

3. NOISE

Introduction

The findings of the environmental impact assessment for noise for the Mackenzie Gas Project (see EIS Volume 5, Section 3) were based on the following components (see Section 1, Introduction, of this document):

- anchor fields
- gathering pipelines and associated facilities
- NGL and gas pipeline corridor
- infrastructure
- NGTL NWML Dickins Lake Section

The two NGTL pipeline sections, Dickins Lake Section and Vardie River Section, are located in northwestern Alberta. The Dickins Lake assessment was included in the EIS. This EIS supplemental information includes:

- new information for the NGTL Thunder Creek compressor station
- an impact assessment for northwestern Alberta based on the new information
- a combined project effects assessment that includes the Mackenzie Gas Project and NGTL's Dickins Lake and Vardie River sections

See under EIS Summary for a summary of the EIS findings for noise.

EIS Summary

Potential effects from the Mackenzie Gas Project on the local noise environment are related primarily to facility operations (see EIS Volume 5, Section 3). All predicted noise levels from operations at production area facilities were within the EUB guideline limit of 40 dBA at 1.5 km.

Mackenzie Gas Project production area construction will include well drilling and well-test flaring. Potential noise from these sources was also assessed at the production facilities (see EIS Volume 5, Section 3). Predicted well drilling noise levels ranged from 30 to 42 dBA at 1.5 km from the facilities. Predicted well-test flaring noise levels ranged from 38 to 41 dBA at 1.5 km.

There will be no well drilling or well-test flaring in northwestern Alberta. Therefore, no assessment was done for predicted noise levels from these sources.

3. NOISE

Pipeline corridor operational noise will range from 27 dBA at the NGTL interconnect facility to 40 dBA at the Inuvik area facility. Sound levels for compressor facilities will range from 37 to 38 dBA. Predicted operational noise levels at the Trout River heater station will be in the 23 to 25 dBA range at 1.5 km.

No significant effects on environmental noise were predicted in the EIS.

Study Areas

Impact assessments of noise during operations were done for the NGTL Thunder Creek compressor station local study area, i.e., 1.5 km outside the facility fence line, to meet Alberta Energy and Utilities Board (EUB) (1999a, 1999b) guidelines.

No regional study area was defined because all effects will be within 1.5 km of the facility.

Baseline

Currently, the only noise source along the Vardie River Section is the NGTL Thunder Creek compressor station. Otherwise, the area is expected to be quiet, with no or negligible anthropogenic sources of noise. The acoustic environments of the sites are likely to be dominated by the sounds of nature, e.g., wind rustling through foliage and animal noises. Existing ambient sound levels are expected to be low.

A comprehensive noise field study is not required for the project under applicable noise guidelines because of the remoteness of the facilities and the lack of noise-sensitive receptors within 1.5 km of facility sites. The existing NGTL Thunder Creek compressor station is designed to be in compliance with the EUB (1999b) noise limit of 40 dBA at 1.5 km.

Effects on Noise

Effect Pathways

Activities associated with the Dickins Lake and Vardie River sections will cause some change in environmental noise levels. Intermittent noise will be generated by construction activity at the work sites and along the pipeline corridor. Noise sources will include portable generator sets, and earthmoving and other equipment that might be on site seasonally and for extended periods, although likely less than one year. Sound generated by site construction activities is exempt from EUB noise guideline limits, and was not quantitatively assessed.

Operations at the facility and pipeline could raise sound levels. Noise caused by operations is continuous sound, from constantly operating machinery.

The effect pathway diagram for noise (see Figure 3-1) was developed to show how the project could affect environmental noise. Noise will be continuous or intermittent. For a full discussion of the pathways, see EIS Volume 5, Section 3.

All pathways were considered applicable in northwestern Alberta, except for the effects of:

