



Please contact us if you have any questions about compressor stations or other aspects of the Mackenzie Gas Project:

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Mackenzie Gas Project is a proposed 1300-kilometre natural gas pipeline system along the Mackenzie Valley to connect northern gas fields with North American markets. We are committed to respecting the people of Canada's North and the land and environment that sustains them.

This information sheet is one of a series on the Mackenzie Gas Project.

Intermediate Compressor Stations

Station Description

Compressor stations that require refrigeration use propane to chill the natural gas. These stations will have a flare stack to ensure that any release of propane will be safely burned off. Stations with refrigeration will be a little bigger than the stations that only need to cool the natural gas. The surface area will be about 30 to 40 acres, or 15 to 20 hectares. Flare stacks may be anywhere from 15 to 25 metres tall (approximately three to five stories).

Buildings at each station shelter people and equipment from the weather. Main buildings include the control room, gas compression, refrigeration and motor control centre.

Lights will be on all the time to allow for safe operations. All compressor stations will meet applicable Canadian environmental standards, including noise. Typically, the standard means that people can hold a conversation at the fence line around the facility. About 1.5 kilometres from the site, depending on ground vegetation, the noise level will be similar to standing near a stream or river.

Compressor stations will likely not have staff onsite on a full-time basis, but will be monitored continuously from a central operations control centre.

Construction Plans

Preparation for construction could start as early as the fall of 2005, assuming the Project proceeds. Equipment, materials and supplies would be moved by rail, truck, barge and air transportation to staging sites near locations where the stations will be built.

Employment

Benefits will exist in the form of employment, business opportunities and training.

Current Activities

The Mackenzie Gas Project is actively engaged in consultation, preliminary engineering design, geotechnical work, environmental and socio-economic assessments, traditional knowledge studies and regulatory application activities.

Mackenzie Gas Project

Intermediate Compressor Stations

Moving Natural Gas through the Pipeline

Natural gas is pushed through a pipeline under pressure. In the proposed Mackenzie Gas Project, after natural gas leaves the natural gas liquids facility near Inuvik¹, it enters the Mackenzie Valley pipeline. The pressure and temperature of the natural gas will slowly decrease in the pipeline as it flows south. This is caused by factors such as changes in elevation and roughness on the inside of the pipe.

The pressure of the natural gas must be increased along the pipeline through the use of compressor stations. As compressor stations increase the pressure of the natural gas, the temperature of the natural gas increases also. The natural gas must be cooled to maintain the permafrost.

Two main processes usually take place at a typical compressor station:

- Natural gas compression, and
- Natural gas chilling and gas cooling.

¹ See Natural Gas Liquids Facility Information Sheet



Natural Gas Compression

Compressor stations increase or raise the pressure of the natural gas using gas compression machinery that is widely used throughout the oil and natural gas industry.

Natural Gas Chilling and Gas Cooling

The temperature of the natural gas flowing through the pipeline must be controlled to protect the environment. The cooling/chilling method used at each compressor station, and station spacing along the pipeline, both help to control the temperature. The condition of the soil surrounding the pipeline is a major factor in determining the required natural gas temperature.

If permafrost exists continuously along the pipeline corridor, then the natural gas must be chilled below freezing year-round. Refrigeration is required to achieve this year round temperature. Where the permafrost is not continuous, the natural gas is cooled in the warmer months, but remains above freezing, and is cooled to below freezing the rest of the year. Air coolers and heat exchangers are used to achieve this temperature range.

Compressor Station Locations

The first compressor station for the proposed Mackenzie Gas Project is part of the natural gas liquids facility near Inuvik. The other compressor stations will be located along the Mackenzie Valley pipeline route based on engineering requirements.

Initially, compressor stations will be built and spaced every few hundred kilometres along the natural gas pipeline. If natural gas volumes increase in the future, more compressors will be added. The final number of stations is influenced by the amount of natural gas to be moved in the pipeline.

