[Report]

Enhancement by Compression (ExC) Project Human Health Risk Assessment

Prepared for Iroquois Gas Transmission System
April 2020

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Acronyms

AEGLs	Acute Exposure Guideline Levels
AIEC	Acute Inhalation Exposure Criteria
ATSDR	Agency for Toxic Substances and Disease Registry
CalEPA	California Environmental Protection Agency
C*e*	Residential Exposure Concentrations
C*ma*	Modeled Air Concentrations
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COPC	Chemicals of Potential Concern
ED	Exposure Duration
EF	Exposure Frequency
ERPG	Emergency Response Planning Guidelines
FERC or Commission	Federal Energy Regulatory Commission
HAPs	Hazardous Air Pollutants
HHRA	Human Health Risk Assessment
HHRAP	Human Health Risk Assessment Protocol
HI	Hazard Index
hp	Horsepower
HQ	Hazard Quotient
ILCR	Incremental Lifetime Cancer Risk
IRIS	Integrated Risk Information System
Iroquois	Iroquois Gas Transmission System, L.P.
IUR	Inhalation Unit Risk
mg/m^3	Milligram per cubic meter of air
NA	Not Available/Applicable
NAAQS	National Ambient Air Quality Standard
NO_x	Nitrogen Oxides
OEHHA	Office of Environmental Health Hazard Assessment
PAC	Protective Action Criteria
PAHs	Polycyclic Aromatic Hydrocarbons

PM	Particulate Matter
PPRTV	Provisional Peer Reviewed Toxicity Values
REL	Reference Exposure Level
RfC	Reference Concentration
RME	Reasonable Maximum Exposure
SO_x	Sulfur Oxides
TEELs	Temporary Emergency Exposure Limits
Trinity	Trinity Consultants, Inc.
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
$\mu g/m^3$	Microgram per cubic meter of air

SECTION 1 Introduction

This Human Health Risk Assessment (HHRA) has been prepared as Appendix 9-E to Resource Report 9 for the proposed Enhancement by Compression (ExC) Project (Project) proposed by Iroquois Gas Transmission System, L.P. (Iroquois). Air modeling of facility emissions as used in the HHRA was provided by Trinity Consultants, Inc. (Trinity).

Iroquois is applying to the Federal Energy Regulatory Commission (Commission or FERC) for a Certificate of Public Convenience and Necessity under Section 7(c) of the Natural Gas Act for authorization to upgrade existing compressor stations located in Athens, NY, Dover, NY, Brookfield, CT, and Milford, CT. The Project includes upgrades to four compressor stations:

- Athens, Greene County, NY – integration of one (1) new approximately 12,000 horsepower (hp) turbine (Unit A2) with associated cooling, filter separators and other typical facilities connecting to the Iroquois 24-inch mainline in the Town of Athens, Greene County NY;
- Brookfield, Fairfield County, CT – addition of two (2) new turbines with approximately 12,000 hp each (Unit B1 & Unit B2) with associated cooling, filter separators and other typical facilities connecting to Iroquois' 24-inch mainline at Brookfield and to be installed downstream and independent of Iroquois' existing transfer compressors Unit A1 (Solar T-60) and Unit A2 (Solar T-70). One new approximately 450 kilowatt (kW) natural gas-fired reciprocating four-stroke lean-burn emergency generator would also be installed and operated;
- Dover, Dutchess County, NY – integration of one (1) new approximately 12,000 hp turbine (Unit A2) with associated cooling, filter separators and other typical facilities connecting to the Iroquois 24-inch mainline in the Town of Dover, Dutchess County NY. The existing emergency generator would be replaced with a new, approximately 1000 kW natural gas-fired reciprocating four-stroke lean-burn emergency generator; and
- Milford, New Haven County, CT – addition of gas cooling to existing Plant-A units and associated piping to allow for compressed discharge gas to be cooled. Currently, no gas cooling facilities exist at this station. The compressor station is in the City of Milford, New Haven County, CT.

There are no pipeline facilities proposed as part of the Project; therefore, there is no discussion of pipeline specific project elements within this HHRA.

1.1 Human Health Risk Assessment Approach

The objective of the HHRA is to evaluate potential exposures and human health risks associated with current and future operational emissions at each of the four compressor stations described above. The information provided in Sections 2 and 3 of this HHRA indicate that these emissions may be broadly characterized as hazardous air pollutants (HAPs). Due to the volatile nature of these chemical compounds, the only exposure pathway of significant concern is through inhalation. The human receptors evaluated in this HHRA are hypothetical residents because residential receptors, including children, are considered the most sensitive human receptors. The methods employed to assess health risks in this HHRA explicitly consider exposure and risk to sensitive subpopulations of residents such as children. The HHRA is designed to be highly conservative by assuming chronic exposure to maximum 5-year average concentrations of chemicals of potential concern (COPCs) at each compressor station fence or property line throughout the residential tenure of adults (30 years) and children (6 years) (USEPA 2005). This is a very conservative assumption since exposure and risk will decrease with distance from the fence or property line. The HHRA also evaluates acute exposure and risk associated with short-term (1-hour) maximum COPC emissions at each compressor station fence or property line.

The HHRA provides upper-bound estimates of individual cancer and noncancer risk for the theoretical Reasonable Maximum Exposure (RME) for adult and child receptors based on direct exposures to potential emissions from natural gas combustion. The RME approach is consistent with current USEPA (2005) guidance and is a conservative measure that overestimates potential risks, thus ensuring the protection of public health.

The HHRA was conducted following standardized risk assessment methods consistent with USEPA risk assessment guidance, including, but not limited to, the following guidance documents, as applicable:

- The Risk Assessment Guidelines of 1986 (USEPA 1987);
- Risk Assessment Guidance for Superfund, Volume I, Health Evaluation Manual, Part A (USEPA 1989); and
- Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities (USEPA 2005).

SECTION 2 Sources of Air Emissions

Resource Report 9 discusses the potential effect of the Project on local and regional air quality as it relates to criteria pollutants, greenhouse gases, and HAPs. This HHRA addresses the potential health effects of HAPs emitted from the natural gas-fired equipment. Air emissions from the operation of compressor stations include the following: exhaust emissions from natural gas combustion in reciprocating internal combustion engines, combustion turbines, and ancillary equipment, and emissions from releases of natural gas from fugitive emissions and venting. Iroquois has committed to installing hydrocarbon abatement systems designed to recover approximately 90 percent of vented natural gas emissions due to maintenance activities. In addition, federal regulations will require quarterly fugitive leak detection and 30-day leak repairs after start-up of the compressor horsepower additions. Fugitive emissions and emissions associated with venting are considered insignificant compared to combustion emissions; therefore, the focus of this HHRA is solely on combustion emissions, specifically existing and proposed turbines and emergency generators.

2.1 Natural Gas Combustion Emissions

Natural gas is comprised primarily of methane mixed with other hydrocarbons and contaminants depending on its geographical and geological origin. All gas transported by Iroquois must meet pipeline gas quality standards as defined in Iroquois' tariff.

The combustion of natural gas results in emissions of nitrogen oxides (NO_x), sulfur oxides (SO_x), carbon monoxide (CO), carbon dioxide (CO_2), particulate matter (PM), volatile organic compounds, and HAPs. HAPs are defined under the Clean Air Act of 1970 and are discussed in more detail below.

NO_x, SO_x, CO, and PM are not considered HAPs by definition but are grouped under the regulatory umbrella of National Ambient Air Quality Standards (NAAQS). The chemicals/compounds included under NAAQS are not typically evaluated quantitatively in health risk assessments but may be evaluated by simple comparison of modeled or measured air concentrations to the current standards. The air quality impacts of criteria pollutants are addressed in Resource Report 9.

The focus of this HHRA is on HAP emissions associated with current and future planned operations at each of the four compressor stations described in Section 1. The specific HAPs to be evaluated including chemical-specific emission factors are based on operating parameters obtained from compressor engine and turbine manufacturers, oxidation catalyst specifications and emission factors provided by vendors, and the 5th Edition of AP-42 Sections 3.1 and 3.2 (EPA 2000). For natural gas-fired turbines, the applicable HAPs are taken from AP-42 Table 3.1-3. For the natural gas-fired reciprocating four-stroke lean-burn emergency generators, the applicable HAPs were taken from AP-42 Table 3.2-2. Potential emissions were estimated for the maximum load case for each compressor engine or turbine.

The full list of HAPs to be evaluated in the HHRA for each compressor station are presented in Table 1. Chemical-specific emission factors utilized in Section 3 to estimate air concentrations for subsequent evaluation in the HHRA are presented in Appendix A.

Table 1: HAPs Modeled for Compressor Station Turbines and Emergency Generators

COPC	Turbines	Emergency Generators
Acenaphthene		X

COPC	Turbines	Emergency Generators
Acenaphthylene		X
Acetaldehyde	X	X
Acrolein	X	X
Benzene	X	X
Benzo(b)fluoranthene		X
Benzo(g,h,i)perylene		X
1,3-Butadiene	X	X
Carbon Tetrachloride		X
Chlorobenzene		X
Chloroform		X
Chrysene		X
1,3-Dichloropropene		X
Ethylbenzene	X	X
Fluoranthene		X
Fluorene		X
Formaldehyde	X	X
n-Hexane		X
Methanol		X
Methylene Chloride		X
2-Methylnaphthalene		X
Naphthalene	X	X
Phenanthrene		X
Phenol		X
Propylene Oxide	X	
Pyrene		X
Styrene		X
1,1,2,2 -Tetrachloroethane		X
Toluene	X	X
1,1,2 -Trichloroethane		X
2,2,4 -Trimethylpentane		X

COPC	Turbines	Emergency Generators
Vinyl Chloride		X
Xylene	X	X

2.2 Athens Compressor Station

Existing emissions sources at the Athens Compressor Station include an existing approximately 11,000 hp natural gas-fired turbine and existing emergency generator; proposed sources include one new approximately 12,000 hp natural gas-fired Unit A2 turbine. All emission sources at the Athens Compressor Station have unobstructed vertical releases and were therefore modeled as point sources. Stack parameters (i.e., height, diameter, exhaust gas temperature, and gas exit velocity) used in the modeling analyses were based on design values. There were no area or volume sources used in the modeling analysis (Trinity 2020a).

2.3 Brookfield Compressor Station

Existing emissions sources at the Brookfield Compressor Station include two natural gas-fired simple-cycle combustion turbines and an existing emergency generator; proposed sources include two new 12,000-hp natural gas-fired (Unit B1 & B2) turbines, and one new 450 kW natural gas-fired emergency generator. The proposed and existing turbines and emergency generators at the Brookfield Compressor Station have unobstructed vertical releases and were therefore modeled as point sources. Stack parameters used in the analyses were based on design values. There were no area or volume sources used in the modeling analysis (Trinity 2020b).

2.4 Dover Compressor Station

Existing emissions sources at the Dover Compressor Station include an approximately 20,000 hp natural gas-fired simple cycle combustion turbine and an existing emergency generator; proposed sources include one new 12,000 hp natural gas-fired Unit A2 turbine, and one 1,000 kW replacement generator. The proposed and existing turbines and emergency generators at the Dover Compressor Station have unobstructed vertical releases and were therefore modeled as point sources. Stack parameters used in the analyses were based on design values. There were no area or volume sources used in the modeling analysis (Trinity 2020c).

2.5 Milford Compressor Station

Existing emissions sources at the Milford Compressor Station include two existing turbines and one existing emergency generator. There are no new emissions sources proposed at the Milford Compressor Station as part of the proposed Project.

SECTION 3 Characterizing Air Emissions

3.1 Selection of Chemicals of Potential Concern

For the purpose of this HHRA, COPCs are defined as any HAP known or likely to be associated with natural gas combustion for which emission factors are available or could be derived based on the existing and proposed compressor station operations. For each COPC, emission factors were utilized as described in Section 3.2 to estimate chemical-specific air concentrations for use in the HHRA.

3.2 Air Modeling

Air modeling was conducted by Trinity in accordance with applicable rules, guidance, and requirements in the following guidance documents (Trinity 2020a, b, c):

- USEPA's Guideline on Air Quality Models, 40 CFR Part 51 - Appendix W,
- USEPA's AERMOD Implementation Guide,
- USEPA: User's Guide for the AMS/EPA Regulatory Model – AERMOD, and
- New York State Department of Environmental Conservation Guidelines on Dispersion Modeling Procedures for Air Quality Impact Analysis (DAR-10) (for the Athens and Dover Compressor Stations) or the Connecticut Department of Energy and Environmental Protection's Ambient Impact Analysis Guideline (for the Brookfield and Milford Compressor Stations).

The latest version of USEPA's AMS/EPA Regulatory Model (AERMOD version 19191), was used to evaluate the criteria pollutants (CO, NO_2, PM_{10}, $PM_{2.5}$, and SO_2) and ultimately estimate maximum ground-level concentrations of each COPC.

Modeling was performed assuming that the turbines operate concurrently at worst case maximum (i.e., 100%) load.

The "normal temperature" operating condition represents an ambient air temperature of 47°F for Athens and Dover, 50°F for Milford, and 49°F for Brookfield which is based on the annual average temperature at each compression station; "low temperature" operating conditions include an ambient air temperature of 0°F; and "high temperature" operating conditions include an ambient air temperature of 100°F. APU stack parameters are at 77°F which is the standard ambient temperature for which Caterpillar provides the values.

Per EPA guidelines, ground-level concentrations were calculated along the facility boundaries and within a Cartesian receptor grid outside the fence or property lines. In general, the receptors covered a region extending from all edges of the fence lines or property lines to the point where impacts from the Project are no longer expected to be measurable.

The unit impact modeling was based on setting the pollutant ID to "NO_2." Specifying "NO_2" as the pollutant and outputting the first high 1-hour concentration allows AERMOD to internally calculate the maximum 5-year average of the maximum hourly impacts on a receptor-by-receptor basis. The annual unit impacts are based on the maximum 5-year average of the maximum annual impacts on a receptor-by-receptor basis. The maximum predicted concentration for each air pollutant was used in the exposure assessment.

Modeling results are presented in Appendix A.

SECTION 4 Toxicity Assessment

Toxicity Assessment is the process of assessing the relationship between human intake of a chemical (e.g., dose) and the corresponding toxic response. This process is also known as dose-response assessment. The results of the dose-response assessment are generally referred to as toxicity values. Over the past 30 years, dose-response assessments have been routinely performed by State and Federal regulatory agencies, which publish toxicity values for various types of health effects and exposure pathways.

For this inhalation pathway risk assessment of residential exposures, the following toxicity values are used to assess potential health risks in Section 6 of this HHRA:

- Inhalation Unit Risk (IUR) in units of $(\mu g/m^3)^{-1}$. The IUR is defined as the concentration of chemical in air that corresponds to a one-in-one million (1×10^{-6}) cancer risk. The IUR is used in risk assessment to estimate potential Incremental Lifetime Cancer Risk (ILCR) associated with exposure to carcinogens.
- Reference Concentration (RfC) in units of mg/m^3. The RfC is defined as the concentration of a chemical in air that corresponds to the threshold air concentration below which chronic noncancer health effects are unlikely.
- Acute Inhalation Exposure Criteria (AIEC) in units of $\mu g/m^3$. The AIEC is defined as the concentration of a chemical in air that corresponds to the threshold air concentration below which acute noncancer health effects are unlikely.

