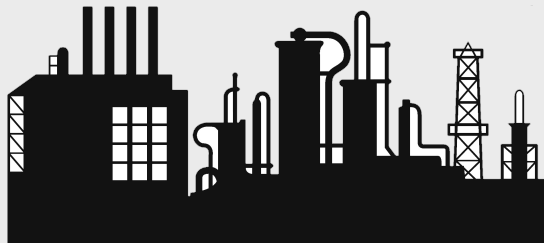


INTRODUCTION

Natural gas compressor stations, located at various intervals along gas pipelines, emit a mixture of chemical toxins into the air that are known to impact human health.

These toxins can be carried downwind from the compressor station to residents in surrounding areas, **impacting people living within a six mile radius of the compressor station.**



Emissions can include nitrogen oxides, carbon monoxide, volatile organic compounds including benzene, toluene, hexane and xylene, formaldehyde and particulate matter.

Emissions occur continuously during normal operations, as hazardous pollutants carried with the gas are vented or leak from pipelines and equipment.

They can also occur during routine maintenance operations such as “blowdowns” when large amounts of chemical contaminants are intentionally released into the atmosphere.

There are 74 operational natural gas compressor stations located in New York State.

Each year, these industrial operations release tons of toxic pollutants - made up of 70 different chemicals - into the environment.

These 70 chemicals are linked to 19 of 20 major categories of human disease.

Health care providers practicing in or near areas where compressor stations are operating should be aware of the chemicals being emitted, and the possible health impacts of exposure to those chemicals for their adult and pediatric patients.

The information in this pamphlet is based on “Air Emissions from Natural Gas Facilities in New York State,” a study by Pasquale Russo and Dr. David Carpenter, published in the *International Journal of Environmental Research and Public Health*, 2019, and a report titled *Safety Assessment of Siting Large Scale Gas Compressor Stations in Residential Neighborhoods in New York State*, a technical report prepared by the Southwest Pennsylvania Environmental Health Project, a non-profit organization of medical professionals and public health *scientists*.

To read the full study and report, and for more information, please visit

www.EnvironmentalHealthProject-NY.org

SWPA Environmental Health Project

2001 Waterdam Plaza Drive, Suite 201
McMurray, PA 15317 • 724.260.5504
www.environmentalhealthproject.org

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Important Information for Health Care Providers



*The natural gas compressor station
in your region could be impacting
the health of your patients.*

SOUTHWEST PENNSYLVANIA
ENVIRONMENTAL HEALTH
PROJECT

WHAT CAN I DO?

Incorporate an **environmental health and exposure history** into new and established patient's records. This is critical to helping to recognize the impact of potentially hazardous chemicals and pollutants in the environment, particularly in areas where exposures have recently increased due to industrial activity. Even asking a few **screening questions** may alert you to a potential exposure or an environmental cause.



WHAT ARE THE HEALTH IMPACTS?

Residents are exposed to both baseline and extreme episodic emissions. Distance from the compressor station, weather conditions and wind direction influence individual exposure. As a result of these factors, health effects may be persistent, episodic or temporary.

These **extreme episodic exposures** which may last minutes to several hours, can precipitate acute health symptoms even though the total emissions averaged over a 24 hour or longer period can appear to be much less.

Exposure to the contaminants increases the risk of developing or worsening pre-existing

cardiovascular or respiratory conditions. Some contaminants are carcinogenic while others have adverse neurologic effects.

Distance from Compressor	0.1 km fenceline	0.5 km	1 km	2 km	3 km	5 km
Annual median level	Extreme	High	Low	Low	Low	Low
Annual peak levels 10% of time	Extreme	Extreme	Extreme	High	High	Moderate

Air exposure levels for a compressor station, emitting an estimated 55 tons/year of the mixture (NO_x, CO, VOCs, formaldehyde, PM)

Air emissions from shale gas facilities are composed primarily of five toxic chemicals, after methane and CO₂: nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM_{2.5}) and formaldehyde in these approximate percentages; 40%, 30%, 12%, 3%, and 3%.

Exposure	Air level/ μgm^{-3}	Physiologic system affected
Low	< 500	Ears, eyes, nose & throat (EENT)
Moderate	500 -1000	EENT; neurological
High	1001 - 2500	EENT; neurological, respiratory, cardiovascular
Extreme	>2500	EENT; neurological, respiratory & worsening cardiovascular effects

Exposure levels of the mixture emitted from natural gas compressor stations that can elicit health symptoms.

Susceptible populations include:

- Children
- Developing fetuses
- The elderly
- Persons with chronic respiratory or cardiovascular disease

Acute health impacts from short-term exposures:

- Headache
- Dizziness & nausea
- Fatigue
- Insomnia
- Confusion & memory problems
- Skin irritation
- Eye & throat irritation
- Acute respiratory problems
- COPD and asthma exacerbation
- Coughing
- Chest pain
- Acute cardiac events

Chronic health impacts from long-term exposures:

- Anemia
- Lung and other respiratory cancers
- Leukemia and lymphoma
- Breast and genital cancers
- Bladder and urinary cancers
- Bone cancer
- Lip and other oral cancers
- Endocrine disruption
- Permanent neurological problems