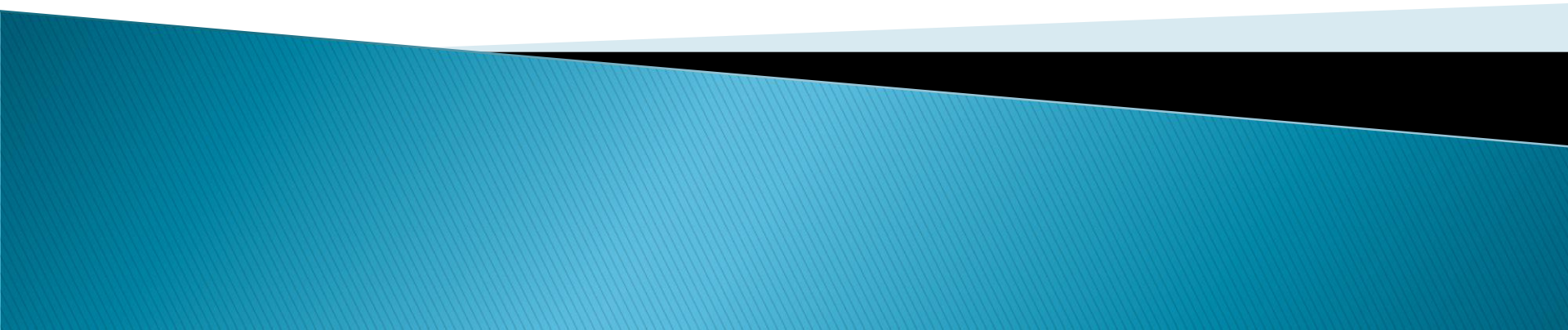



Potential Environmental, Public Safety and Human Health Impacts Associated with Natural Gas Compressor Stations



Emissions from Compressor Stations

- ▶ Compressor stations along pipelines are used to push the natural gas through the pipeline.
 - ▶ The compressors release combustion products, nitrogen oxide and volatile organic hydrocarbons into the air and degrade the air quality.
 - ▶ The combustion products combine with the volatile organic compounds released by the compressors and heat and sunlight to produce ground level ozone.
 - ▶ Ground level ozone impacts the respiratory system, lung function and cardiovascular system.
- 

Chemicals Released into the Air from Compressor Facilities

- ▶ Benzene
- ▶ Toluene
- ▶ Ethylbenzene
- ▶ Xylenes
- ▶ 1,3-Butadiene
- ▶ n-Butyl Alcohol
- ▶ Carbon Disulfide
- ▶ Carbonyl Sulfide
- ▶ Chlorobenzene
- ▶ Chloromethane
- ▶ 1, 2-Dichloroethane
- ▶ Diethyl Benzene
- ▶ Dimethyl Disulfide
- ▶ Formaldehyde
- ▶ Methyl Ethyl Disulfide
- ▶ Naphthalene
- ▶ 1,1,1, 2-Tetrachloroethane
- ▶ Trichloroethylene
- ▶ Trimethyl Benzene
- ▶ 1,2,4-Trimethyl Benzene
- ▶ Styrene
- ▶ Methane
- ▶ Ethane
- ▶ Butane
- ▶ Propane
- ▶ Nitrogen Oxide

Acute Health Impacts Experienced by Individuals Living and Working near Compressor Stations

- ▶ Irritates skin, eyes, nose, throat and lungs
- ▶ Respiratory impacts
- ▶ Sinus problems
- ▶ Allergic reactions
- ▶ Headaches
- ▶ Dizziness, Light headedness
- ▶ Nausea, Vomiting
- ▶ Skin rashes
- ▶ Fatigue
- ▶ Weakness
- ▶ Tense and Nervous
- ▶ Joint and muscle aches and pains
- ▶ Vision Impairment
- ▶ Personality changes
- ▶ Depression, Anxiety
- ▶ Irritability
- ▶ Confusion
- ▶ Drowsiness
- ▶ Weakness
- ▶ Irregular Heartbeat

90% of individuals living and working within 2–3 miles of compressor stations report experiencing odor events and health impacts

Chronic Health Impacts Experienced by Individuals Living and Working near Compressor Stations

- ▶ Damage to Liver and Kidneys
 - ▶ Damage to Lungs
 - ▶ Damage to Cardiovascular System
 - ▶ Damage to Developing Fetus
 - ▶ Reproductive Damage
 - ▶ Mutagenic Impacts
 - ▶ Developmental Malformations
 - ▶ Damage to Nervous System
 - ▶ Brain Impacts
 - ▶ Leukemia
 - ▶ Aplastic Anemia
 - ▶ Changes in Blood Cells
 - ▶ Impacts to Blood Clotting Ability
- 

Health Impacts Associated With Living near Compressor Stations and Gas Metering Stations Along Gas Transmission Pipelines

- ▶ Nasal Irritation
- ▶ Throat Irritation
- ▶ Eyes Burning
- ▶ Frequent Nausea
- ▶ Sinus Problems
- ▶ Bronchitis
- ▶ Increased Fatigue
- ▶ Muscle Aches and Pains
- ▶ Severe Headaches
- ▶ Dizziness
- ▶ Weakness and Tired
- ▶ Decreased Motor Skills
- ▶ Depression
- ▶ Frequent Irritation
- ▶ Severe Anxiety

61% of Health Impacts are associated with chemicals present in the air in excess of Short and Long Term Health Screening Levels

Health Impacts Associated With Living near Compressor Stations and Gas Metering Stations Along Natural Gas Transmission Pipelines

- ▶ Health Symptoms Associated With Chemicals Detected in the Air
 - Allergies
 - Persistent Cough
 - Shortness of Breath
 - Frequent Nose Bleeds
 - Sleep Disturbances
 - Joint Pain
 - Difficulty in Concentrating
 - Nervous System Impacts
 - Forgetfulness
 - Sores and Ulcers in Mouth
 - Thyroid Problems

Emergency Response

- ▶ Compressor stations are an explosive hazard, a fire hazard and a toxic hazard.
- ▶ The methane/natural gas and associated hydrocarbons such as ethane, propane, butane and pentane, transported in the pipelines are vented and released in large quantities at the compressor station locations during blow down events and during accidental release events.
- ▶ Methane is an explosion and fire hazard. When Methane being released into the air comes in contact with a spark source, a major explosion and fire can occur.
- ▶ Compressor stations also are the site of leaks and spills of toxic chemicals used in the compressor station operations. Such leaks and spills contaminate soils, surface and ground water resources and surrounding flora and fauna.
- ▶ The Marcellus shale has large quantities of radioactive components such as Radium 226 and 228. The radioactive components contaminate the natural gas stream and build up in the units of compressor facilities. Radium 226 is a bone seeker and causes bone and lung cancer.