



NOISE ABATEMENT STUDY NATURAL GAS EXPLORATION ACTIVITIES

Natural gas exploration activities (drilling, fracing, production, etc.) are required to meet specific noise limitations and must demonstrate that the proposed activity will comply with local noise standards. This demonstration, called a noise abatement study, must be conducted by a qualified noise consultant/engineer.

Ambient Noise Monitoring Plan

Prior to the initiation of a noise abatement study as part of a gas drilling application, the applicant shall submit a proposal that details the plans for the ambient noise data collection effort. This plan shall include:

- (1) A map detailing all of the protected uses within 1,000 feet of the padsite boundary and the location of the proposed ambient monitoring site.
- (2) A schedule for the ambient noise monitoring. The schedule must include at least 72 hours of monitoring and include a weekend day.
- (3) A description of the noise monitoring equipment proposed to be utilized.
- (4) A statement of qualifications from the noise consultant proposed to be utilized for the ambient noise study.

A meeting will be scheduled with the applicant to review the ambient noise monitoring plan and approval from the Environmental Services Department prior to the initiation of the study.

Noise Abatement Study

A noise abatement study must be submitted as part of the gas drilling permit application. The study must contain at a minimum the following:

- (1) A description of the proposed facility/operation.
- (2) A determination of the ambient noise level utilizing the approved ambient noise monitoring plan.
- (3) An analysis of any significant sources of the noise, including noise that will be generated during the drilling, fracing, flowback, and operational phases of the drill site. This analysis

must include a comparison of the potential noise generation with the applicable noise standards. **The study must contain a statement from the consultant that the exploration activities will meet the noise standards, or if not, then what modifications are needed to insure compliance.**

- (4) An analysis of any abatement measures necessary to bring the proposed facility into compliance with the City's noise standards. If the analysis indicates that abatement measures are required to meet the standards, then the applicant must submit a detailed plan that describes the specific measures that will be utilized. This shall include product information and a location diagram. All soundproofing shall comply with accepted industry standards. The abatement measures shall be installed prior to the commencement of any drilling activities.
- (5) Any information required to comply with the special noise requirements for padsites within 1,000 feet of a protected use.
- (6) Any information required to comply with the special noise requirements for padsites with lift or line compression equipment.
- (7) Any other items required by the City's Environmental Services Director.

Noise standards for natural gas drilling operations are listed in Chapter 13, Article 19 of the City's Code of Ordinances. **This handout's purpose is to serve only as guidance. Please refer to the actual ordinances for the specific requirements.** Copies of the ordinances may be viewed on the City's website <http://www.gptx.org/>

Special Noise Requirements for Protected Use Adjacency

All padsites with boundaries within 1,000 feet of any protected use shall be required to comply with the following additional requirements:

- (1) Noise boundary walls (minimum height of 30 feet) must be installed on any padsite boundaries facing any protected use within 1,000 feet. The noise walls shall meet a standard of STC 30 or greater. Manufacturing specifications shall be submitted to verify compliance with this standard.
- (2) Noise blankets must be installed on the:
 - Rig substructure
 - Rig floor area
 - Brake drum housings and pumps
 - Mud pumps
 - Diesel motors and generators
- (3) All internal combustion engines or compressors (stationary or mounted on wheels) must be equipped with a hospital grade muffler or equivalent control device.
- (4) Exterior noise levels, including pure tone and low frequency data, shall be continuously monitored to ensure compliance. This data shall also include an audio recording to help identify the source of sound level “spikes” throughout the logging period. The continuous noise monitoring equipment shall be capable of wireless transmission of real-time noise and data. Access to this real-time data shall be made available to the City’s Environmental Services Director and the inspector. Noise readings shall be submitted to the inspector on a weekly basis in an electronic format or other format specified by the inspector.
- (5) The noise abatement study shall include a detailed site plan showing the location of the boundary noise reduction blankets and rig layout diagram detailing the location of all other noise reduction blankets, “hospital” grade mufflers, and any other noise reduction equipment. This site plan shall indicate the location of all protected uses within 1,000 feet, and the proposed location of the continuous noise monitoring equipment.
- (6) During nighttime operations, the operation of vehicle audible back-up alarms shall be prohibited or replaced with approved non-auditory signaling systems, such as spotters or flagmen. Deliveries of pipe, casing and heavy loads shall be limited to daytime hours, except for emergency situations. The Derrick Man and Driller shall communicate by walkie-talkie or other non-disruptive means only when the Derrick Man is in the derrick. Horns may not be used to signal for connection or to summon crew (except that a horn may be used for emergency purposes only). The operator shall conduct onsite meetings to inform all personnel of nighttime operations noise control requirements.

