

1 INTRODUCTION

1.1 Purpose of the Volume

This volume presents the findings of the biophysical impact assessment completed for the project. The purpose of this volume is to:

- explain the ways in which the project might affect biophysical resources
- predict the effects on those resources
- assess whether those effects might be significant

This volume also:

- informs communities about how the project could affect them through changes to the biophysical resources
- informs regulators about the effects of the project on biophysical resources
- provides information to technical reviewers who are interested in details of the assessment process and results

1.1.1 Scope of the Project

For the purpose of the Environmental Impact Statement, the project components have been grouped within two areas:

- production area
- pipeline corridor

Table 1-1 provides the details of the facilities and equipment for each component in the production area. Table 1-2 provides details of the pipeline corridor components. The EIS summarizes the potential effects resulting from the construction, operations and decommissioning and abandonment of these project components.

In an ancillary project, NOVA Gas Transmission Ltd. (NGTL) plans to construct an interconnect facility in northwestern Alberta, where it will tie into the proposed gas pipeline. The NGTL Northwest Mainline (Dickins Lake Section) will extend NGTL's existing pipeline to this tie-in point from about 65 km south of the Alberta–Northwest Territories boundary.

For the purpose of this assessment, mitigation plans and techniques provided throughout this volume and Volume 7, Environmental Management, have been assumed when evaluating residual effects of the NGTL interconnect facility and the NGTL Northwest Mainline (Dickins Lake Section). Specific environmental management plans will be prepared by NGTL for their facilities based on the requirements of applicable regulatory agencies.

Table 1-1: Production Area Components

Component	Description
Niglintgak field	<ul style="list-style-type: none"> • three well pads – north, central and south • six to 12 production wells • one gas conditioning facility that will be barge-based or land-based • one disposal well • flow lines • one remote drilling sump • about 1 km all-weather road (land-based option) • about 30 km of winter road • supporting infrastructure
Taglu field	<ul style="list-style-type: none"> • one well pad • 10 to 15 production wells • one gas conditioning facility • flow lines • one or two disposal wells • less than 1 km all-weather road • 50 km of winter road from Tununuk Point • supporting infrastructure
Parsons Lake field	<ul style="list-style-type: none"> • one north pad consisting of: <ul style="list-style-type: none"> • nine to 19 production wells • flow lines • two disposal wells • a gas conditioning facility • one south pad consisting of: <ul style="list-style-type: none"> • three to seven production wells • a flow line from the south to north pad • about 3 km of all-weather road • about 95 km of winter road: <ul style="list-style-type: none"> • 45 km from Lucas Point • 50 km from the mouth of Pete's Creek to Parsons Lake, used when early season access is not required • supporting infrastructure
Gathering pipelines	<ul style="list-style-type: none"> • Niglintgak lateral in a 30-m-wide right-of-way for about 16 km • Taglu lateral in a 40-m-wide right-of-way for about 81 km • Parsons Lake lateral in a 30-m-wide right-of-way for about 27 km • Storm Hills lateral in a 40-m-wide right-of-way for about 52 km • six cathodic protection sites

Table 1-1: Production Area Components (cont'd)

Component	Description
Gathering facilities	<ul style="list-style-type: none"> metering and pigging facilities at each anchor field site Storm Hills pigging facility two block valve sites (other block valves are located within facilities) Inuvik area facility
Infrastructure	<ul style="list-style-type: none"> nine barge landing sites, including two at Inuvik, shared with the pipeline corridor, one at Niglintgak (for the land-based option only) and one at Taglu 11 stockpile sites, including one at Inuvik, shared with the pipeline corridor 12 fuel storage sites, including one at Campbell Lake, and existing bulk tankage at Inuvik shared with the pipeline corridor 11 temporary and two existing camps 19 km of all-weather road connecting the Inuvik area facility to the Dempster Highway and Campbell Lake camps 21 km of winter road associated with infrastructure three new and two existing airstrips commercial airports at Inuvik and Tuktoyaktuk 10 new and two existing helipads. Use helicopter land facilities at commercial airports and community airstrips. one communications centre shared with the pipeline corridor up to 64 water sources and about 130 km of associated winter road
Borrow sites	<ul style="list-style-type: none"> seven primary borrow sites and about 65 km of associated winter road nine secondary borrow sites, to be used if needed, and about 55 km of associated winter road

Table 1-2: Pipeline Corridor Components

Component	Description
Gas pipeline	<ul style="list-style-type: none"> one natural gas pipeline in a 50-m-wide right-of-way shared with the natural gas liquids (NGL) pipeline from the Inuvik area facility to Norman Wells for about 475 km one natural gas pipeline in a 40-m right-of-way from Norman Wells to the NGTL interconnect facility for about 745 km 28 cathodic protection sites, including a site at the NGTL interconnect facility
NGL pipeline	<ul style="list-style-type: none"> one NGL pipeline in a 50-m-wide right-of-way shared with the natural gas pipeline for about 475 km one NGL pipeline in a 30-m-wide right-of-way from the Norman Wells compressor station to the Enbridge interconnect facility for about 1 km 12 cathodic protection sites shared with the gas pipeline
Pipeline facilities	<ul style="list-style-type: none"> one NGL meter station at Norman Wells four compressor stations one heater station one pig receiver located adjacent to the NGTL interconnect facility

Table 1-2: Pipeline Corridor Components (cont'd)

