	Z	1000.0	E M	HI	
STYRENE OXIDE	00096-09-3			---		2.0E-05	* H	H	
SUBTILISINS	01395-21-7			6.0E-03	Y	---	X H	C	
SUBTILISINS	09014-01-1			6.0E-03	Y	---	X H	C	
SUCCINONITRILE	00110-61-2		00075-05-8	---		60.0	A		R
SULFOMETURON METHYL	74222-97-2			---		12.0	T	I	
SULFOMIC ACID, Co	14017-41-5	Co2	07440-48-4	---		1.8E-03	D	H	R Q
SULFOTEP	03689-24-5			---		2.4E-01	T	I	
SULFUR DIOXIDE	07446-09-5			910.0	s	80.0	S	I	
SULFUR HEXAFLUORIDE	02551-62-4	F6	*FLUORIDE*	6.8	s	8.6E-02	s		RRQQ
SULFUR MONOCHLORIDE	10025-67-9			380.0	s	---	X	C	
SULFUR PENTAFLUORIDE	05714-22-7	F10	*FLUORIDE*	7.1	s	9.0E-02	s	C	RRQQ
SULFUR TETRAFLUORIDE	07783-60-0	F4	*FLUORIDE*	7.5	s	9.5E-02	s	C	RRQQ
SULFURIC ACI,CADMIUM	07790-84-3	Cd	07440-43-9	---		4.5E-04	D H U H		R Q
SULFURIC ACID	07664-93-9			120.0	D	1.0	D M	B	
SULFURYL FLUORIDE	02699-79-8	F2	*FLUORIDE*	14.0	s	1.8E-01	s		RRQQ
SULPROFOS	35400-43-2			---		2.4	T	I	
SYNTHETIC SILICA	11294552-5		14464-46-1	---		6.0E-02	A	H	R
TALC	14807-96-6			---		4.8	T	I	
TANTALUM TA	07440-25-7			---		12.0	T		
TANTALUM OXIDE	01314-61-0	Ta2		---		15.0	T		Q
TCDDIOXIN, 2,3,7,8-	01746-01-6			---		3.0E-08	D H U H		
TCDFURAN, 2,3,7,8-	51207-31-9		01746-01-6	---		3.0E-08	A H U H		R
TELLURIUM	13494-80-9	Te		---		2.4E-01	T		
TELLURIUM HEXAFLUORI	07783-80-4	F6	*FLUORIDE*	11.0	s	1.4E-01	s		RRQQ
TEMEPHOS (ABATE)	03383-96-8			---		2.4	T		
TEPP	00107-49-3			---		2.4E-02	T		
TERBUFOS	13071-79-9			---		2.4E-02	T	I	
TEREPHTHALIC ACID	00100-21-0			---		24.0	T		
TERPHENYLS	26140-60-3			500.0	Y	---	X	C	
TERPINEOL-ALPHA	00098-55-5		08006-64-2	---		2700.0	A L		R
TETRACHL22DIFLUORETH	00076-11-9			---		9900.0	T		
TETRACHLOROETHAN1122	00079-34-5			---		16.0	T M	HI	
TETRACHLOROETHYLENE	00127-18-4			1000.0	H	1.0	H M U	HI	
TETRACHLORONAPHTHALE	01335-88-2			---		4.8	T		
TETRADECENE,1-	01120-36-1		00110-54-3	---		700.0	A L		R
TETRAETHYL LEAD	00078-00-2	Pb	07439-92-1	---		5.9E-01	s H	HI	R Q
TETRAFLUOROETHANE	00811-97-2			---		80000.0	E L		
TETRAFLUOROETHYLENE	00116-14-3			---		20.0	T	I	
TETRAHYDROFURAN	00109-99-9			30000.0	Z	350.0	T M		
TETRAKIS PHOSPH.SULF	55566-30-8			---		4.8	T	I	
TETRAMETHYL LEAD	00075-74-1	Pb	07439-92-1	---		4.9E-01	s H	H	R Q
TETRAMETHYL SUCCINON	03333-52-6			---		6.7	T		
TETRANITROMETHANE	00509-14-8			---		9.5E-02	T	I	
TETROCHL12DIFLUORETH	00076-12-0			---		9900.0	T		
TETRYL	00479-45-8			---		3.6	T		
THALLIUM	07440-28-0	Tl		---		2.4E-01	T M		
THALLIUM ACETATE	00563-68-8	Tl	07440-28-0	---		3.1E-01	T		R Q
THALLIUM CARBONATE	06533-73-9	Tl2	07440-28-0	---		2.7E-01	T		R Q
THALLIUM CHLORIDE	07791-12-0	Tl	07440-28-0	---		2.8E-01	T		R Q
THALLIUM NITRATE	10102-45-1	Tl	07440-28-0	---		3.1E-01	T		R Q
THALLIUM OXIDE	01314-32-5	Tl2	07440-28-0	---		2.7E-01	T M		R Q

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	-----codes----- W T 123456789012345
THALLIUM SELENITE	12039-52-0	Se	07782-49-2	---		45.0	S M H R Q
THALLIUM SULFATE	07446-18-6	Tl2	07440-28-0	---		3.0E-01	T M R Q
THIOBISTERTBUTYLCRES	00096-69-5			---		24.0	T I
THIOCYANIC ACID, K	00333-20-0	CN	00057-12-5	380.0	s	45.0	S H RRQQ
THIOGLYCOLIC ACID	00068-11-1			---		9.0	T
THIONYL CHLORIDE	07719-09-7		07647-01-0	380.0	s	20.0	A C RR
THIRAM	00137-26-8			---		2.4	T M I
TIN	07440-31-5	Sn	Sn*ORGANIC	20.0	A	2.4E-01	A K RR
TIN DIOXIDE	18282-10-5	Sn		---		6.0	T Q
TITANIUM DIOXIDE	13463-67-7			---		24.0	T I
TITANIUM TETRACHLOR.	07550-45-0			---		2.0E-05	* H H
TOLIDINE, O-	00119-93-7		00062-53-3	---		6.0E-01	A M U HI R
TOLUENE	00108-88-3			37000.0	D	5000.0	E L HI
TOLUENE 2,4-DIAMINE	00095-80-7		26471-62-5	14.0	A	9.0E-04	D H U H R
TOLUENE 2,6-DIISOCYA	00091-08-7		26471-62-5	14.0	A	7.0E-02	E H R
TOLUENE DIISOCYANATE	26471-62-5			14.0	Z	7.0E-02	E H I
TOLUENE24DIISOCYANAT	00584-84-9		26471-62-5	14.0	A	7.0E-02	E H HI R
TOLUIDINE, M-	00108-44-1			---		21.0	T I
TOLUIDINE, O-	00095-53-4			---		21.0	T H HI
TOLUIDINE, P-	00106-49-0			---		21.0	T I
TOXAPHENE	08001-35-2			100.0	Z	3.1E-03	E H U HI
TREMOLITE	77536-68-6		01332-21-4	---		1.6E-05	A H U HAI R
TRIBUTYL PHOSPHATE	00126-73-8			---		5.2	T
TRICH112 (FREON 113)	00076-13-1			960000.0	Z	180000.0	T L I
TRICHLOPHENOXY,2,4,5	00093-76-5			---		24.0	T I
TRICHLORO BENZENE	00120-82-1			3700.0	Y	---	X HC
TRICHLOROACETIC ACID	00076-03-9			---		16.0	T I
TRICHLOROETHANE,112	00079-00-5			---		1.4	D M HI
TRICHLOROETHYLENE	00079-01-6			14000.0	Z	5.0E-01	D M U HB
TRICHLOROFLUOROMETHA	00075-69-4		00071-55-6	68000.0	A	1000.0	A L RR
TRICHLORONAPHTHALENE	01321-65-9			---		12.0	T
TRICHLOROPHENOL,246	00088-06-2			---		3.2E-01	E U H
TRICHLOROPHON	00052-68-6			---		2.4	T I
TRICHLORPROPAN,123	00096-18-4			---		140.0	T I
TRIDECANE	00629-50-5		00110-54-3	---		700.0	A L R
TRIETHANOLAMINE	00102-71-6			---		12.0	T
TRIETHYLAMINE	00121-44-8			2800.0	D	7.0	E HI
TRIETHYLENE GLY MET	00112-35-6		00110-80-5	670.0	A	360.0	A M H RR MM
TRIETHYLENE GLYCOL	00112-27-6		00110-80-5	620.0	A	330.0	A M H RR MM
TRIETHYLENETETRAMINE	00112-24-3		00111-40-0	---		10.0	A M R
TRIFLUOROBROMOMETHAN	00075-63-8			---		15000.0	T
TRIGLYCIDYL-S-TRIAZI	02451-62-9			---		1.2E-01	T
TRIMELLITIC ANHYDRID	00552-30-7			4.0	Y	---	X C
TRIMETHOXYSILANE	02487-90-3		07803-62-5	---		16.0	A M R
TRIMETHYL BENZENE	25551-13-7			---		290.0	T M
TRIMETHYL BENZENE 1,	00095-63-6		25551-13-7	---		290.0	A R
TRIMETHYL PHOSPHITE	00121-45-9			---		24.0	T
TRIMETHYLAMINE	00075-50-3			3600.0	Z	29.0	T
TRIMETHYLBENZENE,123	00526-73-8		25551-13-7	---		290.0	A R
TRINITROTOLUENE	00118-96-7			---		2.4E-01	T
TRIORTHOCRESYL PHOSP	00078-30-8			---		2.4E-01	T I
TRIPHENYL AMINE	00603-34-9			---		12.0	T
TRIPHENYL ARSINE	00603-32-7	As	07440-38-2	---		9.5E-04	E H U H R Q

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T 123456789012345
TRIPHENYL As OXIDE	01153-05-5	As	07440-38-2	---		1.0E-03	E H U H R Q
TRIPHENYL PHOSPHATE	00115-86-6			---		7.1	T I
TUNGSTEN	07440-33-7	W	W*SOLUBLE*	300.0	A	2.4	A K RR
TURPENTINE	08006-64-2			---		2700.0	T L
ULTEM	61128-46-9		NY075-00-5	380.0	s	---	X M R
URANIUM	07440-61-1	U		60.0	Z	4.8E-01	T A
URETHANE	00051-79-6			---		3.4E-03	D M U H
VALERALDEHYDE	00110-62-3			---		420.0	T
VANADIUM	07440-62-2			---		2.0E-01	H H
VANADIUM OXIDE	01314-62-1			30.0	D	1.2E-01	T I
VINYL ACETATE	00108-05-4			5300.0	Z	200.0	E M HI
VINYL BROMIDE	00593-60-2			---		3.0	E H HB
VINYL CHLORIDE	00075-01-4			180000.0	D	1.1E-01	E H U HA
VINYL CYCLOHEXENE	00100-40-3			---		380.0	D M I
VINYL CYCLOHEXENE DI	00106-87-6			---		1.4	T I
VINYL FLUORIDE	00075-02-5			---		4.5	T M B
VINYL PYRROLIDINONE	00088-12-0			---		7.0	D M I
VINYL TOLUENE	25013-15-4			48000.0	Z	580.0	T I
VINYLIDENE CHLORIDE	00075-35-4			---		70.0	D M HI
VINYLIDENE FLOURIDE	00075-38-7			---		3100.0	T I
VM&P NAPHTHA	08032-32-4			---		33000.0	T L I
WARFARIN	00081-81-2			---		2.4E-01	T
XYLENE @,@-DIAMINE:M	01477-55-0			10.0	Y	---	X C
XYLENE,M,O&P MIXT.	01330-20-7			4300.0	D	100.0	E M HI
XYLENE,M-	00108-38-3			4300.0	D	100.0	E M HI
XYLENE,O-	00095-47-6			4300.0	D	100.0	E M HI
XYLENE,P-	00106-42-3			4300.0	D	100.0	E M HI
XYLIDINE	01300-73-8			---		6.0	T M I
YTTRIUM	07440-65-5	Y		---		2.4	T
ZINC	07440-66-6			---		45.0	S L
ZINC BROMIDE	07699-45-8		07646-85-7	200.0	A	2.4	A M RR
ZINC CHLORIDE	07646-85-7			200.0	Z	2.4	T M
ZINC CHROMATE	11103-86-9	Cr2	18540-29-9	---		8.1E-05	H H U HA R Q
ZINC CHROMATE	13530-65-9	Cr	18540-29-9	---		7.1E-05	H H U HA R Q
ZINC CHROMATE	37300-23-5	Cr4	18540-29-9	---		8.4E-05	H H U HA R Q
ZINC CHROMATES	01308-13-0	Cr	18540-29-9	---		7.1E-05	H H U H R Q
ZINC CHROMITE	01328-67-2	Cr	18540-29-9	---		7.1E-05	H H U H R Q
ZINC CYANIDE	00557-21-1	C2N2	00057-12-5	380.0	s	45.0	S H H RRQQ
ZINC OXIDE	01314-13-2			380.0	s	45.0	S M
ZINC PHOSPHIDE	01314-84-7		07803-51-2	140.0	A	3.0E-01	A M RR
ZINC STEARATE	00557-05-1			---		24.0	T
ZIRCONIUM ZR	07440-67-7	Zr		380.0	s	12.0	T I

TOXICITY (T):

- **(H) HIGH Toxicity Contaminant.**
- **(M) MODERATE Toxicity Contaminant.**
- **(L) LOW Toxicity Contaminant.**

WHO (W), Source of AGC/SGC Assignment:

- **(A) AGC/SGC based upon NYSDEC "Analogy".**
- **(D) NYSDEC derived AGC/SGC.**
- **(E) AGC based upon EPA IRIS data (RFC or Unit Risk).**
- **(H) NYSDOH derived AGC/SGC.**
- **(S) AGC/SGC listed is FEDERAL or NYS Standard.**
- **(T) AGC based upon ACGIH TLV.**
- **(Y) SGC is based on ACGIH TLV Ceiling limit.**
- **(Z) SGC is based on ACGIH STEL.**
- **(*) AGC assigned High Toxicity "de minimis" limit.**
- **( ) There is no SGC for this compound.**

WHO (W), Source of special AGC/SGC Interim Assignment:

- **(s) AGC/SGC based upon Equivalent FEDERAL or NYS Standard.**
- **(X) There is no AGC/SGC value for this contaminant.**

-----codes-----
111111
123456789012345:

codes, (Position 1):
(U) AGC equivalent to "one in a million risk".
codes, (Position 3):
(H) FEDERAL HAP identified by 1990 CAAA.
codes, (Positions 4 & 5):
(A) ACGIH Human Carcinogen.
(B) ACGIH Suspected Human Carcinogen.
(C) ACGIH Ceiling Limit.
(G) ACGIH Simple Asphxiant.
(I) Refer to ACGIH Handbook: (Code A3,A4,A5 or particulate fraction).
(K) Multiple TLVs assigned in ACGIH Handbook.
codes, (Position 8):
(Q) REFERENCED AGC adjusted for elemental assignment.
codes, (Position 9):
(Q) REFERENCED SGC adjusted for elemental assignment.
codes, (Position 10):
(R) AGC ASSIGNED TO REFERENCED COMPOUND.
codes, (Position 11):
(R) SGC ASSIGNED TO REFERENCED COMPOUND.
codes, (Position 12):
(Q) AGC ASSIGNED AS DIFFERENT ELEMENT(s) & ADJUSTED.
codes, (Position 13):
(Q) SGC ASSIGNED AS DIFFERENT ELEMENT(s) & ADJUSTED.
codes, (Position 14):
(M) REFERENCED AGC adjusted for MOLECULAR WEIGHTS.
codes, (Position 15):
(M) REFERENCED SGC adjusted for MOLECULAR WEIGHTS.