Special Noise Requirements for Padsite Compression Equipment

Lift compression equipment shall be required to meet the following requirements:

- (1) A lift compressor shall be considered temporary if the installation is for less than 90 days and shall be allowed five (5) dBA over ambient during the day and three (3) dBA over ambient at night. No compressor shall be considered temporary if installed after the removal of the initial compressor for that well. Sound blankets shall be required for noise abatement on temporary lift compressors.
- (2) Permanent lift compressors shall be enclosed within an acoustical structure composed of permanent material constructed of metal, masonry or other structurally sound material as approved by the Environmental Services Director that significantly screens the equipment, is painted in a non-contrasting soft earth tone color to match the nearby surroundings as nearly as possible and meets applicable building and fire codes. The structure shall be architecturally compatible with surrounding building structures and the structure's façade shall be approved by the city's Chief Planner.
- (3) Any exhaust from an internal combustion engine or compressor, stationary or mounted on wheels, must be controlled through the utilization of a "hospital" grade muffler or equivalent control device. This device must be sufficient to suppress noise and vibration and prevent the escape of noxious gases, fumes, or ignited carbon or soot.
- (4) The operation of permanent lift compression equipment shall not create any noise that causes the exterior noise level to exceed the pre-development ambient noise levels as measured at the nearest protected use receiver's/receptor's property line or one hundred (100) feet from the nearest protected use structure (as measured to the closest exterior point of the building), whichever is closer to the receiver/receptor.

Line compression equipment shall be required to meet the following requirements:

- (1) Line compressors shall be enclosed within an acoustical structure composed of permanent material constructed of metal, masonry or other structurally sound material as approved by the Environmental Services Director that significantly screens the equipment, is painted in a non-contrasting soft earth tone color to match the nearby surroundings as nearly as possible and meets applicable building and fire codes. The structure shall be architecturally compatible with surrounding building structures and the structure's façade shall be approved by the city's Chief Planner.
- (2) Any exhaust from an internal combustion engine or compressor, stationary or mounted on wheels, must be controlled through the utilization of a "hospital" grade muffler or equivalent control device. This device must be sufficient to suppress noise and vibration and prevent the escape of noxious gases, fumes, or ignited carbon or soot.
- (3) The operation of line compression equipment shall not create any noise that causes the exterior noise level to exceed the pre-development ambient noise levels as measured at the nearest protected use receiver's/receptor's property line or one hundred (100) feet from the nearest protected use structure (as measured to the closest exterior point of the building), whichever is closer to the receiver/receptor.

Noise standards (permitted increase over ambient) for all natural gas drilling operations (compliance measured at the nearest protected use receiver's/receptor's property line or one hundred (100) feet from the nearest protected use structure, whichever is closer to the receiver/receptor.)

	DRILLING/ OPERATION LIMITS dB (A)	FRACTURE LIMITS dB (A)	FLOWBACK LIMITS dB (A)	TEMPORARY COMPRESSOR LIMITS dB (A)
DAY	+ 5	+ 10	+ 5	+ 5
NIGHT	+ 3	N/A	+ 3	+ 3

Note 1: At any time in a measurement period, no noise may exceed the maximum sound level standard plus 20 dB(A). The time period of monitoring will be continuous over a minimum of fifteen (15) minutes and will use the A-weighting network reported in decibel units. Data shall be recorded and reported as Leq which shall mean an average measure of continuous noise that has the equivalent acoustic energy of the fluctuating signal over the same period.

Note 2: Fracing only permitted during daylight hours; except during emergency situations with approval.

Pure Tone Limitations

An Operator shall not drill or re-drill a well or operate any equipment in such a manner so as to create pure tones where one-third octave band sound-pressure level in the band with the tone exceeds the arithmetic average of the sound-pressure levels of two contiguous one-third octave bands by five (5) dB for center frequencies of 500 hertz and above, and by eight (8) dB for center frequencies between 160 and 400 hertz, and by fifteen (15) dB for center frequencies less than or equal to 125 hertz.

Low Frequency Limitations

An Operator shall not drill or re-drill a well or operate any equipment in such a manner so as to create low-frequency outdoor noise levels that exceed the following decibel levels:

16 hertz octave band: 65 dB
32 hertz octave band: 65 dB
64 hertz octave band: 65 dB