There are multiple State and Federal regulatory agency sources for each of these toxicity values. This HHRA has established a hierarchy of preferred toxicity value sources with consideration given to (1) the use of most current toxicity data in their derivation; (2) whether a peer-review process was used by the agency; and (3) a commonly accepted hierarchy of preferred toxicity values.

4.1 Chronic Toxicity Values

For IURs and RfCs, the preferred source is the USEPA’s Integrated Risk Information System (IRIS; USEPA 2019a). For chemicals without IURs or RfCs in the IRIS database, the USEPA’s Provisional Peer-Reviewed Toxicity Values (PPRTVs; USEPA 2019b) is the secondary source. Tertiary sources of IURs and RfCs are the California Environmental Protection Agency (CalEPA) Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Database (CalEPA 2019a) and OEHHA’s Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary (CalEPA 2019b).

4.2 Acute Toxicity Values

For AIECs, the preferred source is OEHHA’s Acute RELs (see above). For COPCs without Acute RELs, the USEPA’s Acute Exposure Guideline Levels (AEGLs; USEPA 2019c) are the next preferred source, and in the absence of either Acute RELs or AEGLs, then the U.S. Department of Energy (USDOE) Protective Action Criteria (PAC; USDOE 2018) are selected as the AIEC. The PACs are a compilation of acute exposure thresholds based on AEGLs, Emergency Response Planning Guidelines (ERPGs), and Temporary Emergency Exposure Limits (TEELs). AEGLs are developed by the USEPA, ERPGs are developed by the American Industrial Hygiene Association, and TEELs are developed by the USDOE. The PAC data set implements the following hierarchy for selecting the PAC values from these three acute exposure thresholds: preference is given to AEGLs, followed by ERPGs, and lastly TEELs. For this HHRA, PAC-1 toxicity benchmarks were selected as these values reflect the exposure threshold for health effects associated with acute exposures corresponding to a 1-hour inhalation exposure.

Chronic and acute toxicity values are summarized in Table 2.

Table 2: Chronic and Acute Human Health Risk Assessment Toxicity Values

COPC	IUR $(\mu g/m^3)^{-1}$	Source	RfC (mg/m^3)	Source	AIEC $(\mu g/m^3)$	Source
Acenaphthene	NA	NA	NA	NA	3.6E+03	PAC-1
Acenaphthylene	NA	NA	NA	NA	1.0E+04	PAC-1
Acetaldehyde	2.2E-06	IRIS	9.0E-03	IRIS	4.7E+02	CalEPA-2
Acrolein	NA	NA	2.0E-05	IRIS	2.5E+00	CalEPA-2
Benzene	7.8E-06	IRIS	3.0E-02	IRIS	2.7E+01	CalEPA-2
Benzo(b)fluoranthene	1.1E-04	CalEPA-1	NA	NA	1.2E+02	PAC-1
Benzo(g,h,i)perylene	NA	NA	NA	NA	3.0E+04	PAC-1
1,3-Butadiene	3.0E-05	IRIS	2.0E-03	IRIS	6.6E+02	CalEPA-2
Carbon Tetrachloride	6.0E-06	IRIS	1.0E-01	IRIS	1.9E+03	CalEPA-2
Chlorobenzene	NA	NA	5.0E-02	PPRTV	4.6E+04	AEGL-1
Chloroform	2.3E-05	IRIS	9.8E-02	ATSDR	1.5E+02	CalEPA-2
Chrysene	1.1E-05	CalEPA-1	NA	NA	6.0E+02	PAC-1
1,3-Dichloropropene	4.0E-06	IRIS	2.0E-02	IRIS	1.4E+04	PAC-1
Ethylbenzene	2.5E-06	CalEPA-2	1.0E+00	IRIS	1.4E+05	AEGL-1
Fluoranthene	NA	NA	NA	NA	8.2E+03	PAC-1
Fluorene	NA	NA	NA	NA	6.6E+03	PAC-1
Formaldehyde	1.3E-05	IRIS	9.0E-03	CalEPA-2	5.5E+01	CalEPA-2
n-Hexane	NA	NA	7.0E-01	IRIS	9.1E+05	PAC-1
Methanol	NA	NA	2.0E+01	IRIS	2.8E+04	CalEPA-2
Methylene Chloride	1.0E-08	IRIS	6.0E-01	IRIS	1.4E+04	CalEPA-2
2-Methylnaphthalene	NA	NA	NA	NA	9.0E+03	PAC-1
Naphthalene	3.4E-05	CalEPA-2	3.0E-03	IRIS	7.9E+04	PAC-1
Phenanthrene	NA	NA	NA	NA	5.4E+03	PAC-1
Phenol	NA	NA	2.0E-01	CalEPA-1	5.8E+03	CalEPA-2
Propylene Oxide	3.7E-06	IRIS	3.0E-02	IRIS	3.1E+03	CalEPA-2
Pyrene	NA	NA	NA	NA	1.5E+02	PAC-1
Styrene	NA	NA	1.0E+00	IRIS	2.1E+04	CalEPA-2
1,1,2,2 -Tetrachloroethane	5.8E-05	CalEPA-2	NA	NA	2.1E+04	PAC-1

Toluene	NA	NA	5.0E+00	IRIS	3.7E+04	CalEPA-2
1,1,2-Trichloroethane	1.6E-05	IRIS	2.0E-04	PPRTV	1.6E+05	PAC-1
2,2,4-Trimethylpentane	NA	NA	NA	NA	1.1E+06	PAC-1
Vinyl Chloride	4.4E-06	IRIS	1.0E-01	IRIS	1.8E+05	CalEPA-2
Xylene	NA	NA	1.0E-01	IRIS	2.2E+04	CalEPA-2

Notes:

NA: Not available

IUR: Inhalation Unit Risk

RfC: Reference Concentration

AIEC: Acute Inhalation Exposure Criteria

IRIS: USEPA Integrated Risk Information System (USEPA 2019a)

CalEPA-1: OEHHA Toxicity Criteria Database (CalEPA 2019a)

CalEPA-2: OEHHA Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary (CalEPA 2019b)

PPRTV: Provisional Peer-Reviewed Toxicity Value (USEPA 2019b)

ATSDR: Agency for Toxicity and Disease Registry; chronic inhalation Minimal Risk Level (MRL)

PAC-1: Protective Action Criteria (USDOE 2018)

AEGL-1: Acute Exposure Guideline Levels (USEPA 2019c)

SECTION 5 Exposure Assessment Methodology

Exposure Assessment is the process of quantitatively characterizing exposure concentrations and potential human intake (e.g., dose). Exposure assessment results are subsequently integrated with toxicity information in the Risk Characterization (Section 6) to assess potential health risks. Modeled air concentrations of COPCs for each compressor station are presented in Appendix A. Toxicity information (e.g., toxicity values) is summarized above in Section 4.

While the 1-hour acute toxicity values (e.g., AEICs) presented in Section 4 correspond directly with the modeled 1-hour maximum air concentrations, relative to a chronic residential exposure scenario, the chronic toxicity values (IURs and RfCs) do not correspond directly with the modeled air concentrations relative to a chronic residential exposure scenario as described in the USEPA (2005) HHRAP guidance.

For chronic residential exposures associated with normal operations, exposure frequency (EF) is assumed to be 350 days per year, for adult and child, and exposure duration (ED) is assumed to be 30 years for an adult resident and 6 years for a child resident (USEPA 2005). In contrast, the laboratory animal-based inhalation toxicity studies upon which the chronic toxicity values are based assume continuous exposure for 365 days/year over the entire lifetime of the laboratory animals. For residential receptors a lifetime is assumed to be 70 years (USEPA 2005). For chronic residential exposures associated with emergency generators, exposure frequency is limited by Connecticut and New York regulations that limit the use of emergency generators to 300 hours per year (12.5 days per year) and 500 hours per year (20.8 days per year), respectively.

In order to account for residential exposure frequency and exposure duration, per USEPA (2005) guidance, the modeled air concentrations (C*ma*) were converted to residential exposure concentrations (C*e*) for application in the Risk Characterization, as follows:

For chronic residential adult exposures:

$$Ce = Cma \times (EF/365) \times (EDa/70)$$

Where,

C*e* = residential air exposure concentration (µg/m^3)

C*ma* = modeled air concentration (µg/m^3)

EF = exposure frequency (350 days/year for all turbines, 12.5 days/year for emergency generators in Connecticut and 20.8 days/year for emergency generators in New York)

ED*a* = adult resident exposure duration (30 years)

For chronic residential child exposures:

$$Ce = Cma \times (EF/365) \times (EDc/70)$$

Where,

C*e* = residential air exposure concentration (µg/m^3)

C*ma* = modeled air concentration (µg/m^3)

EF = exposure frequency (350 days/year for all turbines, 12.5 days/year for emergency generators in Connecticut, and 20.8 days/year for emergency generators in New York)

ED*c* = child resident exposure duration (6 years)

These equations were incorporated into the risk characterization equations used in Section 6 to estimate potential chronic health risks. These equations do not apply to the estimation of acute health risks because for acute exposures C*e* = C*ma*.

SECTION 6 Risk Characterization

Risk Characterization is the process of integrating exposure and toxicity information to characterize potential health risks. Under this process, chronic cancer risks are estimated for individual carcinogens, and the total risk from all carcinogens combined, referred to as the cumulative cancer risk, is then calculated by summing the cancer risks for all carcinogenic COPCs. A similar process is employed for chronic and acute noncancer risks whereby chronic and acute noncancer risks are estimated for individual COPCs, referred to as Hazard Quotients (HQs), and cumulative noncancer risk, referred to as the Hazard Index (HI), is then calculated by summing the individual chronic and acute noncancer HQs. The equations used to calculate cancer risk, chronic HQs, and acute HQs are as follows:

$$ILCR = C_e \times IUR$$

Where,

ILCR = Incremental Lifetime Cancer Risk (unitless)

C*e* = estimated chronic residential air concentration (µg/m^3) associated with normal operation of turbines and emergency generators combined

IUR = Inhalation Unit Risk $(\mu g/m^3)^{-1}$

Note: individual COPC adult and child ILCRs and cumulative adult and child ILCRs are calculated separately based on receptor-specific EDs of 30 years and 6 years for residential adults and children, respectively.

$$\text{Chronic HQ} = C_e / RfC \times CF$$

Where,

HQ = Hazard Quotient (unitless)

C*e* = estimated chronic residential air concentration (µg/m^3) associated with normal operation of turbines and emergency generators combined

RfC = Reference Concentration (mg/m^3)

CF = conversion factor of 0.001 mg/µg

$$\text{Acute HQ} = C_e / AIEC$$

Where,

HQ = Hazard Quotient (unitless)

C*e* = estimated acute residential air concentration (µg/m^3) associated with normal operation of turbines and emergency generators combined

AIEC = Acute Inhalation Exposure Criteria (µg/m^3)

Cumulative ILCR = Σ ILCR for individual carcinogenic COPCs

Chronic HI = Σ chronic HQs for individual COPCs

Acute HI = Σ acute HQs for individual COPCs

Risk characterization results are summarized and discussed below for each of the compressor stations.

6.1 Cancer Risk and Chronic Noncancer Risk

Potential cancer and chronic noncancer human health risks associated with modeled air concentrations at each of the four compressor stations are presented below. Note that the COPC air concentrations presented in the following tables are the modeled air concentrations, C*ma*. The residential exposure concentrations, C*e*, are integrated within the adult and child risk and HQ calculations.

6.1.1 Athens Compressor Station

The risk characterization results for chronic exposure to potential natural gas combustion emissions from the existing and modified Athens Compressor Station are summarized in Tables 3 and 4, respectively. Under existing conditions, the estimated adult cancer risks and child cancer risks do not exceed the target cancer risk benchmark of 1 x 10^{-6} for any individual COPC, and adult and child HQs do not exceed the target noncancer HQ of 1 for any individual COPC (Table 3). Under the proposed Project, the estimated adult cancer risks and child cancer risks do not exceed the target cancer risk benchmark of 1 x 10^{-6} for any individual COPC, and adult and child HQs do not exceed the target noncancer HQ of 1 (e.g., the level at which sensitive individuals can be exposed without risk of chronic noncancer health effects) for any individual COPC (Table 4).

Cumulative cancer risks associated with existing conditions and the proposed Project are both well below the target cancer risk benchmark of 1 x 10^{-6}. Under existing conditions, adult and child cumulative cancer risks are 4 x 10^{-7} and 9 x 10^{-8}, respectively. For the proposed Project, cumulative cancer risk for adults and children are 1 x 10^{-7} and 2 x 10^{-8}, respectively. The cumulative noncancer HI for existing conditions and the proposed Project do not exceed the target noncancer HI benchmark of 1 (HI=0.4 for existing conditions and HI=0.08 for the proposed Project; Table 3 and Table 4).

These risk characterization results demonstrate that current emissions and those projected under the proposed Project at the Athens Compressor Station do not pose an unacceptable chronic risk to human health, specifically hypothetical adult and child residents located immediately adjacent to the facility.