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
PTFE (DECOMPOSITION)	** PTFE **			---		2.0E-05	*	H	
FLUORIDE NY STANDARD	*FLUORIDE*	F		5.3	s	6.7E-02	s	I	
FORMALDEHYDE	00050-00-0			30.0	H	6.0E-02	H	H U HBC	
DDT	00050-29-3			---		1.0E-02	E	H U I	
B A P	00050-32-8			---		9.1E-04	D	H U HBI	
DINITROPHENOL, 2,4-	00051-28-5			---		2.0E-05	*	H H	
NITROGEN MUSTARD	00051-75-2			---		2.0E-05	*	H	
URETHANE	00051-79-6			---		3.4E-03	D	M U H	
TRICHLOROPHON	00052-68-6			---		2.4	T	I	
DIBENZ(a,h)ANTHRACEN	00053-70-3		13049829-2	---		2.0E-02	A	U	R
NITROSODIETHYLAMINE	00055-18-5			---		2.3E-05	E	U	
FENTHION	00055-38-9			---		1.2E-01	T	I	
NITROGLYCERINE	00055-63-0			---		1.1	T	M	
CARBON TETRACHLORIDE	00056-23-5			1900.0	D	6.7E-02	E	H U HB	
PARATHION	00056-38-2			---		1.2E-01	T	H HI	
BENZO(A)ANTHRACENE	00056-55-3		13049829-2	---		2.0E-02	A	H U HBI	R
COUMAPHOS	00056-72-4			---		1.2E-01	T	I	
GLYCERIN	00056-81-5			---		240.0	T	L	
CYANIDE	00057-12-5	CN		380.0	s	45.0	S	H HC	
DIMETHYL HYDRAZINE	00057-14-7			---		6.0E-02	T	M HI	
STRYCHNINE	00057-24-9			---		3.6E-01	T		
PROPANEDIOL-1,2	00057-55-6		00107-98-2	55000.0	A	2000.0	A	L	RR
PROPIOLACTONE,BETA-	00057-57-8			---		3.6	T	M HI	
CHLORDANE	00057-74-9			---		1.2	T	H HI	
PHENARSINE OXIDE	00058-36-6	As2	07440-38-2	---		7.8E-04	E	H U H	R Q
LINDANE, GAMMA-	00058-89-9			---		1.2	T	M HI	
NITROSOMORPHOLINE,N	00059-89-2			---		5.0E-04	D	M U H	
DIMETHYLAMINOAZOBENZ	00060-11-7			---		8.0E-04	D	M U H	
ETHYL ETHER	00060-29-7			150000.0	Z	29000.0	T	L	
MONOMETHYL HYDRAZINE	00060-34-4			---		4.5E-02	T	M HI	
ACETAMIDE	00060-35-5			---		5.0E-02	D	M U H	
DIELDRIN	00060-57-1			---		2.2E-04	E	H U I	
AMITROLE	00061-82-5			---		4.8E-01	T	I	
PHENYLMERCURICACETAT	00062-38-4	Hg	Hg*ALKYL**	---		3.7E-02	T	H H	R Q
ANILINE	00062-53-3			---		6.0E-01	D	H U HI	
DICHLORVOS	00062-73-7			---		5.0E-01	E	M HI	
SODIUM FLUOROACETATE	00062-74-8			---		1.2E-01	T		
NITROSODIMETHYLAMINE	00062-75-9			---		7.1E-05	E	H U HI	
CARBARYL	00063-25-2			---		12.0	T	HI	
ETHANOL	00064-17-5			---		45000.0	T	L I	
FORMIC ACID	00064-18-6			1900.0	Z	22.0	T	M	
ACETIC ACID	00064-19-7			3700.0	Z	60.0	T		
DIETHYL SULFATE	00064-67-5		00077-78-1	---		1.2	A	H H	R
METHANOL	00067-56-1			33000.0	Z	4000.0	D	M H	
ISOPROPYL ALCOHOL	00067-63-0			98000.0	Z	7000.0	D	M	
ACETONE	00067-64-1			180000.0	Z	28000.0	T	L I	
CHLOROFORM	00067-66-3			150.0	D	4.3E-02	E	M U HI	
HEXACHLOROETHANE	00067-72-1			---		23.0	T	H HI	
THIOGLYCOLIC ACID	00068-11-1			---		9.0	T		
DIMETHYLFORMAMIDE	00068-12-2			---		30.0	E	M HI	
HEXACHLOROPHENE	00070-30-4			---		1.0	D	H	
PROPANOL	00071-23-8			---		590.0	T		
BUTYL ALCOHOL, N-	00071-36-3			---		1500.0	T	L	

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 123456789012345
PENTANOL	00071-41-0		00071-36-3	---		1500.0	A L	R
BENZENE	00071-43-2			1300.0	D	1.3E-01	E H U	HA
ACETIC ACID,COBALT	00071-48-7	Co	07440-48-4	---		3.0E-03	D	H R Q
METHYL CHLOROFORM	00071-55-6			68000.0	D	1000.0	D L	HI
ENDRIN	00072-20-8			---		2.4E-01	T	I
METHOXYCHLOR	00072-43-5			---		24.0	T	HI
DDE	00072-55-9		00050-29-3	---		1.0E-02	A U	H R
METHANE	00074-82-8			---		1600.0	T	G
METHYL BROMIDE	00074-83-9			3900.0	D	5.0	E M	HI
ETHANE	00074-84-0			---		2900.0	T	G
ETHYLENE	00074-85-1			---		550.0	T	GI
CHLOROMETHANE	00074-87-3			22000.0	D	90.0	E M	HI
METHYL IODIDE	00074-88-4			---		29.0	T	H
METHYLAMINE	00074-89-5			1900.0	Z	15.0	T M	
HYDROGEN CYANIDE	00074-90-8			520.0	Y	3.0	E H	HC
METHYL MERCAPTAN	00074-93-1		07783-06-4	14.0	A	2.3	T M	R
ETHYL BROMIDE	00074-96-4			---		52.0	T	I
CHLOROBROMOMETHAN	00074-97-5			---		2500.0	T	
PROPANE	00074-98-6			---		43000.0	T L	
METHYL ACETYLENE	00074-99-7			---		3900.0	T M	
ETHYL CHLORIDE	00075-00-3			---		10000.0	E L	HI
VINYL CHLORIDE	00075-01-4			180000.0	D	1.1E-01	E H U	HA
VINYL FLUORIDE	00075-02-5			---		4.5	T M	B
ETHYL AMINE	00075-04-7			2800.0	Z	22.0	T	
ACETONITRILE	00075-05-8			---		60.0	E M	HI
ACETALDEHYDE	00075-07-0			4500.0	Y	4.5E-01	E M U	HCI
ETHYL MERCAPTAN	00075-08-1			---		3.1	T M	
DICHLOROMETHANE	00075-09-2			14000.0	D	2.1	E M U	HI
FORMAMIDE	00075-12-7			---		43.0	T M	
CARBON DISULFIDE	00075-15-0			6200.0	D	700.0	E M	HI
DIMETHYL SULFIDE	00075-18-3		07783-06-4	14.0	A	60.0	T M	R
ETHYLENE OXIDE	00075-21-8			18.0	D	1.9E-02	D H U	HB
BROMOFORM	00075-25-2			---		9.1E-01	E M U	HI
BROMODICHLOROMETHANE	00075-27-4			---		2.0E-02	D H U	
ISOBUTANE	00075-28-5		00106-97-8	---		57000.0	A L	R
ISOPROPYLAMINE	00075-31-0			2400.0	Z	29.0	T M	
DICHLOROETHANE,1,1	00075-34-3			---		6.3E-01	D L U	HI
VINYLIDENE CHLORIDE	00075-35-4			---		70.0	D M	HI
ACETYL CHLORIDE	00075-36-5		07647-01-0	2100.0	A	20.0	A M	RR
DIFLUOROETHANE	00075-37-6			---		40000.0	E L	
VINYLIDENE FLOURIDE	00075-38-7			---		3100.0	T	I
DICHLOROFLUOROMETHAN	00075-43-4			---		100.0	T	
PHOSGENE	00075-44-5			4.0	D	4.0E-01	E M	H
CHLORODIFLUOROMETHAN	00075-45-6			---		50000.0	E	I
IODOFORM	00075-47-8			---		24.0	T	
TRIMETHYLAMINE	00075-50-3			3600.0	Z	29.0	T	
NITROMETHANE	00075-52-5			---		120.0	T	I
PROPYLENE IMINE	00075-55-8			---		11.0	T	HI
PROPYLENE OXIDE, 1,2	00075-56-9			3100.0	D	2.7E-01	E M U	HI
DIFLUORDIBROMOMETHAN	00075-61-6			---		2000.0	T	
TRIFLUOROBROMOMETHAN	00075-63-8			---		15000.0	T	
BUTYL ALCOHOL, TERT	00075-65-0			---		720.0	T	I
CHLORO DIFLUOROETHAN	00075-68-3			---		50000.0	E L	

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 111111 123456789012345
TRICHLOROFLUOROMETHA	00075-69-4		00071-55-6	68000.0	A	1000.0	A L	RR
DICHLORODIFLUOROMETH	00075-71-8			---		12000.0	T I	
FREON 13	00075-72-9		00071-55-6	68000.0	A	1000.0	A L	RR
TETRAMETHYL LEAD	00075-74-1	Pb	07439-92-1	---		4.9E-01	s H H	R Q
METHANESULFONIC ACID	00075-75-2		07664-93-9	120.0	A	1.0	A L	RR
DIMETHYLDICHLOROSILA	00075-78-5		07803-62-5	---		16.0	A M	R
DIMETHYLBUTANE, 2,2-	00075-83-2			350000.0	Z	4200.0	T M	
ACETONE CYANOHYDRIN	00075-86-5			500.0	Y	---	X H C	
DICHLOROPROPIONICACI	00075-99-0			---		12.0	T I	
TRICHLOROACETIC ACID	00076-03-9			---		16.0	T I	
CHLOROPICRIN	00076-06-2			29.0	D	4.0E-01	D I	
TETRACHL22DIFLUORETH	00076-11-9			---		9900.0	T	
TETROCHL12DIFLUORETH	00076-12-0			---		9900.0	T	
TRICH112 (FREON 113)	00076-13-1			960000.0	Z	180000.0	T L I	
DICHLORTETRAFLUORETH	00076-14-2			---		17000.0	T I	
CHLOROPENTAFLUOROETH	00076-15-3			---		15000.0	T	
CAMPHOR	00076-22-2			1900.0	Z	29.0	T I	
HEPTACHLOR	00076-44-8			---		7.7E-04	E H U HI	
HEXCHLORCYCPENTDIENE	00077-47-4			---		2.0E-01	E M HI	
DICYCLOPENTADIENE	00077-73-6			---		64.0	T	
DIMETHYL SULFATE	00077-78-1			---		1.2	T H HI	
TETRAETHYL LEAD	00078-00-2	Pb	07439-92-1	---		5.9E-01	s H HI	R Q
ETHYL SILICATE	00078-10-4			---		200.0	T	
TRIORTHOCRESYL PHOSP	00078-30-8			---		2.4E-01	T I	
DIOXATHION	00078-34-2			---		2.4E-01	T I	
ISOPHORONE	00078-59-1			2800.0	Y	---	X M HCI	
ISO-PENTANE	00078-78-4			---		42000.0	T L	
ISOBUTYL ALCOHOL	00078-83-1			---		360.0	T	
ISOBUTYRALDEHYDE	00078-84-2		04170-30-3	86.0	A	---	X M	R
PROPYLENE DICHLORIDE	00078-87-5			---		4.0	E M H	
CHLORO-1-PROPANOL,2-	00078-89-7			---		9.5	T I	
BUTANOL,SEC	00078-92-2			---		710.0	T	
METHYL ETHYL KETONE	00078-93-3			13000.0	D	5000.0	E M H	
METHYL VINYL KETONE	00078-94-4			60.0	Y	---	X C	
CHLOROACETONE	00078-95-5			380.0	Y	---	X C	
TRICHLOROETHANE,112	00079-00-5			---		1.4	D M HI	
TRICHLOROETHYLENE	00079-01-6			14000.0	Z	5.0E-01	D M U HB	
CHLOROACETYLCHLORIDE	00079-04-9			69.0	Z	5.5E-01	T	
ACRYLAMIDE	00079-06-1			---		7.7E-04	E H U HI	
PROPANOIC ACID	00079-09-4			---		71.0	T	
ACRYLIC ACID	00079-10-7			6000.0	D	1.0	E M HI	
CHLOROACETIC ACID	00079-11-8			30.0	D	7.0	D H HI	
METHYL ACETATE	00079-20-9			76000.0	Z	1400.0	T	
PERACETIC ACID	00079-21-0		07722-84-1	---		3.3	A	R
NITROETHANE	00079-24-3			---		730.0	T	
ACETYLENE TETRABROM	00079-27-6			---		3.3	T	
DIMETHYLBUTANE, 2,3-	00079-29-8			350000.0	Z	4200.0	T	
TETRACHLOROETHAN1122	00079-34-5			---		16.0	T M HI	
METHACRYLIC ACID	00079-41-4			---		170.0	T	
DICHLOROACETIC ACID	00079-43-6			---		6.3	T I	
DIMETHYLCARBMYLCHLOR	00079-44-7			---		4.8E-02	T M HB	
NITROPROPANE, 2-	00079-46-9			---		20.0	E H HI	
OSYBIS(BENZ.SULF.HYD	00080-51-3			---		2.4E-01	T I	

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
CYCLIC DEXADIENE	00080-56-8			---		270.0		T	
METH ACRY AC METH ES	00080-62-6			41000.0	Z	700.0	E	M	HI
WARFARIN	00081-81-2			---		2.4E-01		T	
PENTACHLORONITROBENZ	00082-68-8			---		1.2		T	HI
PINDONE	00083-26-1			---		2.4E-01		T	
ROTENONE	00083-79-4			---		12.0		T M	I
DIETHYL PHTHALATE	00084-66-2			---		12.0		T M	I
DIBUTYL PHTHALATE	00084-74-2			---		12.0		T	H
DIQUAT DIBROMIDE	00085-00-7		DIQUAT*RES	---		2.4E-01	A		K R
PHENANTHRENE	00085-01-8		13049829-2	---		2.0E-02	A	H U H	R
HEXAHYDROPHTHA.ANHYD	00085-42-7			5.0E-01	Y	---	X		CI
PHTHALIC ANHYDRIDE	00085-44-9			---		20.0	D		HI
BUTYL BENZYL PHTHALA	00085-68-7		00084-66-2	---		12.0	A	M	R
BUTYL PHTHALATE GLYC	00085-70-1		00084-66-2	---		12.0	A	M	R
AZINPHOS-METHYL	00086-50-0			---		4.8E-01	T		I
ANTU	00086-88-4			---		7.1E-01	T		I
HEXACHLOROBUTADIENE	00087-68-3			---		4.5E-02	E	M U HI	
PENTACHLOROPHENOL	00087-86-5			---		2.0E-01	D	M U HI	
TRICHLOROPHENOL,246	00088-06-2			---		3.2E-01	E	U H	
VINYL PYRROLIDINONE	00088-12-0			---		7.0	D	M	I
NITROTOLUENE, O-	00088-72-2			---		26.0	T		
PICRIC ACID	00088-89-1			---		2.4E-01	T	M	
BUTYLPHENOL,O-SEC	00089-72-5			---		74.0	T		
ANISIDINE, O-	00090-04-0			---		1.2	T	M	HI
METHYLNAPHTHALENE,1-	00090-12-0			---		7.1	T		I
TOLUENE 2,6-DIISOCYA	00091-08-7		26471-62-5	14.0	A	7.0E-02	E	H	R
NAPHTHALENE	00091-20-3			7900.0	Z	3.0	E	M	HI
METHYLNAPHTHALENE,2-	00091-57-6			---		7.1	T		I
NAPHTHYLAMINE, 2-	00091-59-8			---		2.0E-05	*	H	A
N,N-DIETHYL ANILINE	00091-66-7		00100-61-8	---		5.2	A	M	R
DICHLOROBENZIDINE33'	00091-94-1			---		3.0E-03	D	H	H
BIPHENYL	00092-52-4			---		3.1	T	M	H
AMINODIPHENYL, P-	00092-67-1			---		2.0E-05	*	H	HA
PHENOTHIAZINE	00092-84-2			---		12.0	T		
BENZIDINE	00092-87-5			---		1.5E-05	E	H U HAI	
NITRODIPHENYL, 4-	00092-93-3			---		2.0E-05	*	H	HB
TRICHLOPHENOXY,2,4,5	00093-76-5			---		24.0	T		I
BENZOYL PEROXIDE	00094-36-0			---		12.0	T		I
DICHLORPHENOXY,2,4	00094-75-7			---		24.0	T		HI
INDENE	00095-13-6			---		110.0	T		
XYLENE,O-	00095-47-6			4300.0	D	100.0	E	M	HI
CRESOL, O-	00095-48-7			---		52.0	T	M	H
CHLOROTOLUENE,ORTHO	00095-49-8			---		620.0	T		
DICHLOROBENZENE, O-	00095-50-1			30000.0	Z	360.0	T	M	I
TOLUIDINE, O-	00095-53-4			---		21.0	T	H	HI
PHENYLENEDIAMINE, O-	00095-54-5			---		2.4E-01	T		I
TRIMETHYL BENZENE 1,	00095-63-6		25551-13-7	---		290.0	A		R
TOLUENE 2,4-DIAMINE	00095-80-7		26471-62-5	14.0	A	9.0E-04	D	H U H	R
DICHLOROANILINE,2,5-	00095-82-9		00062-53-3	---		6.0E-01	A	M U	R
STYRENE OXIDE	00096-09-3			---		2.0E-05	*	H	H
DIBROMOCHLOROPROPANE	00096-12-8			---		2.0E-01	E		H
METHYLPENTANE,3-	00096-14-0			350000.0	Z	4200.0	T		
TRICHLORPROPAN,123	00096-18-4			---		140.0	T		I

