Compressor Stations

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Compressor stations compress natural gas, increasing the pressure and providing the energy needed to move the gas through the pipeline. Distance, friction and changes in elevation cause the pressure to decrease, so the gas must be compressed periodically to keep it flowing at a consistent rate. This handout is intended as a summary of information pertaining to the three proposed compressor stations along the Atlantic Coast Pipeline.

Equipment Specifications

The stations would have the following structures and equipment: compressor buildings, an auxiliary building, an office building, a regulator building, auxiliary generator, a tank farm, gas coolers, gas heaters, blowdown and exhaust silencers, metering equipment, a pipeline launcher and receiver, filter/separators, a dekatherm building, an environmental storage building, and a communications tower. Equipment needs are based on the current route. New, alternative routes, if adopted, could affect the type or size of equipment needed. **Regulatory requirements would remain the same regardless of the equipment in use.**

Conceptual rendering of the proposed Buckingham Compressor Station, in VA

Air Quality

Regulations

Based on air quality modeling, the air emissions from these stations would not cause or contribute to violations of National Ambient Air Quality Standards established in the Clean Air Act of 1970 and would therefore not interfere with attainment status in the areas where they are proposed. Because of the low level of emissions expected from the compressor stations associated with the ACP, these facilities are considered minor sources.

Maximum Air Permit Limits

Atlantic has submitted air permit applications to the sates of West Virginia, Virginia, and North Carolina. Regulatory agencies in the three states will use the proposed values in the applications to set permit limits. Projections are based on all units running constantly (8,760 hours per year) and the maximum unit operating load. **Actual annual operating hours and load will be less.**

Emission Controls

Emissions of all pollutants would be minimized through the selection of the most efficient turbines. Larger turbines, with greater horsepower output, are more efficient. More efficient models use less fuel and produce fewer emissions. The turbines include state-of-the art SoLoNOx technology to minimize NOx emissions. Dry seals would be used on compressors to minimize fugitive emissions and comply with the requirements of EPA's proposed New Source Performance Standards. Dry seal technology increases the safety, reliability and efficiency of the compressors.

Best in Class

The ACP compressor stations would be designed and operated with "best-in-class" technology. Best in class is defined as being the most efficient with the least environmental impact and providing reliable construction and operations above and beyond regulatory requirements. For example, the use of low nitrogen oxide combustion technology turbines and addition of Selective Catalytic Reduction technology would reduce nitrogen oxide emission rates from nine parts per million to five parts per million. In addition, an oxidation catalyst also would be installed to reduce emissions of CO by an estimated 80 percent, and VOC and formaldehyde emissions by an estimated 50 percent. Neither of these control technologies is required by regulation.

Noise

Regulations

The Federal Energy Regulatory Commission (FERC) requires that the sound from the operation of a new compressor station not exceed 55 decibels at any noise sensitive area (NSA), such as a school, hospital or residence, in the vicinity of the station. **The 55 decibel limit is required regardless of the equipment inside or outside the facility.** FERC guidelines also require that the operation of the compressor station should not result in a perceptible increase in vibration at a nearby NSA.

Sound Study

Ambient sound studies and acoustical analyses were completed for all proposed ACP facility sites. These studies evaluate the existing noise conditions and estimate noise produced by equipment at the sites. For the analysis, the existing sound levels are combined with the expected sound contribution at the nearest NSA. Noise mitigation measures are then developed to achieve the desired level. The result of acoustical analysis indicates that, with the specified noise control measures successfully implemented, the continuous sound attributable to the station operating at full-rated load will be lower than the FERC limit of 55 decibels at all identified NSAs.

Noise Control

Station design will include a number of noise control measures. For example, a muffler would be installed on the exhaust of each turbine unit. The exhaust pipes and intake ducts of the four turbine units would be acoustically insulated. The intake ducts would also have air cleaners and silencers. The walls and roof panels of the two compressor buildings would be constructed using sound dampening material. The doors of the compressor buildings would be insulated metal utilizing full weather stripping. Air inlet mufflers would be located between the air-handling units and the building walls to reduce sound from turbine units. Ventilation discharge hoods on the compressor building's roof would include air discharge mufflers. All aboveground sections of the unit suction, discharge, and bypass lines would be acoustically insulated.

Safety

Dominion and the ACP project partners are committed to safe operations, safe facilities and safety-minded employees. From construction through operations, safety will be the top priority of the ACP. Each stage of construction has built-in safety requirements. For example, pipes would be coated with corrosion preventative epoxy and each pipe weld would be visually and radiographically inspected. Remote-controlled shutoff valves would be installed to stop the flow of gas in case of an emergency. Cathodic protection, a low-voltage electrical system, would also be applied to the pipe to help prevent corrosion. Compressor Stations and M&R facilities are designed with control systems to continually monitor and effectively control situations outside of the normal operating parameters.

If the pipeline is approved and constructed, highly trained staff with years of experience would operate the system in accordance with federal, state and local government regulations. The ACP would be monitored 24 hours a day, seven days a week, using sophisticated computer and telecommunications equipment at Dominion's Gas Control Center. Operators would employ a number of safety measures, including the use of

- Computer-assisted control centers capable of detecting and interpreting pressure or flow changes in the pipe
- Remote-controlled shutoff valves
- Regular aerial and foot patrols
- Periodic internal inspections using "smart pigs", high-tech instruments that travel through the line collecting millions of data points about the pipeline's condition
- An extensive Public Awareness program

For Additional Information

ACP Website: www.dom.com/ACPipeline (FERC Filings and Information page)

Atlantic Coast Pipeline Air Permit Application

- FERC eLibrary: Docket Number: CP15-554-001; Accession Number: 20151001-5220
  - http://elibrary.ferc.gov/idmws/search/fercgensearch.asp

U.S. Environmental Protection Agency

- National Ambient Air Quality Standards (NAAQS): http://www3.epa.gov/ttn/naaqs/criteria.html
- New Source Review Permitting: http://www2.epa.gov/nsr/learn-about-new-source-review