Table 3: Cancer and Chronic Noncancer Risk Assessment Results from the Existing Athens Compressor Station

COPC	C*ma* Turbine[a] (µg/m³)	C*ma* Emergency Generator[a] (µg/m³)	IUR (µg/m³)⁻¹	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Acetaldehyde	5.1E-05	1.9E-01	2.2E-06	1.0E-08	2.1E-09	9.0E-03	1.2E-03
Acrolein	8.1E-06	1.2E-01	NA	NA	NA	2.0E-05	3.4E-01
Benzene	1.5E-05	1.0E-02	7.8E-06	2.0E-09	4.0E-10	3.0E-02	2.0E-05
Benzo(b)fluoranthene	--	3.8E-06	1.1E-04	1.0E-11	2.1E-12	NA	NA
1,3-Butadiene	5.4E-07	6.2E-03	3.0E-05	4.5E-09	9.1E-10	2.0E-03	1.8E-04
Carbon Tetrachloride	--	8.5E-04	6.0E-06	1.2E-10	2.5E-11	1.0E-01	4.8E-07
Chlorobenzene	--	7.0E-04	NA	NA	NA	5.0E-02	8.0E-07
Chloroform	--	6.6E-04	2.3E-05	3.7E-10	7.4E-11	9.8E-02	3.8E-07

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	IUR (µg/m³)⁻¹	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Chrysene	--	1.6E-05	1.1E-05	4.3E-12	8.6E-13	NA	NA
1,3-Dichloropropene	--	6.1E-04	4.0E-06	6.0E-11	1.2E-11	2.0E-02	1.7E-06
Ethylbenzene	4.1E-05	9.2E-04	2.5E-06	9.8E-11	2.0E-11	1.0E+00	9.1E-08
Ethylene Dibromide	--	1.0E-03	6.0E-04	1.5E-08	3.0E-09	9.0E-03	6.5E-06
Formaldehyde	9.0E-04	1.2E+00	1.3E-05	3.9E-07	7.8E-08	9.0E-03	7.8E-03
n-Hexane	--	2.6E-02	NA	NA	NA	7.0E-01	2.1E-06
Methanol	--	5.8E-02	NA	NA	NA	2.0E+01	1.6E-07
Methylene Chloride	--	4.6E-04	1.0E-08	1.1E-13	2.3E-14	6.0E-01	4.4E-08
2-Methylnaphthalene	--	7.7E-04	NA	NA	NA	NA	NA
Naphthalene	1.6E-06	1.7E-03	3.4E-05	1.5E-09	2.9E-10	3.0E-03	3.3E-05
Phenol	--	5.5E-04	NA	NA	NA	2.0E-01	1.6E-07
Propylene Oxide	3.7E-05	--	3.7E-06	5.6E-11	1.1E-11	3.0E-02	1.2E-06
Styrene	--	5.5E-04	NA	NA	NA	1.0E+00	3.1E-08
Toluene	1.7E-04	9.4E-03	NA	NA	NA	5.0E+00	1.4E-07
1,1,2,2-Tetrachloroethane	--	9.2E-04	5.8E-05	1.3E-09	2.6E-10	NA	NA
1,1,2-Trichloroethane	--	7.3E-04	1.6E-05	2.9E-10	5.7E-11	2.0E-04	2.1E-04
2,2,4-Trimethylpentane	--	5.8E-03	NA	NA	NA	NA	NA
Vinyl Chloride	--	3.4E-04	4.4E-06	3.7E-11	7.4E-12	1.0E-01	2.0E-07
Xylene	8.1E-05	4.3E-03	NA	NA	NA	1.0E-01	3.2E-06
Cumulative Cancer Risk and Hazard Index				**4E-07**	**9E-08**		**0.4**
Target Cancer Risk and Hazard Index				**1E-06**	**1E-06**		**1**

Notes:

a - Maximum predicted 5-year average concentration at the fence line

Cma = modeled air concentration

IUR: Inhalation Unit Risk

RfC: Reference Concentration

"—" = COPC not modeled

NA – not applicable; toxicity values not available

Table 4: Cancer and Chronic Noncancer Risk Assessment Results from the Proposed Modified Athens Compressor Station

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	IUR $(\mu g/m^3)^{-1}$	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Acetaldehyde	1.1E-04	4.4E-02	2.2E-06	2.5E-09	4.9E-10	9.0E-03	2.9E-04
Acrolein	1.7E-05	2.7E-02	NA	NA	NA	2.0E-05	7.8E-02
Benzene	3.3E-05	2.3E-03	7.8E-06	5.5E-10	1.1E-10	3.0E-02	5.4E-06
Benzo(b)fluoranthene	--	8.8E-07	1.1E-04	2.4E-12	4.7E-13	NA	NA
1,3-Butadiene	1.2E-06	1.4E-03	3.0E-05	1.0E-09	2.1E-10	2.0E-03	4.1E-05
Carbon Tetrachloride	--	1.9E-04	6.0E-06	2.8E-11	5.7E-12	1.0E-01	1.1E-07
Chlorobenzene	--	1.6E-04	NA	NA	NA	5.0E-02	1.8E-07
Chloroform	--	1.5E-04	2.3E-05	8.4E-11	1.7E-11	9.8E-02	8.7E-08
Chrysene	--	3.7E-06	1.1E-05	9.8E-13	2.0E-13	NA	NA
1,3-Dichloropropene	--	1.4E-04	4.0E-06	1.4E-11	2.7E-12	2.0E-02	4.0E-07
Ethyl Benzene	8.7E-05	2.1E-04	2.5E-06	1.0E-10	2.0E-11	1.0E+00	9.5E-08
Ethylene Dibromide	--	2.3E-04	6.0E-04	3.4E-09	6.8E-10	9.0E-03	1.5E-06
Formaldehyde	1.9E-03	2.8E-01	1.3E-05	9.9E-08	2.0E-08	9.0E-03	2.0E-03
n-Hexane	--	5.9E-03	NA	NA	NA	7.0E-01	4.8E-07
Methanol	--	1.3E-02	NA	NA	NA	2.0E+01	3.8E-08
Methylene Chloride	--	3.5E-04	1.0E-08	8.6E-14	1.7E-14	6.0E-01	3.3E-08
2 -Methylnaphthalene	--	1.8E-04	NA	NA	NA	NA	NA
Naphthalene	3.5E-06	3.9E-04	3.4E-05	3.8E-10	7.5E-11	3.0E-03	8.6E-06
Phenol	--	1.3E-04	NA	NA	NA	2.0E-01	3.6E-08
Propylene Oxide	7.9E-05	--	3.7E-06	1.2E-10	2.4E-11	3.0E-02	2.5E-06
Styrene	--	1.2E-04	NA	NA	NA	1.0E+00	7.1E-09
Toluene	3.5E-04	2.2E-03	NA	NA	NA	5.0E+00	9.2E-08
1,1,2,2 -Tetrachloroethane	--	2.1E-04	5.8E-05	3.0E-10	6.0E-11	NA	NA
1,1,2-Trichloroethane	--	1.7E-04	1.6E-05	6.6E-11	1.3E-11	2.0E-04	4.8E-05
2,2,4-Trimethylpentane	--	1.3E-03	NA	NA	NA	NA	NA
Vinyl Chloride	--	7.9E-05	4.4E-06	8.4E-12	1.7E-12	1.0E-01	4.5E-08
Xylene	1.7E-04	9.7E-04	NA	NA	NA	1.0E-01	2.2E-06
Cumulative Cancer Risk and Hazard Index				**1E-07**	**2E-08**		**0.08**

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	IUR (µg/m³)⁻¹	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Target Cancer Risk and Hazard Index				**1E-06**	**1E-06**		**1**

Notes:

a - Maximum predicted 5-year average concentration at the fence line

Cma = modeled air concentration

IUR: Inhalation Unit Risk

RfC: Reference Concentration

"—" = COPC not modeled

NA – not applicable; toxicity values not available

6.1.2 Brookfield Compressor Station

The risk characterization results for chronic exposure to potential natural gas combustion emissions from the existing and modified Brookfield Compressor Station are summarized in Tables 5 and 6, respectively. Under existing conditions, the estimated adult cancer risks and child cancer risks do not exceed the target cancer risk benchmark of 1 x 10^{-6} for any individual COPC, and adult and child HQs do not exceed the target noncancer HQ of 1 for any individual COPC (Table 5). Under the proposed Project, the estimated adult cancer risks and child cancer risks do not exceed the target cancer risk benchmark of 1 x 10^{-6} for any individual COPC and adult and child HQs do not exceed the target noncancer HQ of 1 for any individual COPC (Table 6).

Cumulative cancer risks associated with existing conditions and the proposed Project are both well below the target cancer risk benchmark of 1 x 10^{-6}. Under existing conditions, adult and child cumulative cancer risks are 5 x 10^{-7} and 9 x 10^{-8}, respectively. For the proposed Project, cumulative cancer risks for adults and children are 5 x 10^{-7} and 1 x 10^{-7}, respectively. The cumulative noncancer HI under existing conditions does not exceed the target noncancer HI benchmark of 1 (HI=0.2), and the cumulative noncancer HI under the proposed Project also does not exceed the target noncancer benchmark of 1 (HI=0.2) (Tables 5 and 6).

These risk characterization results demonstrate that current emissions and those projected under the proposed Project at the Brookfield Compressor Station do not pose an unacceptable chronic risk to human health, specifically hypothetical adult and child residents located immediately adjacent to the facility.

Table 5: Cancer and Chronic Noncancer Risk Assessment Results from the Existing Brookfield Compressor Station

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	IUR (µg/m³)⁻¹	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Acetaldehyde	2.2E-03	1.9E-01	2.2E-06	8.2E-09	1.6E-09	9.0E-03	9.7E-04
Acrolein	3.5E-04	1.2E-01	NA	NA	NA	2.0E-05	2.2E-01
Benzene	6.5E-04	1.0E-02	7.8E-06	3.2E-09	6.5E-10	3.0E-02	3.2E-05
Benzo(b)fluoranthene	--	3.8E-06	1.1E-04	6.2E-12	1.2E-12	NA	NA
1,3-Butadiene	2.3E-05	6.2E-03	3.0E-05	3.0E-09	6.0E-10	2.0E-03	1.2E-04
Carbon Tetrachloride	0.0E+00	8.5E-04	6.0E-06	7.5E-11	1.5E-11	1.0E-01	2.9E-07
Chlorobenzene	--	7.0E-04	NA	NA	NA	5.0E-02	4.8E-07

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	IUR (µg/m³)⁻¹	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Chloroform	--	6.6E-04	2.3E-05	2.2E-10	4.4E-11	9.8E-02	2.3E-07
Chrysene	--	1.6E-05	1.1E-05	2.6E-12	5.2E-13	NA	NA
1,3-Dichloropropene	--	6.1E-04	4.0E-06	3.6E-11	7.2E-12	2.0E-02	1.0E-06
Ethyl Benzene	1.7E-03	9.2E-04	2.5E-06	1.8E-09	3.6E-10	1.0E+00	1.7E-06
Ethylene Dibromide	--	1.0E-03	6.0E-04	9.0E-09	1.8E-09	9.0E-03	3.9E-06
Formaldehyde	3.8E-02	1.2E+00	1.3E-05	4.4E-07	8.8E-08	9.0E-03	8.7E-03
n-Hexane	--	2.6E-02	NA	NA	NA	7.0E-01	1.3E-06
Methanol	--	5.8E-02	NA	NA	NA	2.0E+01	9.9E-08
Methylene Chloride	--	4.6E-04	1.0E-08	6.8E-14	1.4E-14	6.0E-01	2.6E-08
2-Methylnaphthalene	--	7.7E-04	NA	NA	NA	NA	NA
Naphthalene	7.1E-05	1.7E-03	3.4E-05	1.8E-09	3.7E-10	3.0E-03	4.2E-05
Phenol	--	5.5E-04	NA	NA	NA	2.0E-01	9.5E-08
Propylene Oxide	1.6E-03	--	3.7E-06	2.4E-09	4.8E-10	3.0E-02	5.0E-05
Styrene	--	5.5E-04	NA	NA	NA	1.0E+00	1.9E-08
Toluene	7.1E-03	9.4E-03	NA	NA	NA	5.0E+00	1.4E-06
1,1,2,2 -Tetrachloroethane	--	9.2E-04	5.8E-05	7.9E-10	1.6E-10	NA	NA
1,1,2-Trichloroethane	--	7.3E-04	1.6E-05	1.7E-10	3.5E-11	2.0E-04	1.3E-04
2,2,4-Trimethylpentane	--	5.8E-03	NA	NA	NA	NA	NA
Vinyl Chloride	--	3.4E-04	4.4E-06	2.2E-11	4.4E-12	1.0E-01	1.2E-07
Xylene	3.5E-03	4.3E-03	NA	NA	NA	1.0E-01	3.5E-05
Cumulative Cancer Risk and Hazard Index				**5E-07**	**9E-08**		**0.2**
Target Cancer Risk and Hazard Index				**1E-06**	**1E-06**		**1**

Notes:

a - Maximum predicted 5-year average concentration at the fence line

C*ma* = modeled air concentration

IUR: Inhalation Unit Risk

RfC: Reference Concentration

"—" = COPC not modeled

NA – not applicable; toxicity values not available

Table 6: Cancer and Chronic Noncancer Risk Assessment Results from the Proposed Modified Brookfield Compressor Station

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	IUR (µg/m³)⁻¹	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Acetaldehyde	2.6E-03	2.0E-01	2.2E-06	8.8E-09	1.8E-09	9.0E-03	1.0E-03
Acrolein	4.1E-04	1.2E-01	NA	NA	NA	2.0E-05	2.3E-01
Benzene	7.7E-04	1.1E-02	7.8E-06	3.7E-09	7.3E-10	3.0E-02	3.7E-05
Benzo(b)fluoranthene	--	4.0E-06	1.1E-04	6.4E-12	1.3E-12	NA	NA
1,3-Butadiene	2.7E-05	6.4E-03	3.0E-05	3.2E-09	6.3E-10	2.0E-03	1.2E-04
Carbon Tetrachloride	--	8.8E-04	6.0E-06	7.8E-11	1.6E-11	1.0E-01	3.0E-07
Chlorobenzene	--	7.3E-04	NA	NA	NA	5.0E-02	5.0E-07
Chloroform	--	6.8E-04	2.3E-05	2.3E-10	4.6E-11	9.8E-02	2.4E-07
Chrysene	--	1.7E-05	1.1E-05	2.7E-12	5.4E-13	NA	NA
1,3-Dichloropropene	--	6.3E-04	4.0E-06	3.7E-11	7.4E-12	2.0E-02	1.1E-06
Ethyl Benzene	2.0E-03	9.5E-04	2.5E-06	2.1E-09	4.3E-10	1.0E+00	2.0E-06
Ethylene Dibromide	--	1.1E-03	6.0E-04	9.4E-09	1.9E-09	9.0E-03	4.1E-06
Formaldehyde	4.5E-02	1.3E+00	1.3E-05	4.8E-07	9.7E-08	9.0E-03	9.7E-03
n-Hexane	--	2.7E-02	NA	NA	NA	7.0E-01	1.3E-06
Methanol	--	6.0E-02	NA	NA	NA	2.0E+01	1.0E-07
Methylene Chloride	--	1.6E-03	1.0E-08	2.3E-13	4.7E-14	6.0E-01	9.1E-08
2-Methylnaphthalene	--	8.0E-04	NA	NA	NA	NA	NA
Naphthalene	8.3E-05	1.8E-03	3.4E-05	2.1E-09	4.1E-10	3.0E-03	4.7E-05
Phenol	--	5.8E-04	NA	NA	NA	2.0E-01	9.9E-08
Propylene Oxide	1.9E-03	--	3.7E-06	2.8E-09	5.6E-10	3.0E-02	5.9E-05
Styrene	--	5.7E-04	NA	NA	NA	1.0E+00	1.9E-08
Toluene	8.3E-03	9.8E-03	NA	NA	NA	5.0E+00	1.7E-06
1,1,2,2 -Tetrachloroethane	--	9.6E-04	5.8E-05	8.2E-10	1.6E-10	NA	NA
1,1,2-Trichloroethane	--	7.6E-04	1.6E-05	1.8E-10	3.6E-11	2.0E-04	1.3E-04
2,2,4-Trimethylpentane	--	6.0E-03	NA	NA	NA	NA	NA
Vinyl Chloride	--	3.6E-04	4.4E-06	2.3E-11	4.6E-12	1.0E-01	1.2E-07
Xylene	4.1E-03	4.4E-03	NA	NA	NA	1.0E-01	4.1E-05
Cumulative Cancer Risk and Hazard Index				**5E-07**	**1E-07**		**0.2**

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	IUR (µg/m³)-1	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Target Cancer Risk and Hazard Index				**1E-06**	**1E-06**		**1**

Notes:

a - Maximum predicted 5-year average concentration at the property line

Cma = modeled air concentration

IUR: Inhalation Unit Risk

RfC: Reference Concentration

"—" = COPC not modeled

NA – not applicable; toxicity values not available

6.1.3 Dover Compressor Station

The risk characterization results for chronic exposure to potential natural gas combustion emissions from the existing and modified Dover Compressor Station are summarized in Tables 7 and 8, respectively. Under existing conditions, the estimated adult cancer risks and child cancer risks do not exceed the target cancer risk benchmark of 1×10^{-6} for any individual COPC and adult and child HQs do not exceed the target noncancer HQ of 1 for any individual COPC (Table 7). Under the proposed Project, the estimated adult cancer risks and child cancer risks do not exceed the target cancer risk benchmark of 1×10^{-6} for any individual COPC and adult and child HQs do not exceed the target noncancer HQ of 1 for any individual COPC (Table 8).