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
DIETHYL KETONE	00096-22-0			110000.0	Z	1700.0	T		
DICHLOROPROPANOL,1,3	00096-23-1		00056-23-5	1900.0	A	6.7E-02	A	U	RR
METHYL ACRYLATE	00096-33-3			---		17.0	T	M I	
METHYLCYCLOPENTANE	00096-37-7		00110-54-3	---		700.0	A	L	R
ETHYLENE THIOUREA	00096-45-7			---		7.7E-02	D	H U H	
BUTYROLACTONE,gamma-	00096-48-0		00057-57-8	---		3.6	A	M	R
THIOBISTERTBUTYLCRES	00096-69-5			---		24.0	T	I	
DISULFIRAM	00097-77-8			---		4.8	T	I	
ALUMINUM, TRIETHYL	00097-93-8	Al	Al*SALTALK	---		20.0	T	H	R Q
FURFURYL ALCOHOL	00098-00-0			6000.0	Z	95.0	T	M	
FURFURAL	00098-01-1			---		19.0	T	M I	
BENZENEARSONIC ACID	00098-05-5	As	07440-38-2	---		6.3E-04	E	H U H	R Q
BENZOTRICHLORIDE	00098-07-7			80.0	Y	---	X	HCB	
BUTYLTOLUENE,P-TERT	00098-51-1			---		15.0	T		
TERPINEOL-ALPHA	00098-55-5		08006-64-2	---		2700.0	A	L	R
CUMENE	00098-82-8			---		400.0	E	H	
METHYL STYRENE	00098-83-9			48000.0	Z	580.0	T		
ACETOPHENONE	00098-86-2			---		120.0	T	H	
BENZOYL CHLORIDE	00098-88-4			280.0	Y	---	X	CI	
NITROBENZENE	00098-95-3			---		9.0	D	M HI	
NITROTOLUENE, M-	00099-08-1			---		26.0	T		
NITRO-O-TOLUIDINE,5	00099-55-8			---		2.4	T	I	
DINITROBENZENE, M-	00099-65-0			---		2.4	T	M	
NITROTOLUENE, P-	00099-99-0			---		26.0	T	M	
CHLORONITROBENZENE,P	00100-00-5			---		1.5	T	M I	
NITROANILINE, P-	00100-01-6			---		7.1	T	M I	
TEREPHTHALIC ACID	00100-21-0			---		24.0	T		
DINITROBENZENE	00100-25-4			---		2.4	T		
DIETHYLAMINOETHANOL	00100-37-8			---		23.0	T		
VINYL CYCLOHEXENE	00100-40-3			---		380.0	D	M I	
ETHYL BENZENE	00100-41-4			54000.0	Z	1000.0	E	M HI	
STYRENE	00100-42-5			17000.0	Z	1000.0	E	M HI	
BENZYL CHLORIDE	00100-44-7			240.0	D	2.0E-02	D	H U HI	
BENZYL ALCOHOL	00100-51-6			1300.0	D	350.0	D	M	
METHYL ANILINE	00100-61-8			---		5.2	T	M	
PHENYLHYDRAZINE	00100-63-0			---		1.0	T	M I	
ETHYLMORPHOLINE,N-	00100-74-3			---		57.0	T		
METH BIS-O-CHLORANIL	00101-14-4			---		2.3E-03	D	U HB	
METHYLENE BISPH ISCY	00101-68-8			14.0	D	6.0E-01	E	H H	
METHYLENEDIANILINE44	00101-77-9			---		2.0E-03	D	M U HI	
PHENYL ETHER	00101-84-8			1400.0	Z	17.0	T		
DICYCPENTDIENYL IRON	00102-54-5			---		24.0	T		
TRIETHANOLAMINE	00102-71-6			---		12.0	T		
DIBUTYLAMINOETOL,2-N	00102-81-8			---		8.3	T		
ETHYLHEXYL ACRYLATE	00103-11-7		00096-33-3	---		17.0	A	M	R
DIOCTYL ADIPATE	00103-23-1		00084-66-2	---		12.0	A	M	R
AZOBENZENE	00103-33-3			---		3.2E-02	E	U	
N-PROPYLBENZENE	00103-65-1		00100-41-4	54000.0	A	1000.0	A	M	RR
N-ETHYLANILINE	00103-69-5		00100-61-8	---		5.2	A	M	R
ANISIDINE, P-	00104-94-9			---		1.2	T	M I	
BUTYL ACETATE, SEC-	00105-46-4			---		2300.0	T		
CAPROLACTAM	00105-60-2			---		12.0	T	I	
ETHYL BUTYL KETONE	00106-35-4			35000.0	Z	560.0	T		

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	-----codes----- 111111 W T 123456789012345
XYLENE,P-	00106-42-3			4300.0	D	100.0	E M HI
CRESOL, P-	00106-44-5			---		52.0	T M H
DICHLOROBENZENE,P-	00106-46-7			---		9.0E-02	D M U HI
CHLOROANILINE, P-	00106-47-8		00062-53-3	---		8.2E-01	A M U R M
TOLUIDINE, P-	00106-49-0			---		21.0	T I
PHENYLENEDIAMINE, P-	00106-50-3			---		2.4E-01	T M HI
QUINONE	00106-51-4			---		1.0	T M H
ETHYL AMYL KETONE	00106-68-3		00541-85-5	---		120.0	A R
VINYL CYCLOHEXENE DI	00106-87-6			---		1.4	T I
EPOXYBUTANE, 1,2	00106-88-7			3000.0	D	20.0	E M H
EPICHLOROHYDRIN	00106-89-8			1300.0	D	8.3E-01	E M U HI
ALLYL GLYCIDYL ETHER	00106-92-3			---		11.0	T I
DIBROMOETHANE, 1,2-	00106-93-4			---		1.7E-03	E H U HI
BROMOPROPANE, 1-	00106-94-5			---		35.0	D M
BUTANE	00106-97-8			---		57000.0	T L
BUTADIENE, 1,3	00106-99-0			---		3.3E-02	E H U HB
ACROLEIN	00107-02-8			1.9E-01	D	2.0E-02	E H HCI
ALLYL CHLORIDE	00107-05-1			600.0	Z	1.0	E M HI
DICHLOROETHANE,1,2	00107-06-2			---		3.8E-02	E M U HI
ETHYLENE CHLOROHYDRN	00107-07-3			330.0	Y	---	X CI
PROPIONITRILE	00107-12-0		00075-05-8	---		60.0	A R
ACRYLONITRILE	00107-13-1			---		1.5E-02	E H U HI
ACETONITRILE,CHLOR0	00107-14-2		00075-05-8	---		60.0	A H R
ETHYLENE DIAMINE	00107-15-3			---		60.0	T M I
GLYCOLONITRILE	00107-16-4		00075-05-8	---		60.0	A R
ALLYL ALCOHOL	00107-18-6			---		2.8	T H I
PROPARGYL ALCOHOL	00107-19-7			---		5.5	T
CHLOROACETALDEHYDE	00107-20-0			320.0	Y	---	X C
ETHYLENE GLYCOL	00107-21-1			10000.0	Y	400.0	D HCI
GLYOXAL	00107-22-2			---		2.4E-01	T I
METHYL CHLOROMETHETH	00107-30-2		00542-88-1	---		1.6E-05	A M U HBI R
METHYL FORMATE	00107-31-3			37000.0	Z	590.0	T M
HEXYLENE GLYCOL	00107-41-5			12000.0	Y	---	X L C
HEXAMETHYLDISILOXANE	00107-46-0		07803-62-5	---		16.0	A M R
TEPP	00107-49-3			---		2.4E-02	T
DIBUTYL PHOSPHATE	00107-66-4			1700.0	Z	20.0	T
METHYL PENTANE, 2-	00107-83-5			350000.0	Z	4200.0	T M
METHYL PROPYL KETONE	00107-87-9			53000.0	Z	---	X
PROPYLENE GLYCOL MON	00107-98-2			55000.0	Z	2000.0	E M
DIMETHYLAMINO ETH,2-	00108-01-0			---		26.0	D M
NITROPROPANE, 1-	00108-03-2			---		220.0	T M I
VINYL ACETATE	00108-05-4			5300.0	Z	200.0	E M HI
METHYL ISOBUTYL KETO	00108-10-1			31000.0	Z	3000.0	E M H
METHYLISOBUTYLCARBIN	00108-11-2			17000.0	Z	250.0	T
DIISOPROPYLAMINE	00108-18-9			---		50.0	T
ISOPROPYL ETHER	00108-20-3			130000.0	Z	2500.0	T
ISOPROPYL ACETATE	00108-21-4			84000.0	Z	1000.0	T
ACETIC ANHYDRIDE	00108-24-7			---		50.0	T M
MALEIC ANHYDRIDE	00108-31-6			---		7.0E-01	D M HI
XYLENE,M-	00108-38-3			4300.0	D	100.0	E M HI
CRESOL, M-	00108-39-4			---		52.0	T M H
TOLUIDINE, M-	00108-44-1			---		21.0	T I
PHENYLENEDIAMINE, M-	00108-45-2			---		2.4E-01	T M I

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	W	codes T	codes 123456	codes 789012	codes 345
RESORCINOL	00108-46-3			9000.0	Z	1100.0	T	L	I		
DIVINYL BENZENE,1,3	00108-57-6		01321-74-0	---		130.0	A			R	
METHOXYPROPYLACETATE	00108-65-6		00107-98-2	55000.0	A	2000.0	A	L		RR	
MESITYENE	00108-67-8		25551-13-7	---		290.0	A	M		R	
DIISOBUTYL KETONE	00108-83-8			---		350.0	T				
HEXYL ACETATE, SEC-	00108-84-9			---		7000.0	T	L			
METHYLCYCLOHEXANE	00108-87-2			---		3800.0	T	M			
TOLUENE	00108-88-3			37000.0	D	5000.0	E	L	HI		
MONOCHLOROBENZENE	00108-90-7			---		110.0	T	M	HI		
CYCLOHEXYLAMINE	00108-91-8			---		98.0	T		I		
CYCLOHEXANOL	00108-93-0			---		490.0	T				
CYCLOHEXANONE	00108-94-1			20000.0	Z	190.0	T	M	I		
PHENOL	00108-95-2			5800.0	D	45.0	T	M	HI		
PHENYL MERCAPTAN	00108-98-5			---		1.1	T				
ISOPROPOXYETHANOL,2-	00109-59-1			---		250.0	T				
PROPYL ACETATE	00109-60-4			100000.0	Z	20000.0	T	L			
PENTANE	00109-66-0			---		4200.0	T				
PENTENE,1-	00109-67-1		00110-54-3	---		700.0	A	M		R	
BUTYLAMINE, N-	00109-73-9			1500.0	Y	---	X	M	C		
PROPANEDIAMINE,1,3-	00109-76-2		00107-15-3	---		60.0	A	M		R	
MALONONITRILE	00109-77-3		00075-05-8	---		60.0	A			R	
BUTYL MERCAPTAN	00109-79-5			---		4.3	T	M			
METHYL CELLOSOLVE	00109-86-4			93.0	D	20.0	E	M	H		
METHYLAL	00109-87-5			---		7400.0	T				
DIETHYLAMINE	00109-89-7			4500.0	Z	36.0	T		I		
ETHYL FORMATE	00109-94-4			---		720.0	T				
TETRAHYDROFURAN	00109-99-9			30000.0	Z	350.0	T	M			
METHYLISOAMYLKETONE	00110-12-3			---		560.0	T				
ISOBUTYL ACETATE	00110-19-0			---		17000.0	T	L			
METHYL AMYL KETONE	00110-43-0			---		550.0	T				
METHOXYETHYL ACET,2-	00110-49-6			---		1.2	T				
HEXANE	00110-54-3			---		700.0	E	M	H		
SUCCINONITRILE	00110-61-2		00075-05-8	---		60.0	A			R	
VALERALDEHYDE	00110-62-3			---		420.0	T				
GLYCOL MONOETHYLETHR	00110-80-5			370.0	D	200.0	E	M	H		
CYCLOHEXANE	00110-82-7			---		6000.0	E	L			
CYCLOHEXENE MIXTURE	00110-83-8			---		2400.0	T				
PYRIDINE	00110-86-1			---		74.0	T	L			
MORPHOLINE	00110-91-8			---		170.0	T		I		
ETHOXYETHYL ACETATE2	00111-15-9			140.0	D	64.0	T	M	H		
GLUTARALDEHYDE	00111-30-8			20.0	Y	8.0E-02	D		CI		
ETHOXYPROPANOL,3-	00111-35-3		00107-98-2	55000.0	A	2000.0	A	M		RR	
DIETHYLENE TRIAMINE	00111-40-0			---		10.0	T	M			
DIETHANOLAMINE	00111-42-2			---		3.0	D		H		
DICHLOROETHYL ETHER	00111-44-4			5800.0	Z	3.0E-03	E	U	HI		
ETHYLENE GYLCOL MONO	00111-45-5		00110-80-5	420.0	A	230.0	A	M	H	RR	MM
GLYCOL ETHER	00111-46-6		00110-80-5	440.0	A	240.0	A		H	RR	MM
OCTANE	00111-65-9			---		3300.0	T				
ADIPONITRILE	00111-69-3			---		21.0	T				
BUTOXYETHANOL, 2-	00111-76-2			14000.0	D	13000.0	E	M	HI		
METHYL CARBITOL	00111-77-3		00109-86-4	150.0	A	32.0	A	M	H	RR	MM
NONANE	00111-84-2			---		25000.0	T	L			
CARBITOL CELLOSOLVE	00111-90-0		00110-80-5	550.0	A	300.0	A	M	H	RR	MM

