

Noise

What is Noise?

Noise is defined as sound that is loud, unpleasant, unexpected or undesired. Some noise can be unwanted and affect quality of life, enjoyment of one’s property, or even an individual’s health and wellbeing.

Sound Levels and General Responses to Noise

Most of the estimates of sound levels presented in the table correspond to noise, however, the majority of these levels are lower than those which could damage a person’s hearing. Industry uses a number of noise reduction and mitigation techniques to reduce the impact of noise on neighbors and workers.

Noise in the workplace is monitored and regulated to minimize the risk of hearing impact in workers. To prevent hearing loss, federal and state regulations require workers at worksites where operations cause an exceedance of certain noise levels to wear hearing protection and/or use noise reduction techniques for loud equipment in order to lower operator exposure. Measures that reduce equipment noise have the benefit of reducing or eliminating noise for property owners, neighbors, and the community.

Sound levels are measured in decibels (dBA). The following table provides examples of typical sound levels for a number of familiar sources.*

Bedroom of a country home.....	30 dBA
Soft whisper at 5 ft.....	30 dBA
Quiet office or living room.....	40 dBA
Moderate rainfall	50 dBA
Inside average urban home.....	50 dBA
Normal conversation at 3 ft.....	60 dBA
Noisy restaurant.....	70 dBA
Double Drilling Rig at 50 ft	76-96 dBA*
Double Drilling Rig at 150 ft	68-88 dBA**
Highway traffic at 50 ft.....	75 dBA
Tractor at 50 ft.....	78-95 dBA
Natural Gas Compressor at 50 ft	78-98 dBA*
Natural Gas Compressor at 150 ft.....	70-90 dBA**
Bus or heavy truck at 50 ft.....	88-94 dBA
Jackhammer.....	88-98 dBA
Loud shout.....	90 dBA
Freight train at 50 ft.....	95 dBA
Modified motorcycle.....	95 dBA
Amplified rock music.....	110 dBA
Jet taking off at 150 ft.....	120 dBA

* Reif, Z. F., and Vermeulen, P. J., Noise from domestic appliances, construction, and industry, 1979.

**actual noise levels can vary significantly from these depending on equipment configuration.

What Sounds are Associated with Shale Gas Development?

Sounds from shale gas development stem from two types of activities. The first includes temporary activities such as well site and pipeline construction, drilling and servicing rig operations, casing and cementing programs, and well completion and hydraulic fracturing operations. These temporary activities generally occur for short periods. The second type of sound stems from permanent facilities and on-going activities, including compressor stations, gas and oil processing plants, pipeline pumping facilities, and trucking and transportation services.



How is Noise Regulated?

The United States Department of Labor's Occupational Safety and Health Administration (OSHA) sets regulatory limits on noise exposure in the workplace. These limits are based on a worker's average exposure for an 8-hour work day. OSHA's permissible exposure limit is 90 dBA over a time-weighted period of eight hours. The OSHA standard allows for exposure to louder noises by reducing an individual's exposure time.

Environmental Noise, which is defined as unwanted sound that travels over distance from a source(s) to a receiver location, is regulated at the state and local levels, as delegated by the United States Environmental Protection Agency under Title IV of the Clean Air Act. The Office of

Noise Abatement and Control was established under the Clean Air Act to determine the effect of noise on public health and welfare. The EPA coordinated noise control activities under this Office until 1981 when the EPA concluded that noise issues were best handled at the State and local level. In Pennsylvania, local municipalities have the authority to develop noise requirements and standards. This has led to inconsistent noise standards and solutions being

applied across the state over many different industries, including the development of shale gas.

What is the Natural Gas Industry doing to Control Exposure to Noise?

Noise management is a priority for the oil and gas industry and MSC members. Efforts to maintain noise levels at acceptable levels to minimize impacts on the quality of life for nearby residents and workers include:

- Implementing hearing protection for workers and noise mitigation controls, such as ear plugs.
- Continuing to implement noise control features into operations to reduce sound levels at on and off-property locations, such as specialized noise silencers, noise attenuating buildings, and noise barriers.
- Identifying noise reduction and mitigation options and alternatives across the industry
- Working with the public and other interest groups to identify noise mitigation strategies that meet or exceed regulatory requirements.
- Providing input to State and Local authorities on the establishment of meaningful and achievable noise control guidelines and targets.
- Collecting sound data during operations.
- Planning and modeling sound levels based on proposed operations.
- Establishing setback distances and hours of operations, where practical.