Cumulative cancer risks associated with existing conditions and the proposed Project are both well below the target cancer risk benchmark of 1×10^{-6}. Under existing conditions, adult and child cumulative cancer risks are 2×10^{-7} and 4×10^{-8}, respectively. For the proposed Project, cumulative cancer risks for adults and children are 1×10^{-7} and 2×10^{-8}, respectively. The cumulative noncancer HIs under existing conditions and for the proposed Project do not exceed the target noncancer HI benchmark of 1 (HI=0.2 and HI =0.07, respectively; Tables 7 and 8).

These risk characterization results demonstrate that current emissions and those projected under the proposed Project at the Dover Compressor Station do not pose an unacceptable chronic risk to human health, specifically hypothetical adult and child residents located immediately adjacent to the facility.

Table 7: Cancer and Chronic Noncancer Risk Assessment Results from the Existing Dover Compressor Station

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	IUR (µg/m³)-1	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Acetaldehyde	1.2E-04	8.6E-02	2.2E-06	4.7E-09	9.5E-10	9.0E-03	5.6E-04
Acrolein	1.9E-05	5.3E-02	NA	NA	NA	2.0E-05	1.5E-01
Benzene	3.5E-05	4.5E-03	7.8E-06	9.7E-10	1.9E-10	3.0E-02	9.7E-06
Benzo(b)fluoranthene	--	1.7E-06	1.1E-04	4.6E-12	9.2E-13	NA	NA
1,3-Butadiene	1.3E-06	2.7E-03	3.0E-05	2.0E-09	4.1E-10	2.0E-03	7.9E-05
Carbon Tetrachloride	--	3.8E-04	6.0E-06	5.5E-11	1.1E-11	1.0E-01	2.2E-07
Chlorobenzene	--	3.1E-04	NA	NA	NA	5.0E-02	3.6E-07

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	IUR (µg/m³)⁻¹	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Chloroform	--	2.9E-04	2.3E-05	1.6E-10	3.3E-11	9.8E-02	1.7E-07
Chrysene	--	7.1E-06	1.1E-05	1.9E-12	3.8E-13	NA	NA
1,3-Dichloropropene	--	2.7E-04	4.0E-06	2.7E-11	5.3E-12	2.0E-02	7.7E-07
Ethyl Benzene	9.3E-05	4.1E-04	2.5E-06	1.2E-10	2.4E-11	1.0E+00	1.1E-07
Ethylene Dibromide	--	4.6E-04	6.0E-04	6.7E-09	1.3E-09	9.0E-03	2.9E-06
Formaldehyde	2.1E-03	5.4E-01	1.3E-05	1.8E-07	3.7E-08	9.0E-03	3.7E-03
n-Hexane	--	1.1E-02	NA	NA	NA	7.0E-01	9.3E-07
Methanol	--	2.6E-02	NA	NA	NA	2.0E+01	7.3E-08
Methylene Chloride	--	4.1E-04	1.0E-08	1.0E-13	2.0E-14	6.0E-01	3.9E-08
2-Methylnaphthalene	--	3.4E-04	NA	NA	NA	NA	NA
Naphthalene	3.8E-06	7.7E-04	3.4E-05	6.9E-10	1.4E-10	3.0E-03	1.6E-05
Phenol	--	2.5E-04	NA	NA	NA	2.0E-01	7.0E-08
Propylene Oxide	8.4E-05	--	3.7E-06	1.3E-10	2.6E-11	3.0E-02	2.7E-06
Styrene	--	2.4E-04	NA	NA	NA	1.0E+00	1.4E-08
Toluene	3.8E-04	4.2E-03	NA	NA	NA	5.0E+00	1.2E-07
1,1,2,2 -Tetrachloroethane	--	4.1E-04	5.8E-05	5.8E-10	1.2E-10	NA	NA
1,1,2-Trichloroethane	--	3.3E-04	1.6E-05	1.3E-10	2.6E-11	2.0E-04	9.3E-05
2,2,4-Trimethylpentane	--	2.6E-03	NA	NA	NA	NA	NA
Vinyl Chloride	--	1.5E-04	4.4E-06	1.6E-11	3.3E-12	1.0E-01	8.7E-08
Xylene	1.9E-04	1.9E-03	NA	NA	NA	1.0E-01	2.9E-06
Cumulative Cancer Risk and Hazard Index				**2E-07**	**4E-08**		**0.2**
Target Cancer Risk and Hazard Index				**1E-06**	**1E-06**		**1**

Notes:

a - Maximum predicted 5-year average concentration at the fence line

C*ma* = modeled air concentration

IUR: Inhalation Unit Risk

RfC: Reference Concentration

"—" = COPC not modeled

NA – not applicable; toxicity values not available

Table 8: Cancer and Chronic Noncancer Risk Assessment Results from the Proposed Modified Dover Compressor Station

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	IUR (µg/m³)⁻¹	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Acetaldehyde	3.4E-04	3.4E-02	2.2E-06	2.1E-09	4.3E-10	9.0E-03	2.5E-04
Acrolein	5.4E-05	2.1E-02	NA	NA	NA	2.0E-05	6.2E-02
Benzene	1.0E-04	1.8E-03	7.8E-06	6.7E-10	1.3E-10	3.0E-02	6.7E-06
Benzo(b)fluoranthene	--	6.8E-07	1.1E-04	1.8E-12	3.6E-13	NA	NA
1,3-Butadiene	3.7E-06	1.1E-03	3.0E-05	8.4E-10	1.7E-10	2.0E-03	3.3E-05
Carbon Tetrachloride	--	3.0E-04	6.0E-06	4.4E-11	8.8E-12	1.0E-01	1.7E-07
Chlorobenzene	--	1.2E-04	NA	NA	NA	5.0E-02	1.4E-07
Chloroform	--	1.2E-04	2.3E-05	6.6E-11	1.3E-11	9.8E-02	6.8E-08
Chrysene	--	2.8E-06	1.1E-05	7.6E-13	1.5E-13	NA	NA
1,3-Dichloropropene	--	1.1E-04	4.0E-06	1.1E-11	2.1E-12	2.0E-02	3.1E-07
Ethyl Benzene	2.7E-04	1.6E-04	2.5E-06	2.9E-10	5.8E-11	1.0E+00	2.7E-07
Ethylene Dibromide	--	1.8E-04	6.0E-04	2.7E-09	5.3E-10	9.0E-03	1.1E-06
Formaldehyde	6.0E-03	2.2E-01	1.3E-05	1.0E-07	2.0E-08	9.0E-03	2.0E-03
n-Hexane	--	4.5E-03	NA	NA	NA	7.0E-01	3.7E-07
Methanol	--	1.0E-02	NA	NA	NA	2.0E+01	2.9E-08
Methylene Chloride	--	8.2E-05	1.0E-08	2.0E-14	4.0E-15	6.0E-01	7.8E-09
2-Methylnaphthalene	--	1.4E-04	NA	NA	NA	NA	NA
Naphthalene	1.1E-05	3.0E-04	3.4E-05	4.1E-10	8.1E-11	3.0E-03	9.3E-06
Phenol	--	9.8E-05	NA	NA	NA	2.0E-01	2.8E-08
Propylene Oxide	2.5E-04	--	3.7E-06	3.8E-10	7.5E-11	3.0E-02	7.9E-06
Styrene	--	9.7E-05	NA	NA	NA	1.0E+00	5.5E-09
Toluene	1.1E-03	1.7E-03	NA	NA	NA	5.0E+00	2.3E-07
1,1,2,2 -Tetrachloroethane	--	1.6E-04	5.8E-05	2.3E-10	4.6E-11	NA	NA
1,1,2-Trichloroethane	--	1.3E-04	1.6E-05	5.1E-11	1.0E-11	2.0E-04	3.7E-05
2,2,4-Trimethylpentane	--	1.0E-03	NA	NA	NA	NA	NA
Vinyl Chloride	--	6.1E-05	4.4E-06	6.6E-12	1.3E-12	1.0E-01	3.5E-08
Xylene	5.4E-04	7.5E-04	NA	NA	NA	1.0E-01	5.6E-06
Cumulative Cancer Risk and Hazard Index				**1E-07**	**2E-08**		**0.07**

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	IUR (µg/m³)⁻¹	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Target Cancer Risk and Hazard Index				**1E-06**	**1E-06**		**1**

Notes:

a - Maximum predicted 5-year average concentration at the fence line

Cma = modeled air concentration

IUR: Inhalation Unit Risk

RfC: Reference Concentration

"—" = COPC not modeled

NA – not applicable; toxicity values not available

6.1.4 Milford Compressor Station

The risk characterization results for chronic exposure to potential natural gas combustion emissions from the existing Milford Compressor Station are summarized in Table 9. Under existing conditions, the estimated adult cancer risks and child cancer risks do not exceed the target cancer risk benchmark of 1 x 10^{-6} for any individual COPC, and adult and child HQs do not exceed the target noncancer HQ of 1 for any individual COPC. Cumulative cancer risks and cumulative noncancer HIs for existing conditions also do not exceed the target cancer risk benchmark of 1 x 10^{-6} (1 x 10^{-7} for adults and 2 x 10^{-8} for children) or the target noncancer HI of 1 (HI=0.3) (Table 9). As discussed in Section 1, there are no planned modifications to the Milford Compressor Station under the proposed Project that would result in new natural gas combustion emissions.

These risk characterization results demonstrate that current natural gas combustion emissions at the Milford Compressor Station do not currently pose an unacceptable chronic risk to human health, specifically hypothetical adult and child residents located immediately adjacent to the facility.

Table 9: Cancer and Chronic Noncancer Risk Assessment Results from the Existing Milford Compressor Station

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator (µg/m³)	IUR (µg/m³)⁻¹	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Acetaldehyde	6.5E-04	3.0E-01	2.2E-06	1.0E-08	2.0E-09	9.0E-03	1.2E-03
Acrolein	1.0E-04	1.8E-01	NA	NA	NA	2.0E-05	3.1E-01
Benzene	2.0E-04	1.5E-02	7.8E-06	2.4E-09	4.8E-10	3.0E-02	2.4E-05
Benzo(b)fluoranthene	--	5.8E-06	1.1E-04	9.4E-12	1.9E-12	NA	NA
1,3-Butadiene	7.0E-06	9.4E-03	3.0E-05	4.2E-09	8.4E-10	2.0E-03	1.6E-04
Carbon Tetrachloride	--	1.3E-03	6.0E-06	1.1E-10	2.3E-11	1.0E-01	4.5E-07
Chlorobenzene	--	1.1E-03	NA	NA	NA	5.0E-02	7.2E-07
Chloroform	--	1.0E-03	2.3E-05	3.4E-10	6.7E-11	9.8E-02	3.5E-07
Chrysene	--	2.4E-05	1.1E-05	3.8E-12	7.7E-13	NA	NA
1,3-Dichloropropene	--	9.3E-04	4.0E-06	5.4E-11	1.1E-11	2.0E-02	1.6E-06

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator (µg/m³)	IUR (µg/m³)⁻¹	Adult Cancer Risk	Child Cancer Risk	RfC (mg/m³)	Adult and Child HQ
Ethyl Benzene	5.2E-04	1.4E-03	2.5E-06	5.9E-10	1.2E-10	1.0E+00	5.5E-07
Ethylene Dibromide	--	1.5E-03	6.0E-04	1.4E-08	2.7E-09	9.0E-03	5.9E-06
Formaldehyde	1.2E-02	1.9E-04	1.3E-05	6.2E-08	1.2E-08	9.0E-03	1.2E-03
n-Hexane	--	3.9E-02	NA	NA	NA	7.0E-01	1.9E-06
Methanol	--	8.8E-02	NA	NA	NA	2.0E+01	1.5E-07
Methylene Chloride	--	7.0E-04	1.0E-08	1.0E-13	2.1E-14	6.0E-01	4.0E-08
2-Methylnaphthalene	--	1.2E-03	NA	NA	NA	NA	NA
Naphthalene	2.1E-05	2.6E-03	3.4E-05	1.6E-09	3.2E-10	3.0E-03	3.7E-05
Phenol	3.6E-05	2.6E-03	NA	NA	NA	2.0E-01	6.2E-07
Propylene Oxide	4.7E-04	--	3.7E-06	7.2E-10	1.4E-10	3.0E-02	1.5E-05
Styrene	--	8.2E-04	NA	NA	NA	1.0E+00	2.8E-08
Toluene	2.1E-03	1.4E-02	NA	NA	NA	5.0E+00	5.1E-07
1,1,2,2 -Tetrachloroethane	--	1.4E-03	5.8E-05	1.2E-09	2.4E-10	NA	NA
1,1,2-Trichloroethane	--	1.1E-03	1.6E-05	2.6E-10	5.2E-11	2.0E-04	1.9E-04
2,2,4-Trimethylpentane	--	8.8E-03	NA	NA	NA	NA	NA
Vinyl Chloride	--	5.2E-04	4.4E-06	3.4E-11	6.7E-12	1.0E-01	1.8E-07
Xylene	1.0E-03	6.4E-03	NA	NA	NA	1.0E-01	1.2E-05
Cumulative Cancer Risk and Hazard Index				**1E-07**	**2E-08**		**0.3**
Target Cancer Risk and Hazard Index				**1E-06**	**1E-06**		**1**

Notes:

a - Maximum predicted 5-year average concentration at the fence line

Cma = modeled air concentration

IUR: Inhalation Unit Risk

RfC: Reference Concentration

"—" = COPC not modeled

NA – not applicable; toxicity values not available

6.2 Acute Noncancer Risk

Acute noncancer risks to human health from acute exposure to emissions from each of the compressor stations are presented below.

6.2.1 Athens Compressor Station

The risk characterization results for acute (maximum 1-hour) exposure to potential natural gas combustion emissions from the existing and modified Athens Compressor Station are summarized in Tables 10 and 11, respectively. Under existing conditions, the estimated adult and child acute HQs do not exceed the target noncancer HQ of 1 for any individual COPC. Under the proposed Project, adult and child acute noncancer HQs also do not exceed the target noncancer HQ of 1 for any individual COPC. The cumulative adult and child acute noncancer HI for existing conditions is 1 (Table 10), and the cumulative acute HI for the proposed Project is 0.4 (Table 11).

These risk characterization results demonstrate that current emissions at the Athens Compressor Station are unlikely to pose an acute risk to human health, specifically hypothetical adult and child residents located immediately adjacent to the facility. These results show that the proposed Project would further reduce emissions at the Athens Compressor station to levels that clearly do not pose an unacceptable risk to human health.