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
DIETHYLENE GLY DIETH	00111-96-6		00109-86-4	160.0	A	35.0	A	M H	RR MM
HEPTYL ACETATE	00112-06-1		00108-84-9	---		7000.0	A	L	R
BUTOXYETHYL ACETATE	00112-07-2			---		310.0	T	M HI	
TRIETHYLENETETRAMINE	00112-24-3		00111-40-0	---		10.0	A	M	R
TRIETHYLENE GLYCOL	00112-27-6		00110-80-5	620.0	A	330.0	A	M H	RR MM
BUTYL CARBITOL	00112-34-5		00110-80-5	670.0	A	360.0	A	M H	RR MM
TRIETHYLENE GLY MET	00112-35-6		00110-80-5	670.0	A	360.0	A	M H	RR MM
DIETHYL CARBITOL	00112-36-7		00110-80-5	670.0	A	360.0	A	M H	RR MM
ETHYLENE GLY DIBUT	00112-48-1		00110-80-5	720.0	A	390.0	A	M H	RR MM
DODECYL MERCAPTAN	00112-55-0			---		1.9	T		
HEXYL CARBITOL	00112-59-4		00110-80-5	780.0	A	420.0	A	M H	RR MM
DIBUTYL CARBITOL	00112-73-2		00110-80-5	900.0	A	480.0	A	M H	RR MM
PROPOXUR (BAYGON)	00114-26-1			---		1.2	T	HI	
PROPYLENE	00115-07-1			---		3000.0	D	GI	
DIMETHYL ETHER	00115-10-6		00060-29-7	150000.0	A	29000.0	A	L	RR
ENDOSULFAN	00115-29-7			---		2.4E-01	T	I	
PENTAERYTHRITOL	00115-77-5			---		24.0	T		
TRIPHENYL PHOSPHATE	00115-86-6			---		7.1	T	I	
FENSULFOTHION	00115-90-2			---		2.4E-02	T	I	
TETRAFLUOROETHYLENE	00116-14-3			---		20.0	T	I	
HEXAFLUOROPROPYLENE	00116-15-4			---		1.4	T		
DIOCTYL PHTHALATE	00117-81-7			---		4.2E-01	D	M U HI	
DICHLORDIMEHYDANTOIN	00118-52-5			40.0	Z	4.8E-01	T		
HEXACHLOROBENZENE	00118-74-1			---		2.2E-03	E	H U HI	
TRINITROTOLUENE	00118-96-7			---		2.4E-01	T		
TOLIDINE, O-	00119-93-7		00062-53-3	---		6.0E-01	A	M U HI	R
ANTHRACENE	00120-12-7		13049829-2	---		2.0E-02	A	H U H	R
CATECHOL	00120-80-9		00108-95-2	5800.0	A	55.0	T	HI	R
TRICHLORO BENZENE	00120-82-1			3700.0	Y	---	X	HC	
DINITROTOLUENE,2,4-	00121-14-2			---		1.1E-02	D	H U H	
PYRETHRIN	00121-29-9		08003-34-7	---		12.0	A	M	R
TRIETHYLAMINE	00121-44-8			2800.0	D	7.0	E	HI	
TRIMETHYL PHOSPHITE	00121-45-9			---		24.0	T		
DIMETHYLANILINE	00121-69-7			5000.0	Z	60.0	T	M HI	
MALATHION	00121-75-5			---		2.4	T	M I	
CYCLONITE	00121-82-4			---		1.2	T	I	
CHLORO NITROANILINE	00121-87-9		00100-01-6	---		7.1	A	M	R
DIPHENYLAMINE	00122-39-4			---		24.0	T	I	
PHENY GLYCIDYL ETHER	00122-60-1			---		1.4	T	M I	
DIPHENYL HYDRAZINE	00122-66-7		00057-14-7	---		4.5E-03	E	H U H	
ETHANOL,2-PHENOXY-	00122-99-6		00110-80-5	570.0	A	310.0	A	M H	RR MM
DIPROPYL KETONE	00123-19-3			---		550.0	T		
HYDROQUINONE	00123-31-9			---		4.8	T	M HI	
PROPIONALDEHYDE	00123-38-6			---		110.0	T	H	
DIACETONE ALCOHOL	00123-42-2			---		570.0	T	M	
ISOAMYL ALCOHOL	00123-51-3			45000.0	Z	8600.0	T	L	
CROTONALDEHYDE,trans	00123-73-9		04170-30-3	86.0	A	---	X		R
BUTYL ACETATE	00123-86-4			95000.0	Z	17000.0	T	L	
DIOXANE,1,4	00123-91-1			3000.0	D	1.3E-01	D	M U HI	
ISOAMYL ACETATE	00123-92-2			53000.0	Z	6300.0	T	L	
ADIPIC ACID	00124-04-9			---		12.0	T		
HEXANEDIAMINE, 1,6-	00124-09-4			---		5.5	T	M	
BUTYL CARBITOL ACETA	00124-17-4		00110-80-5	840.0	A	450.0	A	M H	RR MM

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 123456789012345
DECANE	00124-18-5		00110-54-3	---		700.0	A M	R
CARBON DIOXIDE	00124-38-9			5400000.0	Z	21000.0	T	
DIMETHYL AMINE	00124-40-3			2800.0	Z	22.0	T I	
SODIUMACODYLATE	00124-65-2	As	07440-38-2	---		5.0E-04	E H U H	R Q
ISOBUTANOLAMINE	00124-68-5		00141-43-5	1500.0	A	18.0	A M	RR
PRIMIDONE	00125-33-7			---		3.6	D M	
TRIBUTYL PHOSPHATE	00126-73-8			---		5.2	T	
METHYLACRYLONITRILE	00126-98-7			---		6.4	T	
CHLOROPRENE, B-	00126-99-8			---		86.0	T H	
CHLORO-2-PROPANOL,1-	00127-00-4			---		9.5	T I	
TETRACHLOROETHYLENE	00127-18-4			1000.0	H	1.0	H M U HI	
DIMETHYLACETAMIDE	00127-19-5			---		86.0	T M I	
SODIUM NITROBENZSULF	00127-68-4		00098-95-3	---		9.0	A M	R
NONPINNE	00127-91-3			---		270.0	T	
DITERT BUTLY-P-CRES	00128-37-0			---		48.0	T L I	
DITERTBUTYPHENOL,2,6	00128-39-2		00108-95-2	5800.0	A	45.0	A	RR
PYRENE	00129-00-0		13049829-2	---		2.0E-02	A H U H	R
DIMETHYL PHTHALATE	00131-11-3			---		12.0	T H	
DIBENZOFURANS	00132-64-9		13049829-2	---		2.0E-02	A U H	R
CAPTAN	00133-06-2			---		12.0	T HI	
HEXANOIC ACID,COBALT	00136-52-7	Co	07440-48-4	---		5.9E-03	D H	R Q
SESONE	00136-78-7			---		24.0	T I	
METHYL CYANOACRYLATE	00137-05-3			---		2.4	T H	
THIRAM	00137-26-8			---		2.4	T M I	
BUTYL LACTATE, N-	00138-22-7			---		71.0	T	
BENZYL ACETATE	00140-11-4			---		150.0	T I	
ARAMITE	00140-57-8			---		1.4E-01	E U	
ETHYL ACRYLATE	00140-88-5			6100.0	Z	48.0	T HI	
BUTYL ACRYLATE, N-	00141-32-2			---		26.0	T I	
ETHANOLAMINE	00141-43-5			1500.0	Z	18.0	T M	
DICROTOPHOS	00141-66-2			---		1.2E-01	T I	
ETHYL ACETATE	00141-78-6			---		3400.0	T M	
MESITYL OXIDE	00141-79-7			10000.0	Z	140.0	T	
PIPERAZINE DIHYDROCH	00142-64-3			---		12.0	T	
HEPTANE, N-	00142-82-5			210000.0	Z	3900.0	T M	
SODIUM CYANIDE	00143-33-9	CN	00057-12-5	380.0	s	45.0	S H HC	RRQQ
CHLORDECONE	00143-50-0			---		2.0E-05	* H	
OXALIC ACID	00144-62-7			200.0	Z	2.4	T M	
DINITRO-O-TOLUAMIDE	00148-01-6			---		2.4	T I	
ETHYL HEXANOIC	00149-57-5			---		12.0	T I	
METHOXYPHENOL, 4-	00150-76-5			---		12.0	T	
POTASSIUM CYANIDE	00151-50-8	CN	00057-12-5	380.0	s	45.0	S H HC	RRQQ
ETHYLENEIMINE	00151-56-4			---		2.1	T H HI	
HALOTHANE	00151-67-7			---		960.0	T I	
DICHLOROETHYLENE,cis	00156-59-2			---		63.0	D M	
DICHLOROETHYLENEtran	00156-60-5			---		63.0	D M	
CALCIUM CYANAMIDE	00156-62-7			---		1.2	T HI	
CHRYSENE	00218-01-9		13049829-2	---		2.0E-02	A H U HI	R
ACRIDINE	00260-94-6		13049829-2	---		2.0E-02	A U H	R
CYCLOPENTANE	00287-92-3			---		4100.0	T	
METHYL PARATHION	00298-00-0			---		4.8E-01	T I	
PHORATE	00298-02-2			---		1.2E-01	T	
DISULFOTON	00298-04-4			---		1.2E-01	T I	

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
RONNEL	00299-84-3			---		12.0	T		
CRUFORMATE	00299-86-5			---		12.0	T	I	
NALED (DIBROM)	00300-76-5			---		2.4E-01	T	I	
ACETIC ACID,LEAD	00301-04-2	Pb	07439-92-1	---		6.0E-01	s	H H	R Q
HYDRAZINE	00302-01-2			---		2.0E-04	E	H U HI	
ALDRIN	00309-00-2			---		2.0E-04	E	H U I	
BROMACIL	00314-40-9			---		24.0	T	I	
LINDANE, ALPHA-	00319-84-6			---		5.6E-04	E	M U H	
LINDANE, BETA-	00319-85-7			---		1.9E-03	E	M U H	
DIURON	00330-54-1			---		24.0	T	I	
THIOCYANIC ACID, K	00333-20-0	CN	00057-12-5	380.0	s	45.0	S	H	RRQQ
DIAZINON	00333-41-5			---		2.4E-02	T	I	
DIAZOMETHANE	00334-88-3			---		8.1E-01	T	M HB	
CARBONYL FLUORIDE	00353-50-4	F2	*FLUORIDE*	9.2	s	1.2E-01	s		RRQQ
NICKEL ACETATE	00373-02-4	Ni	07440-02-0	18.0	D	1.3E-02	E	H U H	RRQQ
PERFLUOROISOBUTYLENE	00382-21-8			8.2	Y	---	X	C	
SILICON CARBIDE	00409-21-2			---		7.1	T	KI	
CYANAMIDE	00420-04-2			---		4.8	T	M	
CYANIC ACID	00420-05-3	CN	00057-12-5	380.0	s	45.0	S	H	RRQQ
CYANOGEN	00460-19-5		00074-90-8	520.0	A	3.0	D	M	R
KETENE	00463-51-4			260.0	Z	2.0	T	M	
CARBONYL SULFIDE	00463-58-1			250.0	D	28.0	D	M H	
DIMETHYLPROPANE	00463-82-1			---		4200.0	T		
TETRYL	00479-45-8			---		3.6	T		
SODIUM CARBONATE	00497-19-8		01310-73-2	200.0	A	---	X	L	R
AMINOPYRIDINE, 2-	00504-29-0			---		4.8	T		
SILVER CYANIDE	00506-64-9	CN	00057-12-5	380.0	s	45.0	S	H H	RRQQ
GOLD CYANIDE	00506-65-0	CN	00057-12-5	380.0	s	45.0	S	H	RRQQ
CYANOGEN BROMIDE	00506-68-3		00074-90-8	75.0	D	3.0	A	M H	R
CYANOGEN CHLORIDE	00506-77-4		00074-90-8	75.0	Y	3.0	A	M HC	R
TETRANITROMETHANE	00509-14-8			---		9.5E-02	T	I	
COBALT CARBONATE	00513-79-1	Co	07440-48-4	---		2.1E-03	D	H	R Q
ACETOIN	00513-86-0		00078-93-3	13000.0	A	5000.0	A	M	RR
TRIMETHYLBENZENE,123	00526-73-8		25551-13-7	---		290.0	A		R
DINITROBENZENE	00528-29-0			---		2.4	T		
CHLOROACETOPHENONE,2	00532-27-4			---		3.0E-02	E	M HI	
METHYLFURAN,2-	00534-22-5		00098-00-0	6000.0	A	95.0	A	M	RR
DINITRO-O-CRESOL	00534-52-1			---		4.8E-01	T	H	
DICHLOROETHYLENE, 12	00540-59-0			---		63.0	D	M	
ISO-OCTANE	00540-84-1			---		3300.0	T	M H	
BUTYL ACETATE, TERT-	00540-88-5			---		2300.0	T		
DECAMETHYLCYCLOPENTA	00541-02-6		00556-67-2	---		360.0	A	L	R
DICHLOROBENZENE, m-	00541-73-1		00095-50-1	30000.0	A	360.0	A	M	RR
ETHYL AMYL KETONE	00541-85-5			---		120.0	T		
ISOBUTYL NITRITE	00542-56-3			380.0	s	---	X	CI	
BARIUM CYANIDE	00542-62-1	C2N2	00057-12-5	380.0	s	45.0	S	H H	RRQQ
DICHLOROPROPENE, 1,3	00542-75-6			---		2.5E-01	E	U HI	
CADMIUM CYANIDE	00542-83-6	C2N2	00057-12-5	380.0	s	3.5E-04	D	H U H	RRQQ
CHLOROMETHYL ETH,BIS	00542-88-1			---		1.6E-05	E	H U HA	
CYCLOPENTADIENE, 1,3	00542-92-7			---		480.0	T	M	
COPPER CYANIDE	00544-92-3	CN	00057-12-5	380.0	s	45.0	S	H H	RRQQ
TRIMELLITIC ANHYDRID	00552-30-7			4.0	Y	---	X	C	
GOLD POTASSIUM CYAN	00554-07-4	C2N2	00057-12-5	380.0	s	45.0	S	H H	RRQQ

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 123456789012345
GLYCIDOL	00556-52-5			---		15.0	T	I
METHYL TETRAMER	00556-67-2			---		360.0	D M	
ZINC STEARATE	00557-05-1			---		24.0	T	
NICKEL CYANIDE	00557-19-7	C2N2	00057-12-5	380.0	s	7.9E-03	E H U H	RRQQ
ZINC CYANIDE	00557-21-1	C2N2	00057-12-5	380.0	s	45.0	S H H	RRQQ
CARBON TETRABROMIDE	00558-13-4			410.0	Z	3.3	T	
ETHION	00563-12-2			---		1.2E-01	T I	
THALLIUM ACETATE	00563-68-8	Tl	07440-28-0	---		3.1E-01	T	R Q
METHYLISOPROPYLKETON	00563-80-4			---		1700.0	T	
METHYLCYCLOHEXANON,O	00583-60-8			34000.0	Z	550.0	T	
TOLUENE24DIISOCYANAT	00584-84-9		26471-62-5	14.0	A	7.0E-02	E H HI	R
DIPHENYL MERCURY	00587-85-9	Hg	Hg*ALKYL**	---		4.2E-02	T H H	R Q
POTASSIUM CYANATE	00590-28-3	CN	00057-12-5	380.0	s	45.0	S M	RRQQ
METHYL BUTYL KETONE	00591-78-6			4000.0	Z	48.0	T	
CALCIUM CYANIDE	00592-01-8	C2N2		380.0	s	---	X H HC	Q
HEXENE,-1	00592-41-6			---		410.0	T	
VINYL BROMIDE	00593-60-2			---		3.0	E H HB	
PERCHLORMETHMERCAPTN	00594-42-3			---		1.8	T	
DICHLORONITROETHANE	00594-72-9			---		29.0	T	
CARBONIC ACID,MnSALT	00598-62-9		07439-96-5	---		5.0E-02	A H	R
LEAD CARBONATE	00598-63-0	Pb	07439-92-1	---		4.9E-01	s H H	R Q
CHLOROPROPIONICACI,2	00598-78-7			---		1.0	T	
CHLORO NITROPROPANE	00600-25-9			---		24.0	T	
TRIPHENYL ARSINE	00603-32-7	As	07440-38-2	---		9.5E-04	E H U H	R Q
TRIPHENYL AMINE	00603-34-9			---		12.0	T	
LINDANE-TECHNICAL	00608-73-1			---		2.0E-03	E U	
AMYL ACETATE,3-	00620-11-1			53000.0	Z	630.0	T	
ETHANOL,2-(PHENYLMET	00622-08-2		00110-80-5	620.0	A	340.0	A H	RR MM
METHYLBUTYLACETATE,2	00624-41-9			53000.0	Z	630.0	T	
METHYL ISOCYANATE	00624-83-9			---		1.1E-01	T H H	
DIMETHYL DISULFIDE	00624-92-0		07783-06-4	14.0	A	4.8	T M	R
AMYL ACETATE, tert-	00625-16-1			53000.0	Z	630.0	T	
PENTEN-2-OL,4-	00625-31-0		00107-18-6	---		2.8	A H	R
DIMETHYLFURAN,2,5-	00625-86-5		00098-00-0	6000.0	A	95.0	A M	RR
PHTHALODINITRILE, M-	00626-17-5			---		12.0	T	
AMYL ACETATE, SEC-	00626-38-0			53000.0	Z	630.0	T	
PROPYL NITRATE, N-	00627-13-4			17000.0	Z	250.0	T	
AMYL ACETATE, N-	00628-63-7			53000.0	Z	630.0	T	
ETHYLENEGLYCOLDINITR	00628-96-6			---		7.4E-01	T	
ETHYLENE GLY DIMET	00629-14-1		00109-86-4	140.0	A	31.0	A M H	RR MM
DIETHYLENE GLY MET	00629-38-9		00110-80-5	670.0	A	360.0	A M H	RR MM
TRIDECANE	00629-50-5		00110-54-3	---		700.0	A L	R
CARBON MONOXIDE	00630-08-0			14000.0	s	---	X	
SELENOUREA	00630-10-4	Se	07782-49-2	---		31.0	D H	R Q
OXOPHENYL ARSINE	00637-03-6	As	07440-38-2	---		5.2E-04	E H U H	R Q
ETBE	00637-92-3			---		45.0	S	
PHENYLPHOSPHINE	00638-21-1		07803-51-2	23.0	Y	3.0E-01	A C	R
DIOXOLANE	00646-06-0			---		1500.0	T L	
METHYL SILICATE	00681-84-5			---		14.0	T M	
HEXAFLUOROACETONE	00684-16-2			---		1.6	T	
ET HEXYLMETHACRYLATE	00688-84-6		00096-33-3	---		17.0	A M	R
PHENYL DICHLOROARSIN	00696-28-6	As	07440-38-2	---		6.9E-04	E H U H	R Q
ETHYL 4-OXAHEXANOATE	00763-69-9		00111-15-9	140.0	A	64.0	A M	RR