Component	Description
Pipeline facilities (cont'd)	<ul style="list-style-type: none"> • 10 valve sites on the gas pipeline • one valve site on the NGTL gas pipeline • 28 valve sites on the NGL pipeline • NGTL interconnect facility¹
Infrastructure ²	<ul style="list-style-type: none"> • 15 barge landing sites, including two at Inuvik, shared with the production area • 24 stockpile sites, including one at Inuvik, shared with the production area • 22 fuel storage sites (Campbell Lake and Inuvik sites are shared with the production area) • 16 temporary camps and one existing camp • about 53 km of all-weather road • about 48 km of winter roads • three new and two existing airstrips • commercial airports at Inuvik, Norman Wells, Wrigley, Fort Simpson and Hay River. Use commercial community airstrips at Fort Good Hope, Tulita and Trout Lake. • five new helipads. Use helicopter landing facilities at commercial airports and community airstrips. • three communication centres including one shared with the production area • up to 161 water sources and about 175 km of associated winter road
Borrow sites	<ul style="list-style-type: none"> • 60 primary borrow sites and about 275 km of associated winter road • 40 secondary borrow sites, to be used if needed, and about 175 km of associated winter road
NGTL Northwest Mainline (Dickins Lake Section)	<ul style="list-style-type: none"> • one natural gas pipeline, to be constructed and operated by NGTL in a right-of-way up to 40-m wide for about 66 km, running from the NGTL interconnect facility in Alberta near the Northwest Territories boundary to NGTL's existing system near Bootis Hill¹
<p>Note:</p> <ol style="list-style-type: none"> 1. Ancillary project components to be designed and constructed by NGTL under separate regulatory approvals. 2. NGTL will be responsible for infrastructure sites in Alberta. 	

1.2 Scope of the Volume

This volume addresses the potential effects of the project on the following biophysical resources:

- air quality
- noise
- groundwater
- hydrology
- water quality
- fish and fish habitat
- soils, landforms and permafrost
- vegetation
- wildlife

In addition, information is presented on the following subject areas:

- climate change
- cumulative effects
- biodiversity
- effects of the environment on the project

1.2.1 Approach

The results are presented in a similar way for each resource. The introduction describes the focus of the section and summarizes the issues of concern. The assessment approach section identifies:

- the key issues or concerns specific to the resource (e.g., a key issue is habitat availability for wildlife)
- valued components (VCs) (e.g., wildlife habitat)
- key indicators (KIs) used to measure effects on the resource (e.g., the amount of habitat that might be disturbed during different project phases)
- effect attributes (e.g., magnitude and duration of effect)
- the local and regional study areas used for the assessment
- the analytical approach used for the assessment

For a general overview of the assessment approach used in this project, see Volume 1, Section 2, Assessment Method.

Assessment results are then presented according to key questions. Key questions focus assessment efforts on answering the main concerns about project effects. For instance, the wildlife assessment focuses on three key questions:

- How will the project affect wildlife habitat?
- How will the project affect wildlife movement?
- How will the project affect wildlife mortality?

Effect pathway diagrams are included in the assessment for each subject area to illustrate the analysis that was used to determine potential effects.

Each section then:

- summarizes the project design, planning considerations and mitigation measures consistent with Volume 7, Environmental Management
- describes the predicted project residual effects for each of the project components (i.e., each anchor field, the gathering system, the pipeline corridor and infrastructure)
- describes the significance of these residual effects for each of the project components
- provides an overview of the monitoring initiatives related to the resource (see Volume 7, Environmental Management)

1.2.2 Relationship to Other Volumes

This volume is the fifth of eight volumes of the Environmental Impact Statement (EIS). The following describes the key purpose of each other volume to show how Volume 5 relates to each one:

- Volume 1, Overview and Impact Summary, describes the administrative and regulatory framework for the impact assessment, along with a concordance table to the Terms of Reference for the EIS. It provides details of the approach and assessment method used to prepare the assessment. The traditional knowledge (TK) collection program and how TK and information from public consultation are used in the assessment are also described. Volume 1 contains a summary of the findings of Volume 5, Biophysical Impact Assessment and Volume 6, Socio-Economic Impact Assessment.
- Volume 2, Project Description, describes the project components and phases. The impact assessment is based on the best engineering definition that was available when quantitative analyses were completed. Updated detailed engineering information about project components, including access roads, borrow sites and barge landings, is included in Volume 2. Engineering design

will continue to evolve during the public consultation and project permitting phases of the regulatory process. Final project definition will be included in the project permit applications.

- Volume 3, Biophysical Baseline, contains information about the existing biophysical environment at the present time (2004). It includes information from literature and the results of the project's field studies.
- Volume 4, Socio-Economic Baseline, contains information about the current (2004) social, economic and cultural conditions of the communities and people that might be affected by the project.
- Volume 6, Socio-Economic Impact Assessment, provides the assessment of predicted effects of the project on social, economic and cultural conditions. Information from the biophysical impact assessment (Volume 5) is also incorporated, because the project's effects on biophysical resources could affect the availability of those resources to communities in the future.
- Volume 7, Environmental Management, contains details of the environmental management plans and mitigation that will be incorporated into the project. The predictions of residual effects presented in Volume 5 and in Volume 6 are based on the assumption that those mitigations will be incorporated into the project.
- Volume 8, Environmental Alignment Sheets, presents the project-related environmental alignment sheets.