Table 10: Acute Risk Assessment Results from the Existing Athens Compressor Station

COPC	C*ma* Turbine[a] (µg/m³)	C*ma* Emergency Generator[a] (µg/m³)	AEIC (µg/m³)	Acute HQ
Acenaphthene	--	5.7E-04	3.6E+03	1.6E-07
Acenaphthylene	--	2.5E-03	1.0E+04	2.5E-07
Acetaldehyde	1.9E-02	3.8E+00	4.7E+02	8.2E-03
Acrolein	3.0E-03	2.4E+00	2.5E+00	9.5E-01
Benzene	5.7E-03	2.0E-01	2.7E+01	7.7E-03
Benzo(b)fluoranthene	--	7.6E-05	1.2E+02	6.4E-07
Benzo(g,h,i)perylene	--	1.9E-04	3.0E+04	6.3E-09
1,3-Butadiene	2.0E-04	1.2E-01	6.6E+02	1.9E-04
Carbon Tetrachloride	--	1.7E-02	1.9E+03	8.9E-06
Chlorobenzene	--	1.4E-02	4.6E+04	3.0E-07
Chloroform	--	1.3E-02	1.5E+02	8.7E-05
Chrysene	--	3.2E-04	6.0E+02	5.3E-07
1,3-Dichloropropene	--	1.2E-02	1.4E+04	8.6E-07
Ethyl Benzene	1.5E-02	1.8E-02	1.4E+05	2.3E-07
Ethylene Dibromide	--	2.0E-02	1.3E+05	1.6E-07
Fluoranthene	--	5.1E-04	8.2E+03	6.2E-08
Fluorene	--	2.6E-03	6.6E+03	3.9E-07
Formaldehyde	3.4E-01	2.4E+01	5.5E+01	4.5E-01

COPC	*Cma* Turbine[a] (μg/m³)	*Cma* Emergency Generator[a] (μg/m³)	AEIC (μg/m³)	Acute HQ
n-Hexane	--	5.1E-01	9.1E+05	5.6E-07
Methanol	--	1.2E+00	2.8E+04	4.1E-05
Methylene Chloride	--	9.2E-03	1.4E+04	6.6E-07
2-Methylnaphthalene	--	1.5E-02	9.0E+03	1.7E-06
Naphthalene	6.2E-04	3.4E-02	7.9E+04	4.4E-07
Phenanthrene	--	4.8E-03	5.4E+03	8.9E-07
Phenol	--	1.1E-02	5.8E+03	1.9E-06
Propylene Oxide	1.4E-02	--	3.1E+03	4.5E-06
Pyrene	--	6.3E-04	1.5E+02	4.2E-06
Styrene	--	1.1E-02	2.1E+04	5.1E-07
1,1,2,2 -Tetrachloroethane	--	1.8E-02	2.1E+04	8.8E-07
Toluene	6.2E-02	1.9E-01	3.7E+04	6.7E-06
1,1,2-Trichloroethane	--	1.5E-02	1.6E+05	9.1E-08
2,2,4-Trimethylpentane	--	1.2E-01	1.1E+0 6	1.0E-07
Vinyl Chloride	--	6.8E-03	1.8E+05	3.8E-08
Xylene	3.0E-02	8.5E-02	2.2E+04	5.2E-06
Cumulative Acute Hazard Index				**1**
Target Hazard Index				**1**

Notes:

a – highest predicted 1-hour concentration at the fence line

Cma = modeled air concentration

AIEC: Acute Inhalation Exposure Criteria

HQ: Hazard Quotient

"—" = COPC not modeled

Table 11: Acute Risk Assessment Results from the Proposed Modified Athens Compressor Station

COPC	*Cma* Turbine[a] (μg/m³)	*Cma* Emergency Generator[a] (μg/m³)	AEIC (μg/m³)	Acute HQ
Acenaphthene	--	1.4E-04	3.6E+03	3.8E-08
Acenaphthylene	--	6.1E-04	1.0E+04	6.1E-08

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	AEIC (µg/m³)	Acute HQ
Acetaldehyde	2.2E-02	9.3E-01	4.7E+02	2.0E-03
Acrolein	3.5E-03	5.7E-01	2.5E+00	2.3E-01
Benzene	6.6E-03	4.9E-02	2.7E+01	2.0E-03
Benzo(b)fluoranthene	--	1.8E-05	1.2E+02	1.5E-07
Benzo(g,h,i)perylene	--	4.6E-05	3.0E+04	1.5E-09
1,3-Butadiene	2.4E-04	3.0E-02	6.6E+02	4.5E-05
Carbon Tetrachloride	--	4.1E-03	1.9E+03	2.1E-06
Chlorobenzene	--	3.4E-03	4.6E+04	7.3E-08
Chloroform	--	3.2E-03	1.5E+02	2.1E-05
Chrysene	--	7.7E-05	6.0E+02	1.3E-07
1,3-Dichloropropene	--	2.9E-03	1.4E+04	2.1E-07
Ethyl Benzene	1.8E-02	4.4E-03	1.4E+05	1.5E-07
Ethylene Dibromide	--	4.9E-03	1.3E+05	3.8E-08
Fluoranthene	--	1.2E-04	8.2E+03	1.5E-08
Fluorene	--	6.3E-04	6.6E+03	9.5E-08
Formaldehyde	3.9E-01	5.8E+00	5.5E+01	1.1E-01
n-Hexane	--	1.2E-01	9.1E+05	1.4E-07
Methanol	--	2.8E-01	2.8E+04	9.9E-06
Methylene Chloride	--	7.4E-03	1.4E+04	5.3E-07
2-Methylnaphthalene	--	3.7E-03	9.0E+03	4.1E-07
Naphthalene	7.1E-04	8.2E-03	7.9E+04	1.1E-07
Phenanthrene	--	1.2E-03	5.4E+03	2.1E-07
Phenol	--	2.7E-03	5.8E+03	4.6E-07
Propylene Oxide	1.6E-02	--	3.1E+03	5.1E-06
Pyrene	--	1.5E-04	1.5E+02	1.0E-06
Styrene	--	2.6E-03	2.1E+04	1.2E-07
1,1,2,2 -Tetrachloroethane	--	4.4E-03	2.1E+04	2.1E-07
Toluene	7.1E-02	4.5E-02	3.7E+04	3.1E-06
1,1,2-Trichloroethane	--	3.5E-03	1.6E+05	2.2E-08

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	AEIC (µg/m³)	Acute HQ
2,2,4-Trimethylpentane	--	2.8E-02	1.1E+06	2.5E-08
Vinyl Chloride	--	1.7E-03	1.8E+05	9.2E-09
Xylene	3.5E-02	2.0E-02	2.2E+04	2.5E-06
Cumulative Acute Hazard Index				**0.4**
Target Hazard Index				**1**

Notes:

a – highest predicted 1-hour concentration at the fence line

Cma = modeled air concentration

AIEC: Acute Inhalation Exposure Criteria

HQ: Hazard Quotient

"—" = COPC not modeled

6.2.2 Brookfield Compressor Station

The risk characterization results for acute (maximum 1-hour) exposure to potential natural gas combustion emissions from the existing and modified Brookfield Compressor Station are summarized in Tables 12 and 13, respectively. Under existing conditions, the estimated adult and child acute noncancer HQs do not exceed the target noncancer HQ of 1 for any individual COPC. Under the proposed Project, adult and child acute noncancer HQs also do not exceed the target noncancer HQ of 1 for any individual COPC. The cumulative adult and child acute noncancer HI for existing conditions is 1 (Table 12), and the cumulative adult and child acute noncancer HI for the proposed Project is 0.8 (Table 13).

These risk characterization results demonstrate that current emissions at the Brookfield Compressor Station are unlikely to pose an acute risk to human health, specifically hypothetical adult and child residents located immediately adjacent to the facility. These results also show that the proposed Project would reduce emissions at the Brookfield Compressor station to levels that clearly do not pose an unacceptable risk to human health.

Table 12: Acute Risk Assessment Results from the Existing Brookfield Compressor Station

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	AEIC (µg/m³)	Acute HQ
Acenaphthene	--	4.5E-04	3.6E+03	1.2E-07
Acenaphthylene	--	2.0E-03	1.0E+04	2.0E-07
Acetaldehyde	4.0E-02	3.0E+00	4.7E+02	6.5E-03
Acrolein	6.4E-03	1.8E+00	2.5E+00	7.4E-01
Benzene	1.2E-02	1.6E-01	2.7E+01	6.3E-03
Benzo(b)fluoranthene	--	6.0E-05	1.2E+02	5.0E-07

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	AEIC (µg/m³)	Acute HQ
Benzo(g,h,i)perylene	--	1.5E-04	3.0E+04	5.0E-09
1,3-Butadiene	4.3E-04	9.6E-02	6.6E+02	1.5E-04
Carbon Tetrachloride	--	1.3E-02	1.9E+03	6.9E-06
Chlorobenzene	--	1.1E-02	4.6E+04	2.4E-07
Chloroform	--	1.0E-02	1.5E+02	6.8E-05
Chrysene	--	2.5E-04	6.0E+02	4.1E-07
1,3-Dichloropropene	--	9.5E-03	1.4E+04	6.8E-07
Ethyl Benzene	3.2E-02	1.4E-02	1.4E+05	3.2E-07
Ethylene Dibromide	--	1.6E-02	1.3E+05	1.2E-07
Fluoranthene	--	4.0E-04	8.2E+03	4.9E-08
Fluorene	--	2.0E-03	6.6E+03	3.1E-07
Formaldehyde	7.1E-01	1.9E+01	5.5E+01	3.6E-01
n-Hexane	--	4.0E-01	9.1E+05	4.4E-07
Methanol	--	9.0E-01	2.8E+04	3.2E-05
Methylene Chloride	--	7.2E-03	1.4E+04	5.1E-07
2-Methylnaphthalene	--	1.2E-02	9.0E+03	1.3E-06
Naphthalene	1.3E-03	2.7E-02	7.9E+04	3.5E-07
Phenanthrene	--	3.7E-03	5.4E+03	6.9E-07
Phenol	--	8.6E-03	5.8E+03	1.5E-06
Propylene Oxide	2.9E-02	--	3.1E+03	9.3E-06
Pyrene	--	4.9E-04	1.5E+02	3.3E-06
Styrene	--	8.5E-03	2.1E+04	4.0E-07
1,1,2,2 -Tetrachloroethane	--	1.4E-02	2.1E+04	6.8E-07
Toluene	1.3E-01	1.5E-01	3.7E+04	7.5E-06
1,1,2-Trichloroethane	--	1.1E-02	1.6E+05	7.1E-08
2,2,4-Trimethylpentane	--	9.0E-02	1.1E+06	8.2E-08
Vinyl Chloride	--	5.3E-03	1.8E+05	3.0E-08
Xylene	6.4E-02	6.6E-02	2.2E+04	5.9E-06
Cumulative Acute Hazard Index				**1**

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	AEIC (µg/m³)	Acute HQ
Target Hazard Index				**1**

Notes:

a – highest predicted 1-hour concentration at the property line

Cma = modeled air concentration

AIEC: Acute Inhalation Exposure Criteria

HQ: Hazard Quotient

"—" = COPC not modeled

Table 13: Acute Risk Assessment Results from the Proposed Modified Brookfield Compressor Station

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	AEIC (µg/m³)	Acute HQ
Acenaphthene	--	3.4E-04	3.6E+03	9.3E-08
Acenaphthylene	--	1.5E-03	1.0E+04	1.5E-07
Acetaldehyde	4.6E-02	2.2E+00	4.7E+02	4.9E-03
Acrolein	7.4E-03	1.4E+00	2.5E+00	5.5E-01
Benzene	1.4E-02	1.2E-01	2.7E+01	4.9E-03
Benzo(b)fluoranthene	--	4.4E-05	1.2E+02	3.7E-07
Benzo(g,h,i)perylene	--	1.1E-04	3.0E+04	3.7E-09
1,3-Butadiene	5.0E-04	7.2E-02	6.6E+02	1.1E-04
Carbon Tetrachloride	--	9.8E-03	1.9E+03	5.2E-06
Chlorobenzene	--	8.1E-03	4.6E+04	1.8E-07
Chloroform	--	7.6E-03	1.5E+02	5.1E-05
Chrysene	--	1.9E-04	6.0E+02	3.1E-07
1,3-Dichloropropene	--	7.1E-03	1.4E+04	5.1E-07
Ethyl Benzene	3.7E-02	1.1E-02	1.4E+05	3.3E-07
Ethylene Dibromide	--	1.2E-02	1.3E+05	9.1E-08
Fluoranthene	--	3.0E-04	8.2E+03	3.6E-08
Fluorene	--	1.5E-03	6.6E+03	2.3E-07
Formaldehyde	8.2E-01	1.4E+01	5.5E+01	2.7E-01
n-Hexane	--	3.0E-01	9.1E+05	3.3E-07
Methanol	--	6.7E-01	2.8E+04	2.4E-05

Methylene Chloride	--	1.8E-02	1.4E+04	1.3E-06
2-Methylnaphthalene	--	8.9E-03	9.0E+03	9.9E-07
Naphthalene	1.5E-03	2.0E-02	7.9E+04	2.7E-07
Phenanthrene	--	2.8E-03	5.4E+03	5.2E-07
Phenol	--	6.4E-03	5.8E+03	1.1E-06
Propylene Oxide	3.3E-02	--	3.1E+03	1.1E-05
Pyrene	--	3.6E-04	1.5E+02	2.4E-06
Styrene	--	6.3E-03	2.1E+04	3.0E-07
1,1,2,2 -Tetrachloroethane	--	1.1E-02	2.1E+04	5.1E-07
Toluene	1.5E-01	1.1E-01	3.7E+04	7.0E-06
1,1,2-Trichloroethane	--	8.5E-03	1.6E+05	5.3E-08
2,2,4-Trimethylpentane	--	6.7E-02	1.1E+06	6.1E-08
Vinyl Chloride	--	4.0E-03	1.8E+05	2.2E-08
Xylene	7.4E-02	4.9E-02	2.2E+04	5.6E-06
Cumulative Acute Hazard Index				**0.8**
Target Hazard Index				**1**

Notes:

a – highest predicted 1-hour concentration at the property line

C*ma* = modeled air concentration

AIEC: Acute Inhalation Exposure Criteria

HQ: Hazard Quotient

"—" = COPC not modeled

6.2.3 Dover Compressor Station

The risk characterization results for acute (maximum 1-hour) exposure to potential natural gas combustion emissions from the existing and modified Dover Compressor Station are summarized in Tables 14 and 15, respectively. Under existing conditions, the estimated adult and child acute noncancer HQs do not exceed the target noncancer HQ of 1 for any individual COPC. For the planned future modifications, adult and child acute noncancer HQs also do not exceed the target noncancer HQ of 1 for any individual COPC. Cumulative acute noncancer HIs for both existing conditions (Table 14) and for the planned modifications (Table 15) also do not exceed the target acute noncancer HI of 1 (HI = 0.7 under existing conditions and HI = 0.5 under the proposed Project).

These risk characterization results demonstrate that current emissions and those projected under the proposed Project at the Dover Compressor Station do not pose an unacceptable acute exposure risk to human health, specifically hypothetical adult and child residents located immediately adjacent to the facility.