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
DICHLORO-2-BUTENE,14	00764-41-0			---		6.0E-02	T	B	
ISOPROPYLANILINE, N-	00768-52-5			---		26.0	T		
TETRAFLUOROETHANE	00811-97-2			---		80000.0	E	L	
HEXAMETHYLENE DIISOC	00822-06-0		26471-62-5	14.0	A	1.0E-02	E	H H	R
METHYL PYRROLIDONE	00872-50-4			---		100.0	D	M	
SODIUM CYANATE	00917-61-3	CN	00057-12-5	380.0	s	45.0	S	M	RRQQ
AMINOPROPYLTRIETSI,g	00919-30-2		07803-62-5	---		160.0	A	L	R
DEMETON-S-METHYL	00919-86-8			---		1.2E-01	T	I	
INDIUM, TRIETHYL	00923-34-2	In	07440-74-6	---		4.2E-01	T	H	R Q
NITROSO-N-BUTYLAMINE	00924-16-3			---		6.3E-04	E	U	
NITROSOPYRROLIDINE	00930-55-2			---		1.6E-03	E	U	
FONOFOS	00944-22-9			---		2.4E-01	T	I	
AMYLMETHYLETHER,tert	00994-05-8			---		200.0	T		
DIALLYLAMALEATE	00999-21-3		00108-31-6	---		7.0E-01	A	M	R
HYDROXYPROPYLACRYLAT	00999-61-1			---		6.7	T		
HEPTACHLOR EPOXIDE	01024-57-3			---		3.8E-04	E	H U I	
TETRADECENE,1-	01120-36-1		00110-54-3	---		700.0	A	L	R
PROPANE SULTONE	01120-71-4			---		1.4E-03	D	M U HI	
TRIPHENYL As OXIDE	01153-05-5	As	07440-38-2	---		1.0E-03	E	H U H	R Q
METHYLTRIMETHOXYSILA	01185-55-3		07803-62-5	---		160.0	A	L	R
BUTYL CHROMATE, TERT	01189-85-1	Cr	18540-29-9	23.0	Y	8.9E-05	H	H U HC	R QQ
SODIUM XYLENESULFNTE	01300-72-7		01330-20-7	4300.0	A	100.0	A	L	RR
XYLIDINE	01300-73-8			---		6.0	T	M I	
EMERY	01302-74-5			---		24.0	T		
GALLIUM ARSENIDE	01303-00-0	As	07440-38-2	---		4.5E-04	E	H U H	R Q
ARSENIC PENTOXIDE	01303-28-2	As2	07440-38-2	---		3.6E-04	E	H U HA	R Q
BORON OXIDE	01303-86-2			---		24.0	T		
BORATES,DECAHYDRATE	01303-96-4			---		4.8	T		
BERYLLIUM OXIDE	01304-56-9	Be	07440-41-7	2.8	Z	1.2E-03	E	H U H	RRQQ
BISMUTH TELLURIDE	01304-82-1		Bi2Te3*und	---		24.0	A	K	R
CALCIUM DIHYDROXIDE	01305-62-0			---		12.0	T		
CALCIUM OXIDE	01305-78-8			---		4.8	T		
CADMIUM OXIDE	01306-19-0	Cd	07440-43-9	---		2.7E-04	D	H U H	R Q
CADMIUM SULFIDE	01306-23-6	Cd	07440-43-9	---		3.1E-04	D	H U H	R Q
CADMIUM SELENIDE	01306-24-7	Cd	07440-43-9	---		4.1E-04	D	H U H	R Q
COBALT OXIDE	01307-96-6	Co	07440-48-4	---		1.3E-03	D	M H	R Q
ZINC CHROMATES	01308-13-0	Cr	18540-29-9	---		7.1E-05	H	H U H	R Q
CHROMIUM HYDROXIDE	01308-14-1	Cr	16065-83-1	---		45.0	S	H	R Q
CHROMIUM OXIDE	01308-38-9	Cr2	16065-83-1	---		45.0	S	M H	R Q
IRON OXIDE	01309-37-1			---		12.0	T	I	
MAGNESIUM OXIDE	01309-48-4			---		24.0	T	I	
LEAD OXIDE	01309-60-0	Pb	07439-92-1	---		4.4E-01	s	H H	R Q
ANTIMONY TRIOXIDE	01309-64-4	Sb2		---		2.4E-01	E	M HB	Q
POTASSIUM HYDROXIDE	01310-58-3			200.0	Y	---	X	C	
SODIUM HYDROXIDE	01310-73-2			200.0	Y	---	X	C	
MANGANESE OXIDE	01313-13-9	Mn	07439-96-5	---		3.8E-01	E	H	R Q
NICKEL OXIDE	01313-99-1	Ni	Ni*INORG**	7.6	D	5.3E-03	E	H U HAI	R QQ
NICKEL OXIDE	01314-06-3	Ni2	Ni*INORG**	---		5.9E-03	E	H U HI	R Q
ZINC OXIDE	01314-13-2			380.0	s	45.0	S	M	
THALLIUM OXIDE	01314-32-5	Tl2	07440-28-0	---		2.7E-01	T	M	R Q
LEAD TETROXIDE	01314-41-6	Pb3	07439-92-1	---		4.2E-01	s	H H	R Q
ANTIMONY OXIDE	01314-60-9	Sb	07440-36-0	---		1.3	T	H	R Q
TANTALUM OXIDE	01314-61-0	Ta2		---		15.0	T		Q

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 111111 123456789012345
VANADIUM OXIDE	01314-62-1			30.0	D	1.2E-01	T	I
PHOSPH PENTASULFIDE	01314-80-3			300.0	Z	2.4	T	
ZINC PHOSPHIDE	01314-84-7		07803-51-2	140.0	A	3.0E-01	A M	RR
MANGANESE OXIDE	01317-34-6	Mn2	07439-96-5	---		7.2E-02	E	H R Q
MANGANESE TETROXIDE	01317-35-7	Mn3	07439-96-5	---		6.9E-02	E	H R Q
LEAD OXIDE	01317-36-8	Pb	07439-92-1	---		4.1E-01	s H	H R Q
COBALT SULFIDE	01317-42-6	Co	07440-48-4	---		1.5E-03	D M	H R Q
LEAD CARBONATE	01319-46-6	Pb3	07439-92-1	---		4.7E-01	s H	H R Q
CRESOL	01319-77-3			---		52.0	T M	H
PENTACHLORONAPHTHALE	01321-64-8			---		1.2	T	
TRICHLORONAPHTHALENE	01321-65-9			---		12.0	T	
DIVINYL BENZENE, MIX	01321-74-0			---		130.0	T	
ARSENIC ACID	01327-52-2	As	07440-38-2	---		4.4E-04	E H U	H R Q
ARSENIC TRIOXIDE	01327-53-3	As4	07440-38-2	---		3.1E-04	E H U	HA R Q
ZINC CHROMITE	01328-67-2	Cr	18540-29-9	---		7.1E-05	H H U	H R Q
XYLENE,M,O&P MIXT.	01330-20-7			4300.0	D	100.0	E M	HI
BORATES,ANHYDROUS	01330-43-4			---		4.8	T	
ASBESTOS	01332-21-4			---		1.6E-05	D H U	HAI
KAOLIN (CLAY)	01332-58-7			---		4.8	T	I
CHROMIUM OXIDE	01333-82-0	Cr	18540-29-9	---		3.8E-05	H H U	H R Q
CARBON BLACK	01333-86-4			---		8.3	T M	I
LEAD OXIDE	01335-25-7	Pb	07439-92-1	---		4.1E-01	s H	H R Q
LEAD ACETATE	01335-32-6	Pb3	07439-92-1	---		4.9E-01	s H	H R Q
HEXACHLORONAPTHALENE	01335-87-1			---		4.8E-01	T M	
TETRACHLORONAPHTHALE	01335-88-2			---		4.8	T	
AQUA AMMONIA	01336-21-6		07664-41-7	2400.0	A	100.0	A L	RR
PCB	01336-36-3		11096-82-5	---		2.0E-03	A H U	H R
MANGANESE NAPTHENAT	01336-93-2		07439-96-5	---		5.0E-02	A	H R
MEK PEROXIDE	01338-23-4			150.0	Y	---	X	C
ALUMINUM OXIDE	01344-28-1	Al2		---		45.0	T	I Q
LEAD SULFOCHROMATE	01344-37-2	Cr	18540-29-9	---		2.0E-05	A H U	H R
MANGANESE OXIDE	01344-43-0	Mn	07439-96-5	---		6.5E-02	E	H R Q
MERCURY SULFIDE	01344-48-5	Hg	07439-97-6	2.1	D	3.5E-01	E H	H RRQQ
CALCIUM SILICATE	01344-95-2			---		24.0	T	I
ANTIMONY TRISULFIDE	01345-04-6	Sb2	07440-36-0	---		1.7	T	H R Q
CADMIUMMERCURYSULFID	01345-09-1	Cd	07440-43-9	---		7.4E-04	D H U	H R Q
COBALT ALUMINATE	01345-16-0	Co	07440-48-4	---		3.0E-03	D	H R Q
SUBTILISINS	01395-21-7			6.0E-03	Y	---	X H	C
XYLENE @,@-DIAMINE:M	01477-55-0			10.0	Y	---	X	C
CARBOFURAN	01563-66-2			---		2.4E-01	T M	I
PROPANOL-2,PROPOXY-1	01569-01-3		00107-98-2	55000.0	A	2000.0	A M	RR
METHYLTERTBUTYLETHER	01634-04-4			---		3000.0	E M	HI
ARSENOZO III	01668-00-4	As2	As*ORGANIC	---		1.2E-03	E H U	H R Q
SILANE, CHLORETHENYL	01719-58-0		07803-62-5	---		16.0	A M	R
TCDDIOXIN, 2,3,7,8-	01746-01-6			---		3.0E-08	D H U	H
PARAQUAT DICHLORIDE	01910-42-5		PARAQUAT*R	---		2.4E-01	A M	R
ATRAZINE	01912-24-9			---		12.0	T	I
PICLORAM	01918-02-1			---		24.0	T	I
NITRAPYRIN	01929-82-4			2000.0	Z	24.0	T	I
CHLOROSTYRENE, O-	02039-87-4			43000.0	Z	670.0	T	
PARAQUAT DIMETHYLSUL	02074-50-2		PARAQUAT*R	---		2.4E-01	A	R
EPN	02104-64-5			---		2.4E-01	T	I
ALLYL PROPYL DISULFI	02179-59-1			---		7.1	T	

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W	codes T	codes 123456789012345
CADMIUM STEARATE	02223-93-0	Cd2	07440-43-9	---		8.5E-04	D	H U H	R Q
OCTACHLORONAPHTHALEN	02234-13-1			30.0	Z	2.4E-01	T	M	
ETHYL MERCURIC PHOSP	02235-25-8	Hg	Hg*ALKYL**	---		3.9E-02	T	H H	R Q
DIGLYCIDYL ETHER	02238-07-5			---		1.2E-01	T	I	
MIREX	02385-85-5			---		2.0E-05	*	H	
CAPTAFOL	02425-06-1			---		2.4E-01	T	I	
BUTYL GLYCIDYL ETHER	02426-08-6			---		38.0	T		
TRIGLYCIDYL-S-TRIAZI	02451-62-9			---		1.2E-01	T		
AURAMINE	02465-27-2			---		2.0E-05	*	H	
TRIMETHOXYSILANE	02487-90-3		07803-62-5	---		16.0	A	M	R
DIBUTYL PHENYL PHOSP	02528-36-1			---		8.3	T		
SULFUR HEXAFLUORIDE	02551-62-4	F6	*FLUORIDE*	6.8	s	8.6E-02	s		RRQQ
METHYLVINYLTETRAMER	02554-06-5		07803-62-5	---		16.0	A	M	R
CHLORBENZMALONONIT,O	02698-41-1			39.0	Y	---	X	CI	
SULFURYL FLUORIDE	02699-79-8	F2	*FLUORIDE*	14.0	s	1.8E-01	s		RRQQ
DIQUAT	02764-72-9		DIQUAT*RES	---		2.4E-01	A	KI	R
ETHYLENEGLY MONOPR E	02807-30-9		00110-80-5	430.0	A	230.0	A	M H	RR MM
CHLORPYRIFOS	02921-88-2			---		2.4E-01	T	I	
CLOPIDOL	02971-90-6			---		24.0	T	I	
DMAEE	03033-62-3			98.0	Z	7.9E-01	T		
ARSENOUS ACID,TRIMET	03141-12-6	As	07440-38-2	---		6.5E-04	E	U H	R Q
NAPHTHALELEDIISOCYAN	03173-72-6		26471-62-5	14.0	A	7.0E-02	A		RR
TETRAMETHYL SUCCINON	03333-52-6			---		6.7	T		
CARBONIC ACID Ni SLT	03333-67-3	Ni	07440-02-0	11.0	D	7.5E-03	E	H U H	RRQQ
TEMEPHOS (ABATE)	03383-96-8			---		2.4	T		
LEAD ARSENATE	03687-31-8	As2	07440-38-2	---		1.4E-03	E	H U H	R Q
SULFOTEP	03689-24-5			---		2.4E-01	T	I	
HDI-CYANURATE POLYME	03779-63-3			75.0	D	6.0E-01	D	M	
AMMONIUM PERFLUOROOC	03825-26-1			---		2.4E-02	T	I	
ISOPROPYLGLYCIDYLETH	04016-14-2			36000.0	Z	570.0	T		
HDI-BIURET POLYMER	04035-89-6			75.0	D	6.0E-01	D	M	
ISOPHORONE DIISOCYAN	04098-71-9		26471-62-5	14.0	A	1.1E-01	T		R
CROTONALDEHYDE	04170-30-3			86.0	Y	---	X	CI	
PARAQUAT	04685-14-7		PARAQUAT*R	---		2.4E-01	A	M K	R
DIGLYCID AMINO...	05026-74-4		00122-60-1	---		1.4	A	M	R
METHYLENEBIS4CYCLOHE	05124-30-1			---		1.3E-01	T	H	
SULFUR PENTAFLUORIDE	05714-22-7	F10	*FLUORIDE*	7.1	s	9.0E-02	s	C	RRQQ
NICKEL DIACETATE TET	06018-89-9	Ni	07440-02-0	26.0	D	1.8E-02	E	H U H	RRQQ
DIQUATDIBROMIDEMONOH	06385-62-2		DIQUAT*RES	---		2.4E-01	A	K	R
PROPYLENE GLYCOL DIN	06423-43-4			---		8.1E-01	T	H	
THALLIUM CARBONATE	06533-73-9	Tl2	07440-28-0	---		2.7E-01	T		R Q
MONOCROTOPHOS	06923-22-4			---		1.2E-01	T	I	
ETHYL CYANOACRYLATE	07085-85-0			---		2.4	T		
LEAD STEARATE SALT	07428-48-0	Pb	07439-92-1	---		9.0E-01	s	H H	R Q
ALUMINUM	07429-90-5	Al	Al*SALTALK	---		4.8	A	K	R
LEAD	07439-92-1	Pb		---	X	3.8E-01	s	H HI	
MANGANESE	07439-96-5	Mn		---		5.0E-02	E	M H	
MERCURY	07439-97-6	Hg		1.8	D	3.0E-01	E	H HKI	
MOLYBDENUM	07439-98-7	Mo	Mo*SOLUBLE	---		1.2	A	K	R
NICKEL	07440-02-0	Ni		6.0	D	4.2E-03	E	H U HKI	
PLATINUM	07440-06-4	Pt	Pt*SOLSALT	---		4.8E-03	A	K	R
RHODIUM RH	07440-16-6	Rh	Rh*SOLCOMP	---		2.4E-02	A	KI	R
SILVER	07440-22-4	Ag	Ag*SOLCOMP	---		2.4E-02	A	K	R