- production area operations
- drilling and well-test flaring

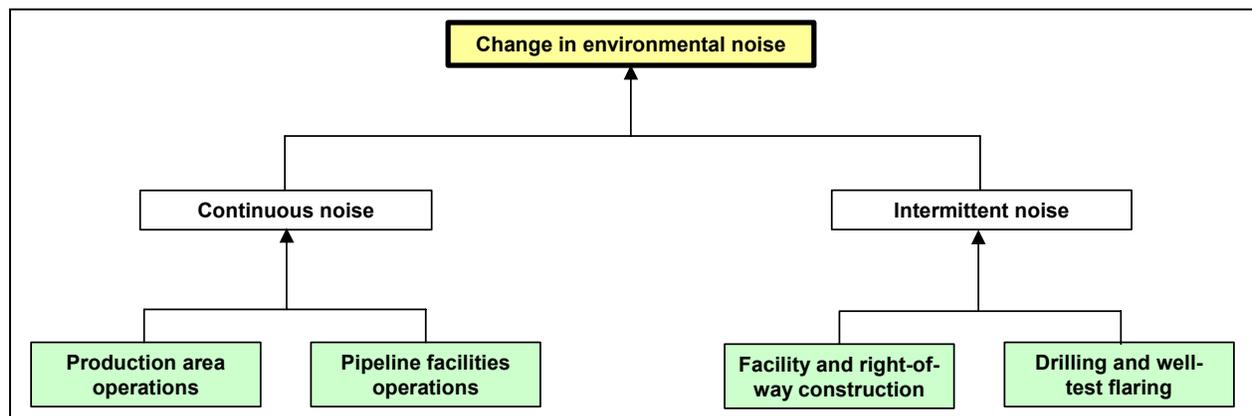


Figure 3-1: Effect Pathways – Noise

Effect Attributes

The environmental effects of a project, including noise effects, can be described by four attributes:

- direction
- magnitude
- extent
- duration

These attributes were used to provide quantitative and qualitative estimates of the significance of impacts. For descriptions and definitions of the various effect attributes, see Table 3-1.

Analysis and Significance

Intermittent Noise

Construction activity at the work sites along the pipeline corridor will generate intermittent noise. Noise sources will include portable generator sets, and earthmoving and other equipment. Pipeline construction will be intermittent and transient as construction progresses. Therefore, construction will affect a given area for a short period only.

3. NOISE

Transportation noise from, e.g., aircraft overflights and road traffic, will be intermittent. Because construction noise is short term and seasonal, noise from site construction activities is exempt from EUB noise guidelines.

Table 3-1: Definitions of Effect Attributes for Noise

Attribute	Effect Description	Definition
Direction	Adverse	The project is predicted to increase sound levels, i.e., facility noise at 1.5 km is greater than existing ambient noise levels
	Neutral	The project is predicted to have a negligible effect on sound levels, i.e., facility noise at 1.5 km is less than or equal to existing ambient noise levels
Magnitude	Low	Predicted sound levels at 1.5 km are below or equal to applicable acceptability criteria
	Moderate	Predicted sound levels at 1.5 km are below or equal to applicable acceptability criteria for normal operations + 5 dBA, i.e., will meet 45 dBA at 1.5 km when no guidelines exist. This rating applies only to intermittent sources.
	High	Predicted sound levels at 1.5 km exceed applicable acceptability criteria
Geographic extent	Local	Effects are restricted to within 1.5 km of an activity or facility, i.e., the applicable acceptability criterion is met at 1.5 km
	Regional	Effects extend beyond 1.5 km
Duration	Short term	Effects on noise are limited to less than one year
	Medium term	Effects on noise occur from one to four years
	Long term	Effects on noise last more than four years but do not extend beyond 30 years after decommissioning
	Far future	Effects on noise last more than 10 years but do not extend beyond 30 years

Continuous Noise

The addition of one line heater adjacent to the existing facility is expected at the NGTL Thunder Creek compressor station. Based on modelling of similar line heaters at facilities along the Mackenzie Valley pipeline, adding one line heater is predicted to generate less than 10 dBA at 1.5 km. The new unit would need to generate about 30 dBA at 1.5 km to measurably contribute to existing noise levels. Therefore, adding the heater to the NGTL Thunder Creek compressor station is not expected to increase the noise levels at this location.

Block valves along the pipeline corridor are considered minor noise sources and are not predicted to increase noise levels at these locations.

For effect attributes for noise sources associated with adding a line heater at the NGTL Thunder Creek compressor station, see Table 3-2. Noise effects from facilities operations will be adverse, low, local and long term.

Table 3-2: Effect Attributes for Noise

Valued Component	Phase When Impact Occurs	Effect Attributes				
		Direction	Magnitude	Geographic Extent	Duration	Significant
Environmental sound level	Operations – facilities	Adverse	Low	Local	Long term	No

Prediction Confidence

Because of the precautionary approach used to predict sound levels, there is a high degree of confidence in the assessment of significance of effects. This level of confidence is consistent with that in EIS Volume 5, Section 3.

Combined Project Effects

Because noise effects are expected to be low magnitude, and because noise levels attenuate within 1.5 km of the source, noise effects associated with the Vardie River Section are not expected to combine with noise effects from other facilities.

The EIS concluded that the Mackenzie Gas Project in combination with NGTL’s Dickins Lake Section would produce no significant effects on environmental noise.

This assessment for northwestern Alberta concludes that the Mackenzie Gas Project combined with NGTL’s Dickins Lake and Vardie River sections will also produce no significant effects.

3. NOISE