Table 14: Acute Risk Assessment Results from the Existing Dover Compressor Station

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	AEIC (µg/m³)	Acute HQ
Acenaphthene	--	2.9E-04	3.6E+03	8.1E-08
Acenaphthylene	--	1.3E-03	1.0E+04	1.3E-07
Acetaldehyde	6.1E-03	1.9E+00	4.7E+02	4.2E-03
Acrolein	9.7E-04	1.2E+00	2.5E+00	4.8E-01
Benzene	1.8E-03	1.0E-01	2.7E+01	3.9E-03
Benzo(b)fluoranthene	--	3.9E-05	1.2E+02	3.2E-07
Benzo(g,h,i)perylene	--	9.7E-05	3.0E+04	3.2E-09
1,3-Butadiene	6.5E-05	6.2E-02	6.6E+02	9.4E-05
Carbon Tetrachloride	--	8.6E-03	1.9E+03	4.5E-06
Chlorobenzene	--	7.1E-03	4.6E+04	1.5E-07
Chloroform	--	6.6E-03	1.5E+02	4.4E-05
Chrysene	--	1.6E-04	6.0E+02	2.7E-07
1,3-Dichloropropene	--	6.2E-03	1.4E+04	4.4E-07
Ethyl Benzene	4.9E-03	9.3E-03	1.4E+05	9.9E-08
Ethylene Dibromide	--	1.0E-02	1.3E+05	7.9E-08
Fluoranthene	--	2.6E-04	8.2E+03	3.2E-08
Fluorene	--	1.3E-03	6.6E+03	2.0E-07
Formaldehyde	1.1E-01	12.31	5.5E+01	0.23
n-Hexane	--	2.6E-01	9.1E+05	2.8E-07
Methanol	--	5.8E-01	2.8E+04	2.1E-05
Methylene Chloride	--	9.3E-03	1.4E+04	6.7E-07
2-Methylnaphthalene	--	7.7E-03	9.0E+03	8.6E-07
Naphthalene	2.0E-04	1.7E-02	7.9E+04	2.2E-07
Phenanthrene	--	2.4E-03	5.4E+03	4.5E-07
Phenol	--	5.6E-03	5.8E+03	9.6E-07
Propylene Oxide	4.4E-03	--	3.1E+03	1.4E-06
Pyrene	--	3.2E-04	1.5E+02	2.1E-06
Styrene	--	5.5E-03	2.1E+04	2.6E-07

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	AEIC (µg/m³)	Acute HQ
1,1,2,2 -Tetrachloroethane	--	9.3E-03	2.1E+04	4.4E-07
Toluene	2.0E-02	9.5E-02	3.7E+04	3.1E-06
1,1,2-Trichloroethane	--	7.4E-03	1.6E+05	4.6E-08
2,2,4-Trimethylpentane	--	5.8E-02	1.1E+06	5.3E-08
Vinyl Chloride	--	3.5E-03	1.8E+05	1.9E-08
Xylene	9.7E-03	4.3E-02	2.2E+04	2.4E-06
Cumulative Acute Hazard Index				**0.7**
Target Hazard Index				**1**

Notes:

a – highest predicted 1-hour concentration at the fence line

Cma = modeled air concentration

AIEC: Acute Inhalation Exposure Criteria

HQ: Hazard Quotient

"—" = COPC not modeled

Table 15: Acute Risk Assessment Results from the Proposed Modified Dover Compressor Station

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	AEIC (µg/m³)	Acute HQ
Acenaphthene	--	2.2E-04	3.6E+03	6.1E-08
Acenaphthylene	--	9.7E-04	1.0E+04	9.7E-08
Acetaldehyde	1.9E-02	1.5E+00	4.7E+02	3.2E-03
Acrolein	3.1E-03	9.0E-01	2.5E+00	3.6E-01
Benzene	5.8E-03	7.7E-02	2.7E+01	3.1E-03
Benzo(b)fluoranthene	--	2.9E-05	1.2E+02	2.4E-07
Benzo(g,h,i)perylene	--	7.3E-05	3.0E+04	2.4E-09
1,3 -Butadiene	2.1E-04	4.7E-02	6.6E+02	7.1E-05
Carbon Tetrachloride	--	1.3E-02	1.9E+03	6.8E-06
Chlorobenzene	--	5.3E-03	4.6E+04	1.2E-07
Chloroform	--	5.0E-03	1.5E+02	3.3E-05
Chrysene	--	1.2E-04	6.0E+02	2.0E-07
1,3 -Dichloropropene	--	4.6E-03	1.4E+04	3.3E-07

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator[a] (µg/m³)	AEIC (µg/m³)	Acute HQ
Ethyl Benzene	1.5E-02	7.0E-03	1.4E+05	1.6E-07
Ethylene Dibromide	--	7.8E-03	1.3E+05	6.0E-08
Fluoranthene	--	2.0E-04	8.2E+03	2.4E-08
Fluorene	--	1.0E-03	6.6E+03	1.5E-07
Formaldehyde	3.4E-01	9.26	5.5E+01	0.17
n-Hexane	--	2.0E-01	9.1E+05	2.1E-07
Methanol	--	4.4E-01	2.8E+04	1.6E-05
Methylene Chloride	--	3.5E-03	1.4E+04	2.5E-07
2 -Methylnaphthalene	--	5.8E-03	9.0E+03	6.5E-07
Naphthalene	6.3E-04	1.3E-02	7.9E+04	1.7E-07
Phenanthrene	--	1.8E-03	5.4E+03	3.4E-07
Phenol	--	4.2E-03	5.8E+03	7.3E-07
Propylene Oxide	1.4E-02	--	3.1E+03	4.5E-06
Pyrene	--	2.4E-04	1.5E+02	1.6E-06
Styrene	--	4.1E-03	2.1E+04	2.0E-07
1,1,2,2-Tetrachloroethane	--	7.0E-03	2.1E+04	3.3E-07
Toluene	6.3E-02	7.2E-02	3.7E+04	3.6E-06
1,1,2-Trichloroethane	--	5.6E-03	1.6E+05	3.5E-08
2,2,4 - Trimethylpentane	--	4.4E-02	1.1E+06	4.0E-08
Vinyl Chloride	--	2.6E-03	1.8E+05	1.5E-08
Xylene	3.1E-02	3.2E-02	2.2E+04	2.9E-06
Cumulative Acute Hazard Index				**0.5**
Target Hazard Index				**1**

Notes:

a – highest predicted 1-hour concentration at the fence line

Cma = modeled air concentration

AIEC: Acute Inhalation Exposure Criteria

HQ: Hazard Quotient

"—" = COPC not modeled

6.2.4 Milford Compressor Station

The risk characterization results for acute (maximum 1-hour) exposure to potential natural gas combustion emissions from the existing Milford Compressor Station are summarized in Table 16. Under existing conditions, the estimated adult and child acute HQs do not exceed the target noncancer HQ of 1 for any individual COPC. The cumulative acute noncancer HI for existing conditions (Table 16) does not exceed the target acute noncancer HI of 1 (HI=0.6). As discussed in Section 1, there are no planned modifications to the Milford Compressor Station that would result in new natural gas combustion emissions.

These risk characterization results demonstrate that current emissions at the Milford Compressor Station do not pose an unacceptable acute exposure risk to human health, specifically hypothetical adult and child residents located immediately adjacent to the facility.

Table 16: Acute Risk Assessment Results from the Existing Milford Compressor Station

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator (µg/m³)	AEIC (µg/m³)	Acute HQ
Acenaphthene	--	3.5E-04	3.6E+03	9.8E-08
Acenaphthylene	--	1.5E-03	1.0E+04	1.5E-07
Acetaldehyde	4.5E-02	2.4E+00	4.7E+02	5.2E-03
Acrolein	7.2E-03	1.4E+00	2.5E+00	5.7E-01
Benzene	1.3E-02	1.2E-01	2.7E+01	5.1E-03
Benzo(b)fluoranthene	--	4.7E-05	1.2E+02	3.9E-07
Benzo(g,h,i)perylene	--	1.1E-04	3.0E+04	3.8E-09
1,3 -Butadiene	4.8E-04	7.5E-02	6.6E+02	1.1E-04
Carbon Tetrachloride	--	1.0E-02	1.9E+03	5.5E-06
Chlorobenzene	--	8.5E-03	4.6E+04	1.8E-07
Chloroform	--	8.0E-03	1.5E+02	5.3E-05
Chrysene	--	1.9E-04	6.0E+02	3.2E-07
1,3 -Dichloropropene	--	7.4E-03	1.4E+04	5.3E-07
Ethyl Benzene	3.6E-02	1.1E-02	1.4E+05	3.3E-07
Ethylene Dibromide	--	1.2E-02	1.3E+05	9.5E-08
Fluoranthene	--	3.1E-04	8.2E+03	3.8E-08
Fluorene	--	1.6E-03	6.6E+03	2.4E-07
Formaldehyde	8.0E-01	1.5E-03	5.5E+01	1.4E-02
n-Hexane	--	3.1E-01	9.1E+05	3.4E-07
Methanol	--	7.0E-01	2.8E+04	2.5E-05

COPC	*Cma* Turbine[a] (µg/m³)	*Cma* Emergency Generator (µg/m³)	AEIC (µg/m³)	Acute HQ
Methylene Chloride	--	5.6E-03	1.4E+04	4.0E-07
2-Methylnaphthalene	--	9.3E-03	9.0E+03	1.0E-06
Naphthalene	1.5E-03	2.1E-02	7.9E+04	2.8E-07
Phenanthrene	--	2.9E-03	5.4E+03	5.5E-07
Phenol	2.5E-03	2.1E-02	5.8E+03	4.0E-06
Propylene Oxide	3.3E-02	--	3.1E+03	1.0E-05
Pyrene	--	3.8E-04	1.5E+02	2.5E-06
Styrene	--	6.6E-03	2.1E+04	3.1E-07
1,1,2,2 -Tetrachloroethane	--	1.1E-02	2.1E+04	5.4E-07
Toluene	1.5E-01	1.1E-01	3.7E+04	7.0E-06
1,1,2 -Trichloroethane	--	8.9E-03	1.6E+05	5.6E-08
2,2,4 - Trimethylpentane	--	7.0E-02	1.1E+06	6.4E-08
Vinyl Chloride	--	4.2E-03	1.8E+05	2.3E-08
Xylene	7.2E-02	5.1E-02	2.2E+04	5.6E-06
Cumulative Acute Hazard Index				**0.6**
Target Hazard Index				**1**

Notes:

a – highest predicted 1-hour concentration at the fence line

Cma = modeled air concentration

AIEC: Acute Inhalation Exposure Criteria

HQ: Hazard Quotient

"—" = COPC not modeled

SECTION 7 Conclusions and Discussion of Uncertainties

7.1 Uncertainties

Although uncertainty is inherent to the risk assessment process, the decisions made in the risk assessment process are biased towards the protection of human health. The key areas of uncertainty generally include (1) exposure assumptions and (2) toxicity data extrapolations. For chronic exposures, it is assumed that an individual resident may be exposed to maximum five-year average air concentrations at a compressor station fence or property line over the course of their entire residential tenure (30 years for an adult and 6 years for a child). This assumption is highly conservative since residential receptors (and other human receptors) are more realistically exposed to average concentrations over their entire exposure duration, not continuous exposure to maximum concentrations (USEPA 1989). The chronic toxicity data used to characterize cancer and chronic noncancer risks are derived almost entirely from studies of laboratory animals whereby conservative dose-response models are applied to calculate upper-bound estimates of cancer potency and noncancer thresholds. It is generally recognized that these uncertainties result in the over-estimation of health risk, thus ensuring the protection of human health. Many of the AIEC values used to assess potential acute noncancer risks are based on either very mild health effects (e.g., discomfort) or non-health related effects (e.g., odors) rather than overt toxic effects. For these COPCs, the acute noncancer HQs are considered highly conservative, and their contribution to the cumulative acute noncancer HIs in turn renders the cumulative acute noncancer HIs to be very conservative.

7.2 Other Concerns

In addition to potential health risks associated with HAP emissions from compressor stations, other concerns may be raised that are beyond the scope of this HHRA. Several of these are discussed below.

7.2.1 Unconventional vs. Conventional Natural Gas

Unconventional and conventional natural gas are both subjected to the same types of processing, transport, and end-uses and have indistinguishable atmospheric impacts post-production (Moore et al. 2014). Therefore, it is irrelevant whether the natural gas is so-called “fracked gas” (unconventional) or conventional natural gas for the purposes of this HHRA.

7.2.2 Radon

Radon and/or radiation may be present in natural gas, depending on geologic origin. Based on radon’s decay properties, the concentration of radon in processed natural gas can be expected to decrease substantially from the well head (source) and through processing and transport to compressor stations. Radon’s half-life, defined as the time it takes for the element to decay to half its initial concentration, is relatively short (3.8 days). The time needed to gather, process, store, and deliver natural gas allows a portion of the entrained radon to decay, which decreases the amount of radon in the gas before it is used in the turbines at compressor stations. Radon concentrations would also be reduced when a natural gas stream undergoes upstream processing to remove liquefied petroleum gas. Processing can remove an estimated 30 to 75 percent of the radon from natural gas (Johnson et al. 1973). Any radon present in natural gas that is combusted at the compressor stations will be widely dispersed, further reducing concentrations to insignificant levels as compared to natural background concentrations in ambient air.

7.2.3 Food Supplies

Of the COPCs considered in this HHRA, the only COPCs subject to ground-level deposition and considered to be bioaccumulative are polycyclic aromatic hydrocarbons (PAHs) including acenaphthene, acenaphthylene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluorene, fluoranthene, naphthalene, 2-methylnaphthalene, phenanthrene and pyrene. PAHs are persistent and following deposition onto soil or surface water can be taken up by plants, fish, and animals, though many organisms are able to metabolize and eliminate these compounds (ATSDR 1995). The emitted air concentrations of these compounds over an extended period are very low and are considered an insignificant source of PAHs in the environment when compared to other sources such as vehicle exhaust and residential burning of wood. Moreover, based on a comparison of USEPA (2000) natural gas combustion emission factors for PAHs relative to the more toxic and volatile HAPs, the relative rate of emissions of PAHs is expected to be much lower by at least two to three orders of magnitude. Therefore, the potential impact of PAHs on the food supply from natural gas combustion is considered to be insignificant as compared to other sources.

7.3 Conclusions

The HHRA shows that modeled HAP emissions from normal operations of the compressor stations with upgrades under the proposed Project are well below a level of health concern. The analysis of these emissions utilized highly conservative assumptions for receptor exposure (e.g., an individual would be exposed to the maximum concentrations from full-capacity facility operation for 24 hours per day for 350 days per year). Specifically, potential total excess lifetime cancer risk and noncancer hazard indices were calculated based on a theoretical RME adult and child from long-term exposures to the highest predicted maximum five-year average HAP concentrations emitted during normal operations at the facility fence line or property line. This is a very conservative assumption given that concentrations will decrease substantially with distance from the fence line or property line, further reducing exposure and risk. Cumulative cancer risks were below 1 in one million and noncancer hazard indices were at or below the target HI of 1 (e.g., the level at which sensitive individuals can be exposed without risk of chronic noncancer health effects).

Acute exposure evaluations were based on short-term maximum concentrations using conservative meteorological conditions. The potential for short-term health effects due to exposures to the highest predicted 1-hour HAP concentrations emitted during normal operations was assessed to account for periods of high exposures. Air concentrations were evaluated against the AIEC, which are protective of the general public, including sensitive subpopulations, for a variety of toxic endpoints. The AIEC that were used also protect against discomfort, mild health effects, and objectionable odors. The results of the analysis indicate that acute exposures to the highest predicted 1-hour emissions during normal operations of the proposed Project would be at or below the benchmark criteria (e.g., the level at which sensitive individuals can be exposed without risk of acute noncancer health effects).