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 123456789012345
TANTALUM TA	07440-25-7			---		12.0	T	
THALLIUM	07440-28-0	Tl		---		2.4E-01	T M	
TIN	07440-31-5	Sn	Sn*ORGANIC	20.0	A	2.4E-01	A K	RR
TUNGSTEN	07440-33-7	W	W*SOLUBLE*	300.0	A	2.4	A K	RR
ANTIMONY	07440-36-0	Sb		---		1.2	T M H	
ARSENIC	07440-38-2	As		---		2.3E-04	E H U HA	
BARIUM	07440-39-3	Ba		---		1.2	T M I	
BERYLLIUM	07440-41-7	Be		1.0	Z	4.2E-04	E H U HA	
CADMIUM	07440-43-9	Cd		---		2.4E-04	D H U HB	
CHROMIUM	07440-47-3	Cr	16065-83-1	---		1.2	T H HI	
COBALT	07440-48-4	Co		---		1.0E-03	D M HI	
COPPER	07440-50-8	Cu	Cu*FUME***	100.0	D	2.0E-02	D M K	
HAFNIUM HF	07440-58-6	Hf		---		1.2	T	
URANIUM	07440-61-1	U		60.0	Z	4.8E-01	T A	
VANADIUM	07440-62-2			---		2.0E-01	H H	
YTTRIUM	07440-65-5	Y		---		2.4	T	
ZINC	07440-66-6			---		45.0	S L	
ZIRCONIUM ZR	07440-67-7	Zr		380.0	s	12.0	T I	
INDIUM IN	07440-74-6	In		---		2.4E-01	T H	
SELENIUM DIOXIDE	07446-08-4	Se	07782-49-2	---		28.0	D	R Q
SULFUR DIOXIDE	07446-09-5			910.0	s	80.0	S I	
LEAD SULFATE	07446-14-2	Pb	07439-92-1	---		5.6E-01	s H H	R Q
THALLIUM SULFATE	07446-18-6	Tl2	07440-28-0	---		3.0E-01	T M	R Q
LEAD PHOSPHATE SALT	07446-27-7	Pb2	07439-92-1	---		5.3E-01	s H HI	R Q
SELENIUM SULFIDE	07446-34-6	Se	07782-49-2	---		28.0	D H	R Q
MERCURY CHLORIDE	07487-94-7	Hg	07439-97-6	2.4	D	4.1E-01	E H H	RRQQ
SELENIUM DISULFIDE	07488-56-4	Se	07782-49-2	---		36.0	D M H	R Q
TITANIUM TETRACHLOR.	07550-45-0			---		2.0E-05	* H H	
IODINE	07553-56-2			100.0	Y	---	X L C	
MONOSODIUM PHOSPHATE	07558-80-7		07664-38-2	300.0	A	10.0	A L	RR
DICHLOROACETYLENE	07572-29-4			39.0	Y	---	X CI	
LITHIUM HYDRIDE LIH	07580-67-8			---		6.0E-02	T	
PERCHLORYL FLUORIDE	07616-94-6	F	*FLUORIDE*	29.0	s	3.6E-01	s	RRQQ
SODIUM ARSENATE	07631-89-2	As	07440-38-2	---		5.1E-04	E H U H	R Q
SODIUM BISULFITE	07631-90-5			---		12.0	T I	
SODIUM NITRITE	07632-00-0			---		2.0E-05	* H	
BORON TRIFLUORIDE	07637-07-2	F3	*FLUORIDE*	6.3	s	8.0E-02	s C	RRQQ
LEAD ARSENATE	07645-25-2	As	07440-38-2	---		1.1E-03	E H U H	R Q
COBALT CHLORINE	07646-79-9	Co	07440-48-4	---		2.2E-03	D H	R Q
ZINC CHLORIDE	07646-85-7			200.0	Z	2.4	T M	
HYDROGEN CHLORIDE	07647-01-0			2100.0	D	20.0	E L HCI	
PHOSPHORIC ACID	07664-38-2			300.0	Z	10.0	E M	
HYDROGEN FLUORIDE	07664-39-3	F	*FLUORIDE*	5.6	s	7.1E-02	s M HC	RRQQ
AMMONIA	07664-41-7			2400.0	Z	100.0	E L	
SULFURIC ACID	07664-93-9			120.0	D	1.0	D M B	
SODIUM METABISULFITE	07681-57-4			---		12.0	T I	
NITRIC ACID	07697-37-2			86.0	D	12.0	T M	
ZINC BROMIDE	07699-45-8		07646-85-7	200.0	A	2.4	A M	RR
NICKEL CHLORIDE	07718-54-9	Ni	Ni*INORG**	13.0	D	9.2E-03	E H U HI	R QQ
THIONYL CHLORIDE	07719-09-7		07647-01-0	380.0	s	20.0	A C	RR
PHOSPHOROUS TRICHLOR	07719-12-2			280.0	Z	2.6	T	
POTASSIUM PERMANGANA	07722-64-7	Mn	07439-96-5	---		1.4E-01	E M H	R Q
HYDROGEN PEROXIDE	07722-84-1			---		3.3	T I	

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 123456789012345
PHOSPHORUS (YELLOW)	07723-14-0			---		7.0E-02	D M	H
BROMINE	07726-95-6			130.0	Z	1.6	T M	
POTASSIUM PERSULFATE	07727-21-1	S2O8		---		3.4E-01	T	Q
BARIUM SULFATE	07727-43-7			---		24.0	T M	
AMMONIUM PERSULFATE	07727-54-0	S2O8		---		2.8E-01	T	Q
CHROMIC (VI) ACID	07738-94-5	Cr	18540-29-9	---		4.5E-05	H H U	HA R Q
SODIUM SULFATE	07757-82-6			120.0	D	---	X	
LEAD CHLORIDE	07758-95-4	Pb	07439-92-1	---		5.1E-01	s H	H R Q
LEAD CHROMATE	07758-97-6	Cr	18540-29-9	---		1.2E-04	H H U	HB R Q
AMMONIUM SULFAMATE	07773-06-0			---		240.0	T L	
MERCURY IODINE	07774-29-0	Hg	07439-97-6	4.1	D	6.8E-01	E H	H RRQQ
CHROMIC ACID,Na SALT	07775-11-3	Cr	18540-29-9	---		6.3E-05	H H U	H R Q
SODIUM PERSULFATE	07775-27-1	S2O8		---		3.0	T L	Q
CALCIUM SULFATE	07778-18-9			---		24.0	T	
ARSENIC ACID	07778-39-4	As	07440-38-2	---		4.4E-04	E H U	HA R Q
CALCIUM ARSENATE	07778-44-1	As2	07440-38-2	---		6.3E-04	E H U	H R Q
POTASSIUM DICHROMAT	07778-50-9	Cr2	18540-29-9	---		5.7E-05	H H U	H R Q
FLUORINE	07782-41-4			5.3	s	6.7E-02	s M	
GRAPHITE	07782-42-5			---		4.8	T	
SELENIUM	07782-49-2	Se		---		20.0	D M	H
CHLORINE	07782-50-5			290.0	Z	2.0E-01	D M	HI
GERMANIUMTETRAHYDRID	07782-65-2			---		1.5	T	
SELENIOUS ACID	07783-00-8	Se	07782-49-2	---		33.0	D	H R Q
HYDROGEN SULFIDE	07783-06-4			14.0	S	2.0	E M	
HYDROGEN SELENIDE	07783-07-5			5.0	D	8.0E-02	D	H
AMMONIUM SULFATE	07783-20-2			120.0	D	---	X L	
MERCURIC SULFATE	07783-35-9	Hg	07439-97-6	2.7	D	4.4E-01	E H	H RRQQ
OXYGEN DIFLUORIDE	07783-41-7	F2	*FLUORIDE*	7.5	s	9.5E-02	s	C RRQQ
NITROGEN TRIFLUORIDE	07783-54-2	F3	*FLUORIDE*	6.6	s	8.3E-02	s	RRQQ
SULFUR TETRAFLUORIDE	07783-60-0	F4	*FLUORIDE*	7.5	s	9.5E-02	s	C RRQQ
SELENIUM HEXAFLUORID	07783-79-1	F6	*FLUORIDE*	9.0	s	1.1E-01	s	H RRQQ
TELLURIUM HEXAFLUORI	07783-80-4	F6	*FLUORIDE*	11.0	s	1.4E-01	s	RRQQ
ARSENOUS TRICHLORIDE	07784-34-1	As	07440-38-2	---		5.6E-04	E H U	H R Q
ARSENOUS TRIFLUORIDE	07784-35-2	As	07440-38-2	---		4.1E-04	E H U	H R Q
PENTAFLUORO-ARSORANE	07784-36-3	As	07440-38-2	---		5.3E-04	E H U	H R Q
LEAD ARSENATE	07784-40-9	As	07440-38-2	---		1.1E-03	E H U	H R Q
ARSINE	07784-42-1			160.0	D	5.0E-02	E H	H
SODIUM ARSENITE	07784-46-5	As	07440-38-2	---		4.0E-04	E H U	HA R Q
MANGANESE SULFATE	07785-87-7	Mn	07439-96-5	---		1.4E-01	E	H R Q
MEVINPHOS	07786-34-7			---		2.4E-02	T	I
NICKEL (+2) SULFATE	07786-81-4	Ni	Ni*INORG**	16.0	D	1.1E-02	E H U	HI R QQ
BERYLLIUM FLUORIDE	07787-49-7	Be	07440-41-7	5.2	Z	2.2E-03	E H U	H RRQQ
CHROMYL FLUORIDE	07788-96-7	Cr	18540-29-9	---		4.7E-05	H H U	H R Q
POTASSIUM CHROMATE	07789-00-6	Cr	18540-29-9	---		7.5E-05	H H U	H R Q
STRONTIUM CHROMATE	07789-06-2	Cr	18540-29-9	---		7.9E-05	H H U	HB R Q
CHROMIC ACID, DIAMMO	07789-09-5	Cr2	18540-29-9	---		4.8E-05	H H U	H R Q
CHROMIC ACID, DISODI	07789-12-0	Cr2	18540-29-9	---		5.2E-05	H H U	H R Q
BROMINE PENTAFLUORID	07789-30-2	F5	*FLUORIDE*	9.8	s	1.2E-01	s	RRQQ
CADMIUM CHLORIDE HYD	07790-78-5	Cd	07440-43-9	---		3.9E-04	D H U	H R Q
CADMIUM IODIDE	07790-80-9	Cd	07440-43-9	---		7.8E-04	D H U	H R Q
SULFURIC ACI,CADMIUM	07790-84-3	Cd	07440-43-9	---		4.5E-04	D H U	H R Q
CHLORINE TRIFLUORIDE	07790-91-2	F3	*FLUORIDE*	8.6	s	1.1E-01	s	C RRQQ
THALLIUM CHLORIDE	07791-12-0	Tl	07440-28-0	---		2.8E-01	T	R Q

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 123456789012345
PHOSPHINE	07803-51-2			140.0	Z	3.0E-01	E M	H
STIBINE	07803-52-3			---		1.2	T	H
SILICON TETRAHYDRIDE	07803-62-5			---		16.0	T M	
AMMONIUM BISULFATE	07803-63-6			120.0	D	---	X	
TOXAPHENE	08001-35-2			100.0	Z	3.1E-03	E H U	HI
PARAFFIN WAX	08002-74-2			---		4.8	T	
PYRETHRUM	08003-34-7			---		12.0	T M	I
NATURAL GAS	08006-14-2			---		1600.0	T	
GASOLINE	08006-61-9		86290-81-5	150000.0	A	2100.0	A	RR
TURPENTINE	08006-64-2			---		2700.0	T L	
COKE OVEN EMISSIONS	08007-45-2			---		1.6E-03	E H U	H
KEROSENE	08008-20-6			---		480.0	T	I
OIL MIST (MINERAL)	08012-95-1			380.0	s	12.0	T M	
METHYL DEMETON	08022-00-2			---		1.2E-01	T	
NAPHTHA (COAL TAR)	08030-30-6			---		3800.0	T	
VM&P NAPHTHA	08032-32-4			---		33000.0	T L	I
STODDARD SOLVENT	08052-41-3			---		1300.0	T	
ASPHALT	08052-42-4			---		1.2	T	I
DEMETON	08065-48-3			---		1.2E-01	T	I
ETHOXYLATED ALCOHOLS	09002-92-0		00110-80-5	1500.0	A	800.0	A M	RR MM
POLYACRYLIC ACID	09003-01-4		00079-10-7	6000.0	A	1.0	A M	RR
POLYPROPYLENE	09003-07-0		NY075-00-5	380.0	s	---	X L	R
POLYSTYRENE DUST	09003-53-6		00100-42-5	380.0	s	45.0	S M	RR
CELLULOSE	09004-34-6			---		24.0	T	
STARCH	09005-25-8			---		24.0	T	I
RUBBER DUST	09006-04-6			---		2.4E-03	T	I
MANGANESE ROSINATE	09008-34-8		07439-96-5	---		5.0E-02	A	H R
SUBTILISINS	09014-01-1			6.0E-03	Y	---	X H	C
POLYMERIC MDI	09016-87-9			75.0	D	6.0E-01	E H	
ACRYLIC MONOMERS	09081-82-7		00080-62-6	41000.0	A	700.0	A M	RR
CADMIUM NITRATE TET	10022-68-1	Cd	07440-43-9	---		5.9E-04	D U	H R Q
NITROUS OXIDE	10024-97-2			---		210.0	T	I
SULFUR MONOCHLORIDE	10025-67-9			380.0	s	---	X	C
CHROMIUM CHLORIDE	10025-73-7	Cr	16065-83-1	---		45.0	S	H R Q
PHOSPH OXYCHLORIDE	10025-87-3			---		1.5	T	
ANTIMONY TRICHLORIDE	10025-91-9	Sb	07440-36-0	---		2.2	T	H R Q
SELENIUM CHLORIDE	10026-03-6	Se	07782-49-2	---		45.0	S	H R Q
PHOSPH PENTACHLORIDE	10026-13-8			---		2.0	T	
COBALT TRIFLUORIDE	10026-18-3	Co	07440-48-4	---		2.0E-03	D	H R Q
FERRIC SULFATE	10028-22-5		07664-93-9	120.0	A	1.0	A L	RR
SODIUM CHROMATE(VI)	10034-82-9	Cr	18540-29-9	---		9.1E-05	H H U	H R Q
HYDROGEN BROMIDE	10035-10-6			680.0	Y	---	X L	C
BORATE	10043-35-3			---		4.8	T	
MERCURY NITRATE	10045-94-0	Hg	07439-97-6	2.9	D	4.9E-01	E H	H RRQQ
CHLORINE DIOXIDE	10049-04-4			83.0	Z	2.0E-01	E M	
CHROMIUM CHLORIDE	10060-12-5	Cr	16065-83-1	---		45.0	S	H R Q
NITRIC ACID,LEADSALT	10099-74-8	Pb	07439-92-1	---		5.0E-01	s H	H R Q
CHROMIUM SULFATE	10101-53-8	Cr2	16065-83-1	---		45.0	S	H R Q
NICKEL SULFATE	10101-97-0	Ni	Ni*INORG**	---		1.9E-02	E H U	H R Q
NITROGEN OXIDE	10102-43-9			---		74.0	T	
NITROGEN DIOXIDE	10102-44-0			---	X	100.0	S	I
THALLIUM NITRATE	10102-45-1	Tl	07440-28-0	---		3.1E-01	T	R Q
CADMIUM CHLORIDE	10108-64-2	Cd	07440-43-9	---		3.9E-04	D H U	H R Q