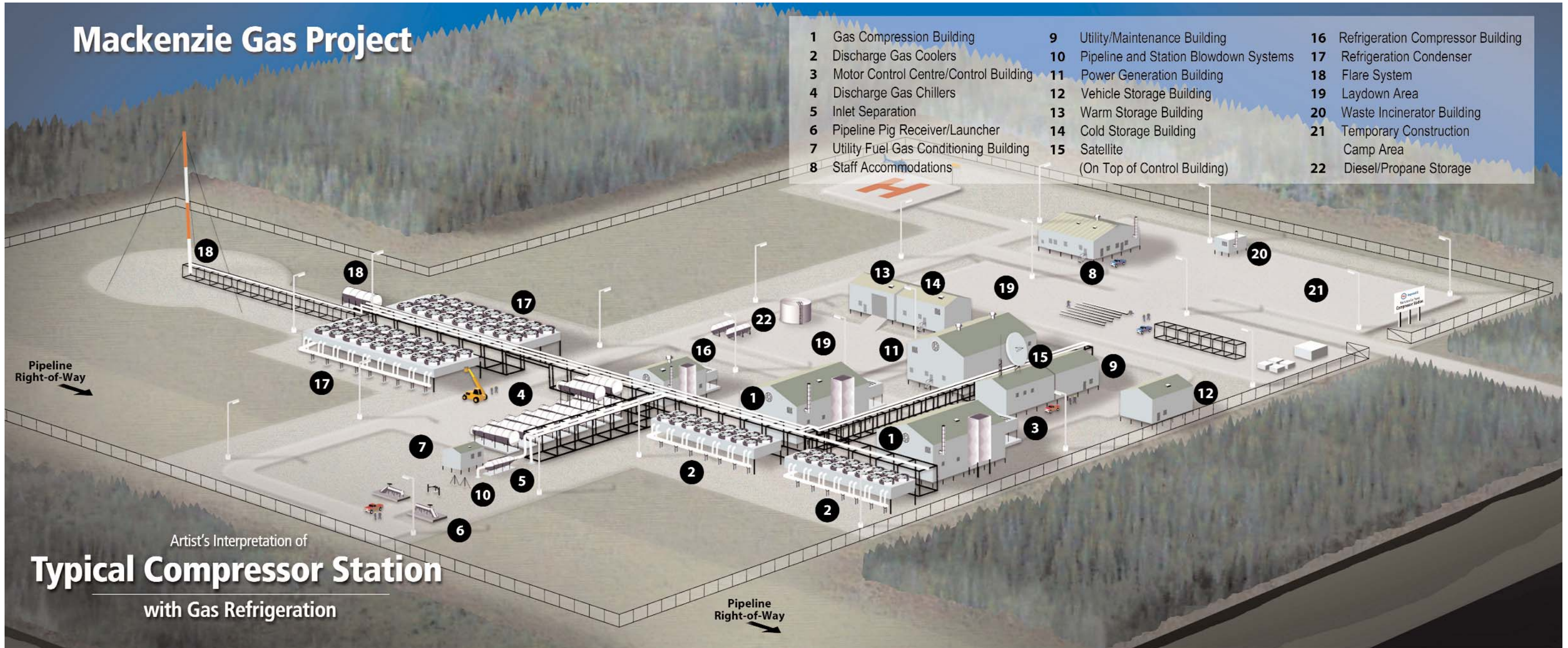
We are still assessing specific site locations and involving communities in the discussions.

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Mackenzie Gas Project

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|------------------------------------------|-------------------------------------------|--------------------------------------|
| 1 Gas Compression Building | 9 Utility/Maintenance Building | 16 Refrigeration Compressor Building |
| 2 Discharge Gas Coolers | 10 Pipeline and Station Blowdown Systems | 17 Refrigeration Condenser |
| 3 Motor Control Centre/Control Building | 11 Power Generation Building | 18 Flare System |
| 4 Discharge Gas Chillers | 12 Vehicle Storage Building | 19 Laydown Area |
| 5 Inlet Separation | 13 Warm Storage Building | 20 Waste Incinerator Building |
| 6 Pipeline Pig Receiver/Launcher | 14 Cold Storage Building | 21 Temporary Construction Camp Area |
| 7 Utility Fuel Gas Conditioning Building | 15 Satellite (On Top of Control Building) | 22 Diesel/Propane Storage |
| 8 Staff Accommodations | | |



Artist's Interpretation of
Typical Compressor Station
 with Gas Refrigeration