Therefore, it can be concluded that under existing conditions there is no significant impact on human health in the Project areas from inhalation of emissions associated with the Athens, Brookfield, Dover, or Milford compressor stations. It can also be concluded that there would be no significant impact on human health in the Project areas from inhalation of emissions associated with the proposed modifications to the Athens, Brookfield, or Dover compressor stations.

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Appendix A

Modeled Air Concentrations and Emissions Factors

Catalyst
ENVIRONMENTAL SOLUTIONS

Table A1: Modeled 1-hour and Maximum Annual Ambient Emissions Concentrations from the Existing Athens Compressor Station

COPC	1-hour Modeled Impacts ($\mu g/m^3$)		Annual Modeled Impacts ($\mu g/m^3$)	
	A1 Turbine	***Emergency Generator***	***A1 Turbine***	***Emergency Generator***
1,1,2 - Trichloroethane	-	1.46E-02	-	7.34E-04
1,1,2,2 -Tetrachloroethane	-	1.84E-02	-	9.24E-04
1,3 - Butadiene	2.04E-04	1.23E-01	5.44E-07	6.17E-03
1,3 - Dichloropropene	-	1.21E-02	-	6.10E-04
2 - Methylnaphthalene	-	1.52E-02	-	7.67E-04
2,2,4 - Trimethylpentane	-	1.15E-01	-	5.77E-03
Acenaphthene	-	5.74E-04	-	2.89E-05
Acenaphthylene	-	2.54E-03	-	1.28E-04
Acetaldehyde	1.90E-02	3.84E+00	5.06E-05	1.93E-01
Acrolein	3.04E-03	2.36E+00	8.10E-06	1.19E-01
Benzene	5.70E-03	2.02E-01	1.52E-05	1.02E-02
Benzo(b)fluoranthene	-	7.62E-05	-	3.83E-06
Benzo(e)pyrene	-	1.91E-04	-	9.59E-06
Benzo(g,h,i)perylene	-	1.90E-04	-	9.56E-06
Biphenyl	-	9.74E-02	-	4.90E-03
Carbon Tetrachloride	-	1.69E-02	-	8.48E-04
Chlorobenzene	-	1.40E-02	-	7.02E-04
Chloroform	-	1.31E-02	-	6.58E-04
Chrysene	-	3.18E-04	-	1.60E-05
Ethyl Benzene	1.52E-02	1.82E-02	4.05E-05	9.17E-04
Ethylene Dibromide	-	2.03E-02	-	1.02E-03
Fluorene	-	2.60E-03	-	1.31E-04
Fluoranthene	-	5.10E-04	-	2.56E-05
Formaldehyde	3.37E-01	2.42E+01	8.99E-04	1.22E+00
Methanol	-	1.15E+00	-	5.77E-02
Methylene Chloride	-	9.18E-03	-	4.62E-04
Naphthalene	6.18E-04	3.42E-02	1.65E-06	1.72E-03
n-Hexane	-	5.10E-01	-	2.56E-02
PAH	1.05E-03	1.24E-02	2.78E-06	6.21E-04
Phenanthrene	-	4.78E-03	-	2.40E-04
Phenol	-	1.10E-02	-	5.54E-04
Propylene Oxide	1.38E-02	-	3.67E-05	-
Pyrene	-	6.25E-04	-	3.14E-05
Styrene	-	1.08E-02	-	5.45E-04
Tetrachloroethane	-	1.14E-03	-	5.73E-05
Toluene	6.18E-02	1.87E-01	1.65E-04	9.42E-03
Vinyl Chloride	-	6.84E-03	-	3.44E-04
Xylene	3.04E-02	8.45E-02	8.10E-05	4.25E-03

Notes: "-" = COPC not modeled

Table A2: Modeled 1-hour and Maximum Annual Ambient Emissions Concentrations from the Proposed Athens Compressor Station

COPC	1-hour Modeled Impacts ($\mu g/m^3$)			Annual Modeled Impacts ($\mu g/m^3$)		
	A1 Turbine	*A2 Turbine*	*Emergency Generator*	*A1 Turbine*	*A2 Turbine*	*Emergency Generator*
1,1,2 - Trichloroethane	-	-	3.52E-03	-	-	1.68E-04
1,1,2,2 -Tetrachloroethane	-	-	4.43E-03	-	-	2.11E-04
1,3 - Butadiene	2.04E-04	3.13E-05	2.96E-02	5.44E-07	6.21E-07	1.41E-03
1,3 - Dichloropropene	-	-	2.92E-03	-	-	1.39E-04
2 - Methylnaphthalene	-	-	3.68E-03	-	-	1.75E-04
2,2,4 - Trimethylpentane	-	-	2.77E-02	-	-	1.32E-03
Acenaphthene	-	-	1.38E-04	-	-	6.59E-06
Acenaphthylene	-	-	6.13E-04	-	-	2.92E-05
Acetaldehyde	1.90E-02	2.91E-03	9.26E-01	5.06E-05	5.78E-05	4.41E-02
Acrolein	3.04E-03	4.66E-04	5.69E-01	8.10E-06	9.25E-06	2.71E-02
Benzene	5.70E-03	8.74E-04	4.87E-02	1.52E-05	1.73E-05	2.32E-03
Benzo(b)fluoranthene	-	-	1.84E-05	-	-	8.75E-07
Benzo(e)pyrene	-	-	4.60E-05	-	-	2.19E-06
Benzo(g,h,i)perylene	-	-	4.59E-05	-	-	2.18E-06
Biphenyl	-	-	2.35E-02	-	-	1.12E-03
Carbon Tetrachloride	-	-	4.07E-03	-	-	1.94E-04
Chlorobenzene	-	-	3.37E-03	-	-	1.60E-04
Chloroform	-	-	3.16E-03	-	-	1.50E-04
Chrysene	-	-	7.68E-05	-	-	3.65E-06
Ethyl Benzene	1.52E-02	2.33E-03	4.40E-03	4.05E-05	4.62E-05	2.09E-04
Ethylene Dibromide	-	-	4.91E-03	-	-	2.34E-04
Fluorene	-	-	6.28E-04	-	-	2.99E-05
Fluoranthene	-	-	1.23E-04	-	-	5.85E-06
Formaldehyde	3.37E-01	5.17E-02	5.85E+00	8.99E-04	1.03E-03	2.78E-01
Methanol	-	-	2.77E-01	-	-	1.32E-02
Methylene Chloride	-	-	7.38E-03	-	-	3.52E-04
Naphthalene	6.18E-04	9.47E-05	8.24E-03	1.65E-06	1.88E-06	3.92E-04
n-Hexane	-	-	1.23E-01	-	-	5.85E-03
PAH	1.05E-03	1.60E-04	2.98E-03	2.78E-06	3.18E-06	1.42E-04
Phenanthrene	-	-	1.15E-03	-	-	5.48E-05
Phenol	-	-	2.66E-03	-	-	1.27E-04
Propylene Oxide	1.38E-02	2.11E-03	-	3.67E-05	4.19E-05	-
Pyrene	-	-	1.51E-04	-	-	7.17E-06
Styrene	-	-	2.61E-03	-	-	1.24E-04
Tetrachloroethane	-	-	2.75E-04	-	-	1.31E-05
Toluene	6.18E-02	9.47E-03	4.52E-02	1.65E-04	1.88E-04	2.15E-03
Vinyl Chloride	-	-	1.65E-03	-	-	7.86E-05
Xylene	3.04E-02	4.66E-03	2.04E-02	8.10E-05	9.25E-05	9.70E-04

Notes: "-" = COPC not modeled

Table A3: Modeled 1-hour and Maximum Annual Ambient Emissions Concentrations from the Existing Brookfield Compressor Station

COPC	1-hour Modeled Impacts (µg/m^3)			Annual Modeled Impacts (µg/m^3)		
	A1 Turbine	***A2 Turbine***	***Emergency Generator***	***A1 Turbine***	***A2 Turbine***	***Emergency Generator***
1,1,2 - Trichloroethane	-	-	1.14E-02	-	-	7.35E-04
1,1,2,2 -Tetrachloroethane	-	-	1.44E-02	-	-	9.24E-04
1,3 - Butadiene	1.95E-04	2.32E-04	9.59E-02	1.03E-05	1.30E-05	6.17E-03
1,3 - Dichloropropene	-	-	9.48E-03	-	-	6.10E-04
2 - Methylnaphthalene	-	-	1.19E-02	-	-	7.67E-04
2,2,4 - Trimethylpentane	-	-	8.98E-02	-	-	5.78E-03
Acenaphthene	-	-	4.49E-04	-	-	2.89E-05
Acenaphthylene	-	-	1.99E-03	-	-	1.28E-04
Acetaldehyde	1.82E-02	2.16E-02	3.00E+00	9.54E-04	1.21E-03	1.93E-01
Acrolein	2.91E-03	3.46E-03	1.85E+00	1.53E-04	1.93E-04	1.19E-01
Benzene	5.45E-03	6.49E-03	1.58E-01	2.86E-04	3.62E-04	1.02E-02
Benzo(b)fluoranthene	-	-	5.96E-05	-	-	3.84E-06
Benzo(e)pyrene	-	-	1.49E-04	-	-	9.59E-06
Benzo(g,h,i)perylene	-	-	1.49E-04	-	-	9.57E-06
Biphenyl	-	-	7.61E-02	-	-	4.90E-03
Carbon Tetrachloride	-	-	1.32E-02	-	-	8.48E-04
Chlorobenzene	-	-	1.09E-02	-	-	7.03E-04
Chloroform	-	-	1.02E-02	-	-	6.59E-04
Chrysene	-	-	2.49E-04	-	-	1.60E-05
Ethyl Benzene	1.45E-02	1.73E-02	1.43E-02	7.63E-04	9.65E-04	9.18E-04
Ethylene Dibromide	-	-	1.59E-02	-	-	1.02E-03
Fluorene	-	-	2.04E-03	-	-	1.31E-04
Fluoranthene	-	-	3.99E-04	-	-	2.57E-05
Formaldehyde	3.23E-01	3.84E-01	1.90E+01	1.69E-02	2.14E-02	1.22E+00
Methanol	-	-	8.98E-01	-	-	5.78E-02
Methylene Chloride	-	-	7.18E-03	-	-	4.62E-04
Naphthalene	5.91E-04	7.03E-04	2.67E-02	3.10E-05	3.92E-05	1.72E-03
n-Hexane	-	-	3.99E-01	-	-	2.57E-02
PAH	1.00E-03	1.19E-03	9.66E-03	5.25E-05	6.63E-05	6.22E-04
Phenanthrene	-	-	3.73E-03	-	-	2.40E-04
Phenol	-	-	8.62E-03	-	-	5.55E-04
Propylene Oxide	1.32E-02	1.57E-02	-	6.92E-04	8.74E-04	-
Pyrene	-	-	4.88E-04	-	-	3.14E-05
Styrene	-	-	8.47E-03	-	-	5.45E-04
Tetrachloroethane	-	-	8.90E-04	-	-	5.73E-05
Toluene	5.91E-02	7.03E-02	1.46E-01	3.10E-03	3.92E-03	9.43E-03
Vinyl Chloride	-	-	5.35E-03	-	-	3.44E-04
Xylene	2.91E-02	3.46E-02	6.61E-02	1.53E-03	1.93E-03	4.25E-03

Notes: "-" = COPC not modeled

Table A4: Modeled 1-hour and Maximum Annual Ambient Emissions Concentrations from the Proposed Brookfield Compressor Station

COPC	1-hour Modeled Impacts (µg/m^3)						Annual Modeled Impacts (µg/m^3)					
	A1 Turbine	***A2 Turbine***	***B1 Turbine***	***B2 Turbine***	***Emergency Generator 1***	***Emergency Generator 2***	***A1 Turbine***	***A2 Turbine***	***B1 Turbine***	***B2 Turbine***	***Emergency Generator 1***	***Emergency Generator 2***
1,1,2 - Trichloroethane	-	-	-	-	3.50E-03	5.02E-03	-	-	-	-	2.85E-04	4.79E-04
1,1,2,2 -Tetrachloroethane	-	-	-	-	4.41E-03	6.32E-03	-	-	-	-	3.59E-04	6.03E-04
1,3 - Butadiene	1.13E-04	1.26E-04	1.27E-04	1.29E-04	2.94E-02	4.22E-02	6.16E-06	7.02E-06	7.03E-06	7.26E-06	2.39E-03	4.02E-03
1,3 - Dichloropropene	-	-	-	-	2.91E-03	4.17E-03	-	-	-	-	2.37E-04	3.98E-04
2 - Methylnaphthalene	-	-	-	-	3.66E-03	5.24E-03	-	-	-	-	2.98E-04	5.00E-04
2,2,4 - Trimethylpentane	-	-	-	-	2.75E-02	3.95E-02	-	-	-	-	2.24E-03	3.77E-03
Acenaphthene	-	-	-	-	1.38E-04	1.97E-04	-	-	-	-	1.12E-05	1.88E-05
Acenaphthylene	-	-	-	-	6.09E-04	8.73E-04	-	-	-	-	4.96E-05	8.33E-05
Acetaldehyde	1.05E-02	1.17E-02	1.18E-02	1.20E-02	9.21E-01	1.32E+00	5.73E-04	6.53E-04	6.54E-04	6.75E-04	7.49E-02	1.26E-01
Acrolein	1.69E-03	1.88E-03	1.89E-03	1.92E-03	5.66E-01	8.12E-01	9.17E-05	1.04E-04	1.05E-04	1.08E-04	4.61E-02	7.74E-02
Benzene	3.16E-03	3.52E-03	3.54E-03	3.60E-03	4.85E-02	6.95E-02	1.72E-04	1.96E-04	1.96E-04	2.03E-04	3.94E-03	6.63E-03
Benzo(b)fluoranthene	-	-	-	-	1.83E-05	2.62E-05	-	-	-	-	1.49E-06	2.50E-06
Benzo(e)pyrene	-	-	-	-	4.57E-05	6.55E-05	-	-	-	-	3.72E-06	6.25E-06
Benzo(g,h,i)perylene	-	-	-	-	4.56E-05	6.54E-05	-	-	-	-	3.71E-06	6.24E-06
Biphenyl	-	-	-	-	2.33E-02	3.35E-02	-	-	-	-	1.90E-03	3.19E-03
Carbon Tetrachloride	-	-	-	-	4.04E-03	5.79E-03	-	-	-	-	3.29E-04	5.53E-04
Chlorobenzene	-	-	-	-	3.35E-03	4.80E-03	-	-	-	-	2.73E-04	4.58E-04
Chloroform	-	-	-	-	3.14E-03	4.50E-03	-	-	-	-	2.56E-04	4.29E-04
Chrysene	-	-	-	-	7.63E-05	1.09E-04	-	-	-	-	6.21E-06	1.04E-05
Ethyl Benzene	8.43E-03	9.38E-03	9.45E-03	9.60E-03	4.37E-03	6.27E-03	4.58E-04	5.22E-04	5.23E-04	5.40E-04	3.56E-04	5.98E-04
Ethylene Dibromide	-	-	-	-	4.88E-03	6.99E-03	-	-	-	-	3.97E-04	6.67E-04
Fluorene	-	-	-	-	6.24E-04	8.95E-04	-	-	-	-	5.08E-05	8.54E-05
Fluoranthene	-	-	-	-	1.22E-04	1.75E-04	-	-	-	-	9.95E-06	1.67E-05
Formaldehyde	1.87E-01	2.08E-01	2.10E-01	2.13E-01	5.82E+00	8.34E+00	1.02E-02	1.16E-02	1.16E-02	1.20E-02	4.73E-01	7.96E-01
Methanol	-	-	-	-	2.75E-01	3.95E-01	-	-	-	-	2.24E-02	3.77E-02
Methylene Chloride	-	-	-	-	7.34E-03	1.05E-02	-	-	-	-	5.97E-04	1.00E-03
Naphthalene	3.43E-04	3.81E-04	3.84E-04	3.90E-04	8.19E-03	1.17E-02	1.86E-05	2.12E-05	2.13E-05	2.19E-05	6.67E-04	1.12E-03
n-Hexane	-	-	-	-	1.22E-01	1.75E-01	-	-	-	-	9.96E-03	1.67E-02
PAH	5.80E-04	6.45E-04	6.50E-04	6.60E-04	2.96E-03	4.25E-03	3.15E-05	3.59E-05	3.60E-05	3.71E-05	2.41E-04	4.05E-04
Phenanthrene	-	-	-	-	1.15E-03	1.64E-03	-	-	-	-	9.32E-05	1.57E-04
Phenol	-	-	-	-	2.64E-03	3.79E-03	-	-	-	-	2.15E-04	3.62E-04
Propylene Oxide	7.64E-03	8.50E-03	8.56E-03	8.70E-03	-	-	4.15E-04	4.73E-04	4.74E-04	4.89E-04	-	-
Pyrene	-	-	-	-	1.50E-04	2.15E-04	-	-	-	-	1.22E-05	2.05E-05
Styrene	-	-	-	-	2.60E-03	3.73E-03	-	-	-	-	2.12E-04	3.56E-04
Tetrachloroethane	-	-	-	-	2.73E-04	3.92E-04	-	-	-	-	2.22E-05	3.74E-05
Toluene	3.43E-02	3.81E-02	3.84E-02	3.90E-02	4.49E-02	6.44E-02	1.86E-03	2.12E-03	2.13E-03	2.19E-03	3.66E-03	6.15E-03
Vinyl Chloride	-	-	-	-	1.64E-03	2.35E-03	-	-	-	-	1.34E-04	2.25E-04
Xylene	1.69E-02	1.88E-02	1.89E-02	1.92E-02	2.03E-02	2.91E-02	9.17E-04	1.04E-03	1.05E-03	1.08E-03	1.65E-03	2.77E-03