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T 123456789012345
CADMIUM SULFATE	10124-36-4	Cd	07440-43-9	---		4.5E-04	D H U H R Q
COBALT SULFATE	10124-43-3	Co	07440-48-4	---		2.7E-03	D H R Q
POTASSIUM ARSENITE	10124-50-2	As	07440-38-2	---		5.1E-04	E H U H R Q
MANGANESE PHOSPHATE	10124-54-6	Mn	07439-96-5	---		1.4E-01	E H R Q
CHROMIUM K SULFATE	10141-00-1	Cr	16065-83-1	---		45.0	S H R Q
LEAD MOLYBDATE	10190-55-3	Pb	07439-92-1	---		6.7E-01	s H H R Q
COBALT CARBONYL	10210-68-1	Co2	07440-48-4	---		2.9E-03	D H R Q
BORON TRIBROMIDE	10294-33-4			380.0	s	---	X C
BARIUM CHROMATE	10294-40-3	Cr	18540-29-9	---		9.8E-05	H H U H R Q
CADMIUM NITRATE	10325-94-7	Cd	07440-43-9	---		5.1E-04	D H U H R Q
MANGANESE NITRATE	10377-66-9	Mn	07439-96-5	---		1.1E-01	E H R Q
NICKEL PHOSPHATE	10381-36-9	Ni3	Ni*INORG**	---		8.8E-03	E H U H R Q
MERCUROUS NITRATE	10415-75-5	Hg	07439-97-6	2.4	D	3.9E-01	E H H RRQQ
SODIUM DICHROMATE	10588-01-9	Cr2	18540-29-9	---		5.1E-05	H H U H R Q
CARBENDAZIM	10605-21-7		01563-66-2	---		2.4E-01	A M R
PCB AROCLOR 1260	11096-82-5			---		2.0E-03	E H U H
PCB AROCLOR 1254	11097-69-1			---		2.0E-03	E H U HI
PCB AROCLOR 1268	11100-14-4			---		2.0E-03	E H U H
ZINC CHROMATE	11103-86-9	Cr2	18540-29-9	---		8.1E-05	H H U HA R Q
PCB AROCLOR 1221	11104-28-2			---		1.0E-02	E H U H
CHROMIC ACID	11115-74-5	Cr	18540-29-9	---		4.5E-05	H H U H R Q
LEAD SILICATE	11120-22-2	Pb3	07439-92-1	---		4.8E-01	s H H R Q
PCB AROCLOR 1232	11141-16-5			---		1.0E-02	E H U H
SYNTHETIC SILICA	11294552-5		14464-46-1	---		6.0E-02	A H R
MICA	12001-26-2			---		7.1	T
CROCIDOLITE	12001-28-4		01332-21-4	---		1.6E-05	A H U HAI R
CHRYSOTILE	12001-29-5		01332-21-4	---		1.6E-05	A H U H R
MERCURY "NUCLEATE"	12002-19-6			1.8	D	---	X H
NICKEL BORIDE	12007-02-2	Ni3	Ni*INORG**	---		4.4E-03	E H U H R Q
CHROMIUM DIOXIDE	12018-01-8	Cr	16065-83-1	---		45.0	S H R Q
CHROMIUM ZINC OXIDE	12018-19-8	Cr	18540-29-9	---		9.0E-05	H U H R Q
NICKEL SUBSULFIDE	12035-72-2	Ni3	Ni*INORG**	8.2	D	2.8E-03	E H U HAI QQ
THALLIUM SELENITE	12039-52-0	Se	07782-49-2	---		45.0	S M H R Q
NICKEL HYDROXIDE	12054-48-7	Ni	Ni*INORG**	---		6.6E-03	E H U H R Q
LEAD TITANIUM OXIDE	12060-00-3	Pb	07439-92-1	---		5.6E-01	s H H R Q
LEAD ZIRCONIUM OXIDE	12060-01-4	Pb	07439-92-1	---		6.4E-01	s H H R Q
MANGANESECYCLOPENTAD	12079-65-1	Mn		---		8.8E-01	T H Q
METHYLCYCLOPENTADIEN	12108-13-3	Mn		---		1.5	T H Q
AMMONIUM BROMIDE	12124-97-9		12125-02-9	380.0	s	24.0	A M RR
AMMONIUM CHLORIDE	12125-02-9			380.0	s	24.0	T M
AMOSITE	12172-73-5		01332-21-4	---		1.6E-05	A H U HAI R
BORATES,PENTAHYDRATE	12179-04-3			---		4.8	T
PHOSPHORUS (YELLOW)	12185-10-3			---		7.0E-02	D M H
LEAD OXIDE SULFATE	12202-17-4	Pb	07439-92-1	---		6.4E-01	s H H R Q
SODIUM MONOXIDE	12401-86-4			---		5.0	D
CADMIUM ZINC SULFATE	12442-27-2	Cd	07440-43-9	---		4.5E-04	D H U H R Q
FERROVANADIUM DUST	12604-58-9			300.0	Z	2.4	T
LEAD TITANATE ZIRCON	12626-81-2	Pb	07439-92-1	---		7.2E-01	s H H R Q
NICKEL TITANATE	12653-76-8	Ni	Ni*INORG**	---		1.1E-02	E H U H R Q
PCB AROCLOR 1248	12672-29-6			---		2.0E-03	E H U H
PCB AROCLOR 1016	12674-11-2			---		1.0E-02	E H U H
NICKEL CARBIDE	12710-36-0	Ni	Ni*INORG**	---		5.9E-03	E H U H R Q
CHLORDANE, TECHNICAL	12789-03-6			---		1.0E-02	E H U

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	-----codes----- 111111 W T 123456789012345
PAH(s)	13049829-2			---		2.0E-02	H H U HI
TERBUFOS	13071-79-9			---		2.4E-02	T I
CYHEXATIN	13121-70-5			---		12.0	T I
NICKEL NITRATE	13138-45-9	Ni	Ni*INORG**	---		1.3E-02	E H U H R Q
PHTHALIC ANHYD.,cis-	13149-00-3			5.0E-01	Y	---	X CI
CHRYSOTILE	13220732-0		01332-21-4	---		1.6E-05	A H U HAI R
GYPSUM	13397-24-5			---		24.0	T I
SELENIC ACID DISOD	13410-01-0	Se	07782-49-2	---		45.0	S R Q
NICKEL BROMIDE	13462-88-9	Ni	Ni*INORG**	---		1.6E-02	E H U H R Q
NICKEL CARBONYL	13463-39-3	Ni	Ni*INORG**	---		1.2E-02	E H U H R Q
IRON PENTACARBONYL	13463-40-6			160.0	Z	1.9	T
TITANIUM DIOXIDE	13463-67-7			---		24.0	T I
ARSENOUS ACID	13464-58-9	As		---		4.7E-02	T H HA Q
CARENE, 3-	13466-78-9			---		270.0	T I
TELLURIUM	13494-80-9	Te		---		2.4E-01	T
BE ETHYL DIAM CL	13497-34-2	Be	07440-41-7	22.0	Z	9.3E-03	E H U H RRQQ
BERYLLIUM SULFATE	13510-49-1	Be	07440-41-7	12.0	Z	4.9E-03	E H U H RRQQ
ZINC CHROMATE	13530-65-9	Cr	18540-29-9	---		7.1E-05	H H U HA R Q
CHROMIC ACID	13530-68-2	Cr2	18540-29-9	---		4.2E-05	H H U H R Q
SODIUM FERROCYANIDE	13601-19-9	C6N6	00057-12-5	380.0	s	45.0	S H H RRQQ
SODIUM CUPRICCYANIDE	13715-19-0	C2N2	00057-12-5	380.0	s	45.0	S H RRQQ
POTASSIUM FERRICYANI	13746-66-2	CN	00057-12-5	380.0	s	45.0	S H RRQQ
CALCIUM CHROMATE	13765-19-0	Cr	18540-29-9	---		6.1E-05	H H U HB R Q
NICKEL SULFAMIDE	13770-89-3	Ni	Ni*INORG**	---		1.1E-02	E H U H R Q
DEUTERIUM SULFATE	13813-19-9		07664-93-9	120.0	A	1.0	A M RR
LEAD FLUOROBORATE	13814-96-5	Pb	07439-92-1	---		5.4E-01	s H H R Q
ENFLURANE	13838-16-9			---		1300.0	T I
CHROMATE	13907-45-4	Cr	18540-29-9	---		4.5E-05	H H U H R Q
POTASSIUM FERROCYANI	13943-58-3	CN	00057-12-5	380.0	s	45.0	S H RR
POTASSIUM GOLD CYANI	13967-50-5	C2N2	00057-12-5	380.0	s	45.0	S H RRQQ
SULFOMIC ACID, Co	14017-41-5	Co2	07440-48-4	---		1.8E-03	D H R Q
PHTHALIC ANHY.,trans	14166-21-3			5.0E-01	Y	---	X CI
SODIUM FERRICYANIDE	14217-21-1	C6N6	00057-12-5	380.0	s	45.0	S H H RRQQ
POTASSIUM NICKELCYN	14220-17-8	Ni	Ni*INORG**	---		1.7E-02	E H U H R Q
CD DIETHDITHIOCARB	14239-68-0	Cd	07440-43-9	---		8.7E-04	D H U H R Q
POTASSIUMGOLDCYANIDE	14263-59-3	C4N4	00057-12-5	380.0	s	45.0	S H H RRQQ
CHROMIC ACID, DILITH	14307-35-8	Cr	18540-29-9	---		5.1E-05	H H U H R Q
SILICA - CRYSTALLINE	14464-46-1			---		6.0E-02	T BI
FERBAM	14484-64-1			---		24.0	T I
TALC	14807-96-6			---		4.8	T I
SILICA - QUARTZ	14808-60-7			---		6.0E-02	T HBI
DIMTHYLETHOXYSILANE	14857-34-2			380.0	s	5.0	T
CHROMIUM OXYCHLORIDE	14977-61-8	Cr	18540-29-9	---		6.0E-05	H H U H R Q
SODIUM ZINC CYANIDE	15333-24-1	C4N4	00057-12-5	380.0	s	45.0	S H H RRQQ
MERCUROUS OXIDE	15829-53-5	Hg2	07439-97-6	1.9	D	3.1E-01	E H H RRQQ
ALACHLOR	15972-60-8			---		2.4	T M I
CHROMIUM III	16065-83-1	Cr		---		45.0	S M HI
ETHYLIDENENORBORNENE	16219-75-3			2500.0	Y	---	X C
METHOMYL	16752-77-5			---		6.0	T I
COBALT HYDROCARBONYL	16842-03-8	Co	07440-48-4	---		2.9E-03	D H R Q
ANTIMONATE,HEXAFL,Na	16925-25-0	Sb	07440-36-0	---		2.5	T H R Q
DECABORANE	17702-41-9			75.0	Z	6.0E-01	T
BENOMYL	17804-35-2			---		24.0	T I

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T	codes 123456789012345
DI(ME)TETRA(MEO)DISI	18186-97-5		00681-84-5	---		14.0	A M	R
TIN DIOXIDE	18282-10-5	Sn		---		6.0	T	Q
LEAD CHROMATE OXIDE	18454-12-1	Cr	18540-29-9	---		2.1E-04	H H U H	R Q
CHROMIUM(VI)	18540-29-9	Cr		---		2.0E-05	H H U HAK	
DIBORANE	19287-45-7			---		2.6E-01	T	
HEXA-CDD	19408-74-3			---		7.7E-07	E U	
PERFLUOROBUTYL ETHY.	19430-93-4			---		2400.0	T	
PENTABORANE	19624-22-7			3.9	Z	3.1E-02	T	
CHROMIUM OXIDE PYRID	20492-50-6	Cr	18540-29-9	---		9.9E-05	H U H	R Q
OSMIUM TETROXIDE	20816-12-0	Os		6.3E-01	Z	5.1E-03	T	QQ
METRIBUZIN	21087-64-9			---		12.0	T I	
CESIUM HYDROXIDE	21351-79-1			---		4.8	T	
STONNOUS OXIDE	21651-19-4	Sn		---		5.4	T	Q
MERCURIC OXIDE	21908-53-2	Hg	07439-97-6	1.9	D	3.2E-01	E H H	RRQQ
FENAMIPHOS	22224-92-6			---		1.2E-01	T I	
METHYLMERCURY	22967-92-6	Hg	Hg*ALKYL**	3.0	Z	2.4E-02	T H H	
POLYETHYLENEGLYCOLDI	24991-55-7		00110-80-5	370.0	A	200.0	A M	RR MM
VINYL TOLUENE	25013-15-4			48000.0	Z	580.0	T I	
PROPANOL, OXYBIS	25265-71-8		00110-80-5	550.0	A	300.0	A L H	RR MM
DINITROTOLUENE	25321-14-6			---		1.1E-02	D H U HI	
LEAD CARBONATE	25510-11-6	Pb	07439-92-1	---		4.9E-01	s H H	R Q
TRIMETHYL BENZENE	25551-13-7			---		290.0	T M	
METHYLCYCLOHEXANOL	25639-42-3			---		560.0	T	
POLYOXYPROPYLENE	25791-96-2		00110-80-5	1100.0	A	590.0	A M	RR MM
TERPHENYLS	26140-60-3			500.0	Y	---	X C	
BENZ METHBIS ISOCYAN	26447-40-5		00101-68-8	14.0	A	6.0E-01	A H	RR
TOLUENE DIISOCYANATE	26471-62-5			14.0	Z	7.0E-02	E H I	
METHYLCYCLOPENTADIEN	26519-91-5		00542-92-7	---		480.0	A M	R
MERCURY,NEODEC.,PHEN	26545-49-3	Hg	Hg*ALKYL**	---		5.3E-02	T H H	R Q
SODIUM AZIDE	26628-22-8			29.0	Y	---	X CI	
DIISODECYL PHTHALATE	26761-40-0		00084-66-2	---		12.0	A M	R
ISOOCTYL ALCOHOL	26952-21-6			---		630.0	T	
DIISOOCTYLPHTHALATE	27554-26-3		00084-66-2	---		12.0	A M	R
HDI POLYMER	28182-81-2			75.0	D	6.0E-01	D M	
BROMADIOLONE	28772-56-7			---		2.0E-05	* H	
ANISIDINE	29191-52-4			---		1.2	T M	
CHLORINATED DIPH OX	31242-93-0			---		1.2	T	
DIPROPGLYCOLMETHETHR	34590-94-8			91000.0	Z	1400.0	T	
BUTANOL	35296-72-1		00071-36-3	---		1500.0	A L	R
PIGMENT RED	35355-77-2		07439-96-5	---		5.0E-02	A H	R
SULPROFOS	35400-43-2			---		2.4	T I	
GOLD CYANIDE	37187-64-7	CN	00057-12-5	380.0	s	45.0	S H H	RRQQ
ZINC CHROMATE	37300-23-5	Cr4	18540-29-9	---		8.4E-05	H H U HA	R Q
PCB AROCLOR 1262	37324-23-5			---		2.0E-03	E H U H	
NICKEL,BIS(1-(4-DIME	38465-55-3	Ni	07440-02-0	64.0	D	4.5E-02	E H U H	RRQQ
DIALKYL PHTHALATES	39393-37-8		00084-66-2	---		12.0	A M	R
BERULLIUM ZINC SILIC	39413-47-3	Be	07440-41-7	18.0	Z	7.7E-03	E H U HB	RRQQ
BARIUM LEAD SULFATE	42579-89-5	Pb	07439-92-1	---		8.1E-01	s H H	R Q
CHROMIUM ZINC OXIDE	50922-29-7	Cr2	18540-29-9	---		4.5E-05	H H U H	R Q
TCDFURAN, 2,3,7,8-	51207-31-9		01746-01-6	---		3.0E-08	A H U H	R
LEAD ACETATE	51404-69-4	Pb3	07439-92-1	---		4.9E-01	s H H	R Q
NICKEL AZO YELLOW	51931-46-5	Ni	07440-02-0	67.0	D	4.7E-02	E H U H	RRQQ
CYPERMETHRIN	52315-07-8		08003-34-7	---		12.0	A M	R