Notes: "-" = COPC not modeled

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Table A5: Modeled 1-hour and Maximum Annual Ambient Emissions Concentrations from the Existing Dover Compressor Station

COPC	1-hour Modeled Impacts (µg/m^3)		Annual Modeled Impacts (µg/m^3)	
	A1 Turbine	***Emergency Generator***	***A1 Turbine***	***Emergency Generator***
1,1,2 - Trichloroethane	-	7.41E-03	-	3.27E-04
1,1,2,2 -Tetrachloroethane	-	9.33E-03	-	4.12E-04
1,3 - Butadiene	6.54E-05	6.23E-02	1.25E-06	2.75E-03
1,3 - Dichloropropene	-	6.16E-03	-	2.72E-04
2 - Methylnaphthalene	-	7.74E-03	-	3.42E-04
2,2,4 - Trimethylpentane	-	5.83E-02	-	2.57E-03
Acenaphthene	-	2.91E-04	-	1.29E-05
Acenaphthylene	-	1.29E-03	-	5.69E-05
Acetaldehyde	6.09E-03	1.95E+00	1.16E-04	8.60E-02
Acrolein	9.74E-04	1.20E+00	1.85E-05	5.29E-02
Benzene	1.83E-03	1.03E-01	3.48E-05	4.53E-03
Benzo(b)fluoranthene	-	3.87E-05	-	1.71E-06
Benzo(e)pyrene	-	9.68E-05	-	4.27E-06
Benzo(g,h,i)perylene	-	9.65E-05	-	4.26E-06
Biphenyl	-	4.94E-02	-	2.18E-03
Carbon Tetrachloride	-	8.56E-03	-	3.78E-04
Chlorobenzene	-	7.09E-03	-	3.13E-04
Chloroform	-	6.65E-03	-	2.93E-04
Chrysene	-	1.62E-04	-	7.13E-06
Ethyl Benzene	4.87E-03	9.26E-03	9.27E-05	4.09E-04
Ethylene Dibromide	-	1.03E-02	-	4.56E-04
Fluorene	-	1.32E-03	-	5.84E-05
Fluoranthene	-	2.59E-04	-	1.14E-05
Formaldehyde	1.08E-01	1.23E+01	2.06E-03	5.43E-01
Methanol	-	5.83E-01	-	2.57E-02
Methylene Chloride	-	9.33E-03	-	4.12E-04
Naphthalene	1.98E-04	1.73E-02	3.77E-06	7.66E-04
n-Hexane	-	2.59E-01	-	1.14E-02
PAH	3.35E-04	6.27E-03	6.37E-06	2.77E-04
Phenanthrene	-	2.43E-03	-	1.07E-04
Phenol	-	5.60E-03	-	2.47E-04
Propylene Oxide	4.41E-03	-	8.40E-05	-
Pyrene	-	3.17E-04	-	1.40E-05
Styrene	-	5.50E-03	-	2.43E-04
Tetrachloroethane	-	5.78E-04	-	2.55E-05
Toluene	1.98E-02	9.51E-02	3.77E-04	4.20E-03
Vinyl Chloride	-	3.47E-03	-	1.53E-04
Xylene	9.74E-03	4.29E-02	1.85E-04	1.89E-03

Notes: "-" = COPC not modeled

Table A6: Modeled 1-hour and Maximum Annual Ambient Emissions Concentrations from the Proposed Dover Compressor Station

COPC	1-hour Modeled Impacts (µg/m³)			Annual Modeled Impacts (µg/m³)		
	A1 Turbine	***A2 Turbine***	***Emergency Generator***	***A1 Turbine***	***A2 Turbine***	***Emergency Generator***
1,1,2 - Trichloroethane	-	-	5.58E-03	-	-	1.30E-04
1,1,2,2 -Tetrachloroethane	-	-	7.02E-03	-	-	1.64E-04
1,3 - Butadiene	6.54E-05	1.42E-04	4.68E-02	1.25E-06	2.41E-06	1.09E-03
1,3 - Dichloropropene	-	-	4.63E-03	-	-	1.08E-04
2 - Methylnaphthalene	-	-	5.82E-03	-	-	1.36E-04
2,2,4 - Trimethylpentane	-	-	4.39E-02	-	-	1.02E-03
Acenaphthene	-	-	2.19E-04	-	-	5.11E-06
Acenaphthylene	-	-	9.70E-04	-	-	2.26E-05
Acetaldehyde	6.09E-03	1.32E-02	1.47E+00	1.16E-04	2.24E-04	3.42E-02
Acrolein	9.74E-04	2.11E-03	9.02E-01	1.85E-05	3.59E-05	2.10E-02
Benzene	1.83E-03	3.96E-03	7.72E-02	3.48E-05	6.73E-05	1.80E-03
Benzo(b)fluoranthene	-	-	2.91E-05	-	-	6.79E-07
Benzo(e)pyrene	-	-	7.28E-05	-	-	1.70E-06
Benzo(g,h,i)perylene	-	-	7.26E-05	-	-	1.69E-06
Biphenyl	-	-	3.72E-02	-	-	8.67E-04
Carbon Tetrachloride	-	-	1.29E-02	-	-	3.00E-04
Chlorobenzene	-	-	5.33E-03	-	-	1.24E-04
Chloroform	-	-	5.00E-03	-	-	1.17E-04
Chrysene	-	-	1.22E-04	-	-	2.84E-06
Ethyl Benzene	4.87E-03	1.06E-02	6.96E-03	9.27E-05	1.79E-04	1.62E-04
Ethylene Dibromide	-	-	7.77E-03	-	-	1.81E-04
Fluorene	-	-	9.95E-04	-	-	2.32E-05
Fluoranthene	-	-	1.95E-04	-	-	4.54E-06
Formaldehyde	1.08E-01	2.34E-01	9.26E+00	2.06E-03	3.98E-03	2.16E-01
Methanol	-	-	4.39E-01	-	-	1.02E-02
Methylene Chloride	-	-	3.51E-03	-	-	8.18E-05
Naphthalene	1.98E-04	4.29E-04	1.31E-02	3.77E-06	7.29E-06	3.04E-04
n-Hexane	-	-	1.95E-01	-	-	4.54E-03
PAH	3.35E-04	7.26E-04	9.44E-03	6.37E-06	1.23E-05	2.20E-04
Phenanthrene	-	-	1.82E-03	-	-	4.26E-05
Phenol	-	-	4.21E-03	-	-	9.82E-05
Propylene Oxide	4.41E-03	9.57E-03	-	8.40E-05	1.63E-04	-
Pyrene	-	-	2.39E-04	-	-	5.56E-06
Styrene	-	-	4.14E-03	-	-	9.66E-05
Tetrachloroethane	-	-	4.35E-04	-	-	1.01E-05
Toluene	1.98E-02	4.29E-02	7.16E-02	3.77E-04	7.29E-04	1.67E-03
Vinyl Chloride	-	-	2.61E-03	-	-	6.10E-05
Xylene	9.74E-03	2.11E-02	3.23E-02	1.85E-04	3.59E-04	7.53E-04

Notes: "-" = COPC not modeled

Table A7: Modeled 1-hour and Maximum Annual Ambient Emissions Concentrations from the Existing Milford Compressor Station

COPC	1-hour Modeled Impacts (µg/m³)			Annual Modeled Impacts (µg/m³)		
	A1 Turbine	***A2 Turbine***	***Emergency Generator***	***A1 Turbine***	***A2 Turbine***	***Emergency Generator***
1,1,2,2-Tetrachloroethane	-	-	1.14E-02	-	-	1.42E-03
1,1,2-Trichloroethane	-	-	8.94E-03	-	-	1.12E-03
1,3-Butadiene	2.41E-04	2.41E-04	7.51E-02	3.73E-06	3.30E-06	9.38E-03
1,3-Dichloropropene	-	-	7.42E-03	-	-	9.26E-04
2 - Methylnaphthalene	-	-	9.32E-03	-	-	1.16E-03
2,2,4-Trimethylpentane	-	-	7.04E-02	-	-	8.78E-03
Acenaphthene	-	-	3.52E-04	-	-	4.39E-05
Acenaphthylene	-	-	1.52E-03	-	-	1.90E-04
Acetaldehyde	2.24E-02	2.24E-02	2.38E+00	3.47E-04	3.07E-04	2.97E-01
Acrolein	3.58E-03	3.59E-03	1.43E+00	5.56E-05	4.91E-05	1.78E-01
Benzene	6.72E-03	6.73E-03	1.24E-01	1.04E-04	9.21E-05	1.54E-02
Benzo(b)fluoranthene	-	-	4.66E-05	-	-	5.82E-06
Benzo(e)pyrene	-	-	1.14E-04	-	-	1.42E-05
Benzo(g,h,i)perylene	-	-	1.14E-04	-	-	1.42E-05
Biphenyl	-	-	5.90E-02	-	-	7.36E-03
Carbon tetrachloride	-	-	1.05E-02	-	-	1.31E-03
Chlorobenzene	-	-	8.46E-03	-	-	1.06E-03
Chloroform	-	-	7.99E-03	-	-	9.97E-04
Chrysene	-	-	1.90E-04	-	-	2.37E-05
Ethyl benzene	1.79E-02	1.80E-02	1.14E-02	2.78E-04	2.46E-04	1.42E-03
Ethylene dibromide	-	-	1.24E-02	-	-	1.54E-03
Fluoranthene	-	-	3.14E-04	-	-	3.92E-05
Fluorene	-	-	1.62E-03	-	-	2.02E-04
Formaldehyde	3.97E-01	3.98E-01	1.52E-03	6.16E-03	5.45E-03	1.90E-04
Hexane	-	-	3.14E-01	-	-	3.92E-02
Methanol	-	-	7.04E-01	-	-	8.78E-02
Methylene chloride	-	-	5.61E-03	-	-	7.00E-04
Naphthalene	7.28E-04	7.30E-04	2.09E-02	1.13E-05	9.98E-06	2.61E-03
Phenanthrene	-	-	2.95E-03	-	-	3.68E-04
Phenol	1.23E-03	1.23E-03	2.10E-02	1.91E-05	1.69E-05	2.62E-03
Propylene oxide	1.62E-02	1.63E-02	-	2.52E-04	2.23E-04	-
Pyrene	-	-	3.80E-04	-	-	4.75E-05
Styrene	-	-	6.56E-03	-	-	8.19E-04
Tetrachloroethane	-	-	6.94E-04	-	-	8.67E-05
Toluene	7.28E-02	7.30E-02	1.14E-01	1.13E-03	9.98E-04	1.42E-02
Vinyl chloride	-	-	4.18E-03	-	-	5.22E-04
Xylenes	3.58E-02	3.59E-02	5.14E-02	5.56E-04	4.91E-04	6.41E-03

Notes: "-" = COPC not modeled

Table A8: Emissions Factors

COPC	Turbines	Emergency Generators
1,1,2 - Trichloroethane	-	3.18E-05
1,1,2,2 -Tetrachloroethane	-	4.00E-05
1,3 - Butadiene	4.30E-07	2.67E-04
1,3 - Dichloropropene	-	2.64E-05
2 - Methylnaphthalene	-	3.32E-05
2,2,4 - Trimethylpentane	-	2.50E-04
Acenaphthene	-	1.25E-06
Acenaphthylene	-	5.53E-06
Acetaldehyde	4.00E-05	8.36E-03
Acrolein	6.40E-06	5.14E-03
Benzene	1.20E-05	4.40E-04
Benzo(b)fluoranthene	-	1.66E-07
Benzo(e)pyrene	-	4.15E-07
Benzo(g,h,i)perylene	-	4.14E-07
Biphenyl	-	2.12E-04
Carbon Tetrachloride	-	3.67E-05
Chlorobenzene	-	3.04E-05
Chloroform	-	2.85E-05
Chrysene	-	6.93E-07
Ethyl Benzene	3.20E-05	3.97E-05
Ethylene Dibromide	-	4.43E-05
Fluorene	-	5.67E-06
Fluoranthene	-	1.11E-06
Formaldehyde	7.10E-04	5.28E-02
Methanol	-	2.50E-03
Methylene Chloride	-	2.00E-05
Naphthalene	-	7.44E-05
n-Hexane	-	1.11E-03
PAH	2.20E-06	2.69E-05
Phenanthrene	-	1.04E-05
Phenol	-	2.40E-05
Propylene Oxide	2.90E-05	-
Pyrene	-	1.36E-06
Styrene	-	2.36E-05
Tetrachloroethane	-	2.48E-06
Toluene	1.30E-04	4.08E-04
Vinyl Chloride	-	1.49E-05
Xylene	6.40E-05	1.84E-04

Notes: "-" = COPC not modeled

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