CHEMICAL NAME	CAS NUMBER	TOXIC ELEMENT	REFERENCED COMPOUND	SGC ug/m3	W	AGC ug/m3	codes W T 123456789012345
PERMETHRIN	52645-53-1		08003-34-7	---		12.0	A M R
COBALT COMPLEX	53108-50-2	Co	07440-48-4	---		4.2E-03	D M H R Q
PCB AROCLOR 1242	53469-21-9			---		1.0E-02	E H U H
TETRAKIS PHOSPH.SULF	55566-30-8			---		4.8	T I
Cd CYCLOHEXANE BUTY	55700-14-6	Cd	07440-43-9	---		6.0E-04	D H U H R Q
PROPANOL, BUTOXYMET-	55934-93-5		00110-80-5	1000.0	A	550.0	A H RR MM
LEADSTEARATE	56189-09-4	Pb2	07439-92-1	---		9.3E-01	s H H R Q
HEXA-CDD	57653-85-7			---		7.7E-07	E U
DIETHYLEN GLYCOL ADP	58984-19-3		00110-80-5	370.0	A	200.0	A H RR
MAPP	59355-75-8			210000.0	Z	3900.0	T
ULTEM	61128-46-9		NY075-00-5	380.0	s	---	X M R
HYDROGENATED TERPHEN	61788-32-7			---		12.0	T
COBALT NAPTHA	61789-51-3		07440-48-4	---		1.0E-03	A M H R
LEAD NAPHTHENATE	61790-14-5	Pb	07439-92-1	---		6.2E-01	s H H R Q
SILOXANESSILICONDIME	63148-62-9		07803-62-5	---		16.0	A M R
COKE(PETROLEUM)	64741-79-3		08007-45-2	---		1.6E-03	A U H R
DISTILL.HYDR0 LIGHT	64742-47-8			---		480.0	T I
KEROSENE	64742-81-0			---		480.0	T I
NAPHTHA HEAVY	64742-94-5		08030-30-6	---		3800.0	A M R
NAPHTHA LIGHT	64742-95-6		08030-30-6	---		3800.0	A M R
COKE	65996-77-2		08007-45-2	---		1.6E-03	A U H R
COAL TAR PITCH VOLAT	65996-93-2			---		4.8E-01	T A
PORTLAND CEMENT	65997-15-1			---		24.0	T
ALPHAMETHRIN	67375-30-8		08003-34-7	---		12.0	A M R
CHROME TANNED COWHID	68131-98-6		18540-29-9	---		2.0E-05	A H U H R
PETROLEUM SULFONATE	68425-94-5		00110-54-3	---		700.0	A L R
LIQUIFIED GAS	68476-85-7			---		2400.0	T
MELAMINEFORMALDEHYDE	68891-01-0		00050-00-0	30.0	A	6.0E-02	A M U RR
LEAD,BENZENEDICARBOX	69011-06-9	Pb3	07439-92-1	---		5.0E-01	s H H R Q
LEAD ALLOY,SN ,DROSS	69011-60-5	Pb	07439-92-1	---		6.0E-01	s H H R Q
BUTADIENE POLYMER	69102-90-5		00106-99-0	---		3.3E-02	A H U R
SULFOMETURON METHYL	74222-97-2			---		12.0	T I
ETHOXYLATED ALCOHOLS	74432-13-6		00110-80-5	1500.0	A	800.0	A M RR MM
ACTINOLITE	77536-66-4		01332-21-4	---		1.6E-05	A H U HAI R
ANTHOPHYLLITE	77536-67-5		01332-21-4	---		1.6E-05	A H U HAI R
TREMOLITE	77536-68-6		01332-21-4	---		1.6E-05	A H U HAI R
BIFENTHRIN	82657-04-3		08003-34-7	---		12.0	A M R
GASOLINE	86290-81-5			150000.0	Z	2100.0	T I
PHOSPHORIC ACID, REA	92203-02-6		07664-38-2	300.0	A	10.0	A H RR
PARTICULATE	NY075-00-0			380.0	s	45.0	S K
PARTICULATE (PM-10)	NY075-00-5			380.0	s	---	X K
PARTICULATE (PM-2.5)	NY075-02-5			160.0	s	15.0	S K

TOXICITY (T):

- **(H) HIGH Toxicity Contaminant.**
- **(M) MODERATE Toxicity Contaminant.**
- **(L) LOW Toxicity Contaminant.**

WHO (W), Source of AGC/SGC Assignment:

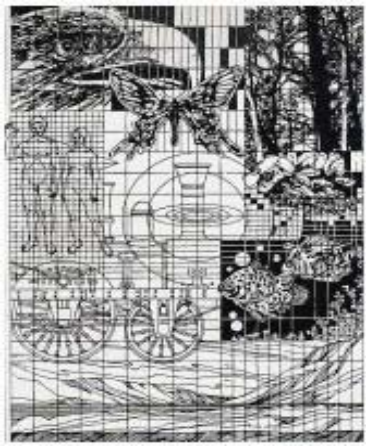
- **(A) AGC/SGC based upon NYSDEC "Analogy".**
- **(D) NYSDEC derived AGC/SGC.**
- **(E) AGC based upon EPA IRIS data (RFC or Unit Risk).**
- **(H) NYSDOH derived AGC/SGC.**
- **(S) AGC/SGC listed is FEDERAL or NYS Standard.**
- **(T) AGC based upon ACGIH TLV.**
- **(Y) SGC is based on ACGIH TLV Ceiling limit.**
- **(Z) SGC is based on ACGIH STEL.**
- **(*) AGC assigned High Toxicity "de minimis" limit.**
- **( ) There is no SGC for this compound.**

WHO (W), Source of special AGC/SGC Interim Assignment:

- **(s) AGC/SGC based upon Equivalent FEDERAL or NYS Standard.**
- **(X) There is no AGC/SGC value for this contaminant.**

-----codes-----
111111
123456789012345:

codes, (Position 1):
(U) AGC equivalent to "one in a million risk".
codes, (Position 3):
(H) FEDERAL HAP identified by 1990 CAAA.
codes, (Positions 4 & 5):
(A) ACGIH Human Carcinogen.
(B) ACGIH Suspected Human Carcinogen.
(C) ACGIH Ceiling Limit.
(G) ACGIH Simple Asphxiant.
(I) Refer to ACGIH Handbook: (Code A3,A4,A5 or particulate fraction).
(K) Multiple TLVs assigned in ACGIH Handbook.
codes, (Position 8):
(Q) REFERENCED AGC adjusted for elemental assignment.
codes, (Position 9):
(Q) REFERENCED SGC adjusted for elemental assignment.
codes, (Position 10):
(R) AGC ASSIGNED TO REFERENCED COMPOUND.
codes, (Position 11):
(R) SGC ASSIGNED TO REFERENCED COMPOUND.
codes, (Position 12):
(Q) AGC ASSIGNED AS DIFFERENT ELEMENT(s) & ADJUSTED.
codes, (Position 13):
(Q) SGC ASSIGNED AS DIFFERENT ELEMENT(s) & ADJUSTED.
codes, (Position 14):
(M) REFERENCED AGC adjusted for MOLECULAR WEIGHTS.
codes, (Position 15):
(M) REFERENCED SGC adjusted for MOLECULAR WEIGHTS.



An Electronic Newsletter of EEA's Environmental Consulting Activities

Environmental Consulting INSIGHTS

Automated Parking Systems Offer Air Quality and Fuel Consumption Benefits

(printer friendly version uses Acrobat Reader)

Summer 2009

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EEA services include Phase I ESAs, Haz-Mat Testing and Remediation, Wetlands Delineation and Creation, Natural Resources Inventories, Marine Ecology Studies, Air Quality and Noise studies, and Environmental Management System (ISO 14000) implementation.

***Visit our web site** at*
http://www.eeaconsultants.com/

For information or quotes,

One of the newer technologies developed overseas and trying to make inroads into North America is the automated parking garage. An alternative to both valet parking and self-parking, with an automated garage, the driver enters the facility's staging area, driving just a short distance before stopping and turning off the engine. From there robotic platforms automatically convey the vehicle to a designated parking space. When the driver returns, the process is reversed with the vehicle conveyed back to the staging area, where the driver starts the engine and exits the garage.

Automated Parking Garage

Because the automated system involves much less driving within the garage, vehicular emissions should be greatly reduced, resulting in some quantifiable benefits to both air quality and fuel consumption. The U.S. Green Building Council crafted the Leadership in Energy and Environmental Design (LEED), a green building rating system that has been implemented internationally to promote green building design, construction, operations and maintenance solutions. The LEED Certification Program allows for independent evaluations to verify if a building meets the green building standards. Automated

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Vice President

parking garage systems have been applied successfully to LEED building designs. The LEED rating system is based on achieving a certain number of points. The Automated System can give a project up to 12 LEED points.

EEA worked with Simmatec's automated parking garage system to quantify the vehicle emissions this past year. EEA compared the potential emissions and fuel consumption impacts of an automated parking garage to those of a conventional (manual) parking garage. Although the procedures in the analysis were for a representative garage in New York City, the results should be comparable for garages in other metropolitan areas.

Lift System in Automated Garage

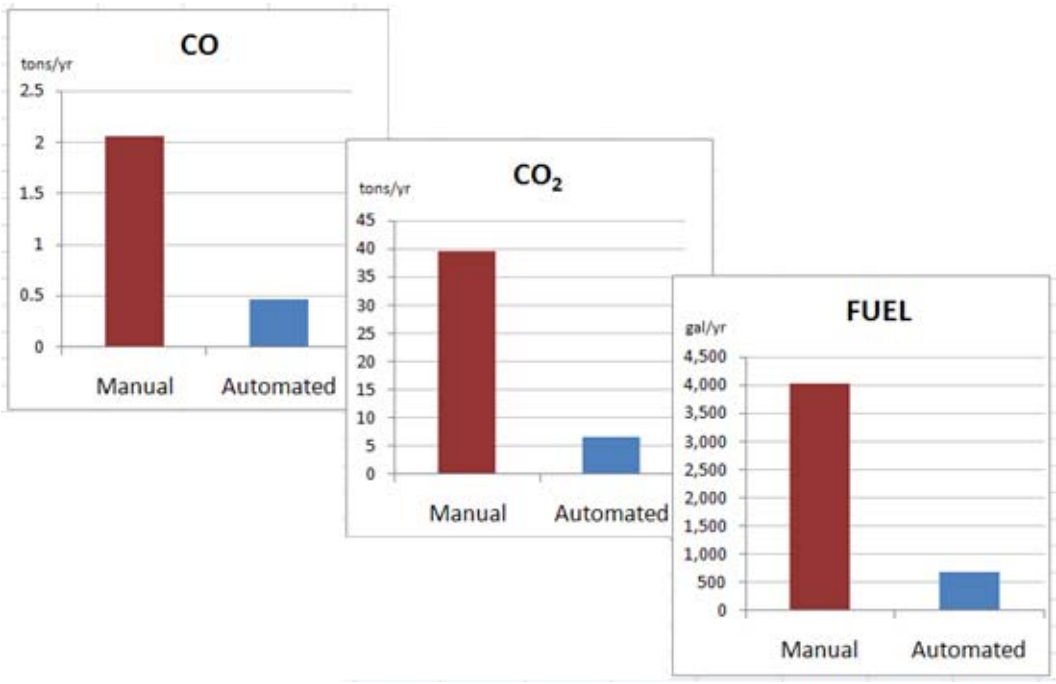
Emissions were estimated for vehicle travel within a 350-space manual parking garage versus a 350-space automated garage. The specific pollutants of concern were carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), and carbon dioxide (CO_2), a "greenhouse" gas of concern with respect to global warming. In addition, gasoline and diesel fuelconsumption was also evaluated. Parking garage emissions and fuel consumption were determined based on the hourly volumes of entering and exiting vehicles, the distance traveled, the average speed, and the amount of idling time.

Tower mobilizes vehicles within the Garage

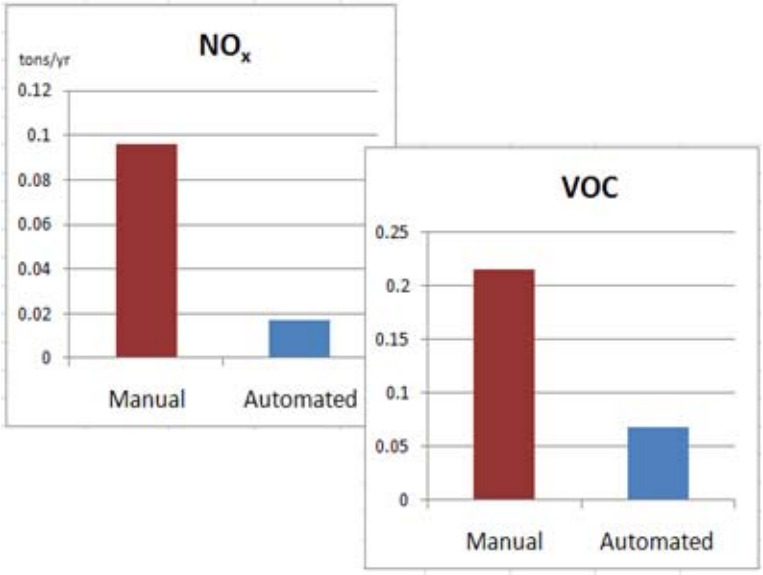
USEPA factors were used to determine the emission and fuel consumption rates for the parking facilities.

The hourly and daily pollutant emissions and fuel consumption for the manual and automated garages were then determined. The annual reductions, shown in the table below, were estimated by multiplying the daily values by 365 days per year. As can be seen, the automated garage results in a much lower level of emissions and fuel usage.

Parking Facility Type	Emissions (ton/year)				Fuel (gal/year)
	VOC	CO	NO_x	CO_2	
Manual Parking Garage	0.216	2.061	0.096	39.5	4,036
Automated Parking Garage	0.068	0.473	0.017	6.7	689
Reduction (%)	68	77	82	83	83



The analysis represented only an estimate of the mission reductions and fuel savings associated with an automated parking garage. The emissions and fuel consumption were based on a public garage operating 12 hours per day (7AM - 7 PM), 365 days per year. Although the results would vary for other types of parking facilities (e.g., accessory garages) and operating hours, the overall conclusion would remain: in comparison to manual parking garages, automated parking systems offer significant reductions in air pollutant emissions and fuel consumption. Although the absolute annual pollutant emissions from a single garage are not large, several hundred automated parking systems would result in a significant reduction in emissions.



In addition to the reduced emissions, Automated Parking Garages offer other benefits. They have an operating cost just under 50% of a Traditional Garage of the same number of spaces and have lower land acquisition costs due to a smaller footprint. The automated system also boasts a high safety rating. Many types of crimes, accidents and death-related incidents are eliminated including sexual assaults, automobile related accidents with children, damage to personal property caused by vehicular dents, car theft and break-ins.

For more information, please contact our Director of Air Quality & Noise, Vic Fahrer, at vfahrer@eeaconsultants.com, or Bill Larson at Simmatec, at williaml@areaco.com. You can also contact Vic at our Asheville, NC location (828) 777-0610.

EEA, Inc.

INTERNET LINKS:

Automated Parking, Robotic Parking, Parking Systems | Simmatec USA™
Automated Parking

National Parking Association

USGBC: Intro - What LEED Is

07/26/09