

PROJECT DESCRIPTION

TABLE OF CONTENTS

	Page
2.0 PROJECT DESCRIPTION	2-1
2.1 Components of the Project and Location of the Project	2-1
2.1.1 Pipelines.....	2-1
2.1.2 Temporary Facilities - Proposed Pipeline	2-2
2.2 Alternatives to the Project.....	2-2
2.3 Alternative Means to Carry Out the Project.....	2-2
2.4 Construction	2-2
2.4.1 New Pipeline Construction Activities	2-2
2.4.2 Temporary Facility Construction Activities.....	2-3
2.4.3 Testing of the Pipeline.....	2-4
2.4.4 Reclamation and Restoration	2-4
2.4.5 Estimated Workforce Requirements	2-4
2.4.6 Environmental Permits / Approvals	2-4
2.4.7 Construction Schedule.....	2-5
2.5 Operations and Ongoing Maintenance	2-5
2.6 Decommissioning and Abandonment	2-6
2.7 References	2-6

TABLES

TABLE 2.1	TECHNICAL DETAILS – PROPOSED WASKADA TO PIERSON PIPELINE PROJECT
TABLE 2.2	PIPELINE CONSTRUCTION ACTIVITIES
TABLE 2.3	CONSTRUCTION ACTIVITIES FOR TEMPORARY FACILITIES
TABLE 2.4	ENVIRONMENTAL PERMITS / APPROVALS
TABLE 2.5	EXPECTED DURATION OF MAJOR CONSTRUCTION AND OPERATION ACTIVITIES
TABLE 2.6	OPERATIONS AND MAINTENANCE ACTIVITIES

APPENDICES

APPENDIX 2A	CONSTRUCTION PLANS
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2.0 PROJECT DESCRIPTION

2.1 Components of the Project and Location of the Project

This subsection describes and identifies the proposed location of the proposed pipelines. Figure 1.1 provides an overview map of the locations of proposed pipeline construction.

2.1.1 Pipelines

The Project constitutes a Class 2 development as a pipeline which is greater than 10 km in length and/or in areas sensitive and to environmental disturbance as defined by the Classes of Development Regulation under the Manitoba *Environment Act* (MEA). It is EOG's understanding that the filing of an Environment Act Proposal Form (EAPF) under the MEA initiates the formal regulatory review process. The EA will outline other regulatory and legislative approvals required for Project implementation.

Table 2.1 provides a summary of the technical details of the proposed pipeline project.

TABLE 2.1 TECHNICAL DETAILS – PROPOSED WASKADA TO PIERSON PIPELINE PROJECT

Pipeline 1	
Total Length	32 km
Product	Sweet natural gas
Source Point	4-1-2-28 W1M
Delivery Point	15-21-1-25 W1M
Pipe Size	168.3 mm
Construction Footprint (typical construction right-of-way)	20 m wide ROW + 5 m width TWS
Installation Method	Conventional trenching
Minimum Depth of Cover	1.5 m on ROW
Typical Trench Width	1.7 m on ROW
Test Medium	Water
Pipeline 2	
Total Length	32 km
Product	Sour Gas
Source Point	4-1-2-28 W1M
Delivery Point	15-21-1-25 W1M
Pipe Size	114.3 mm
Construction Footprint (typical construction right-of-way)	Common with Pipeline 1 ROW
Installation Method	Conventional trenching
Minimum Depth of Cover	1.5 m on ROW
Typical Trench Width	Common with Pipeline 1
Test Medium	Water
Pipeline 3	
Total Length	32 km
Product	Oil
Source Point	4-1-2-28 W1M
Delivery Point	15-21-1-25 W1M
Pipe Size	219.1 mm
Construction Footprint (typical construction right-of-way)	Common with Pipeline 1 ROW
Installation Method	Conventional trenching
Minimum Depth of Cover	1.5 m on ROW
Typical Trench Width	Common with Pipeline 1
Test Medium	Water
Aboveground Facilities	pig launcher/receiver at 04-30-01-26WPM pig launcher/receiver at 14-20-01-26WPM pig launcher/receiver at 03-03-02-27WPM pig launcher/receiver at 01-03-02-27WPM

The proposed pipelines will be installed within a common 20 m wide construction right-of-way with an additional 5 m width of temporary workspace. Pipeline Construction Plans are provided on a CD in Appendix 2A.

2.1.2 Temporary Facilities - Proposed Pipeline

In addition to the permanent pipeline facilities noted in Sections 2.1.1 of this EA, the following temporary facilities will be required during the construction of the proposed pipelines:

- shoo-flies and temporary access trails;
- pipe stockpile sites and staging areas; and
- contractor construction offices and yards.

EOG or its contractor(s) are not planning to install a temporary construction camp. All temporary facility sites will be reviewed from an environmental perspective prior to their use.

2.2 Alternatives to the Project

Alternatives to the Project are functionally different ways to meet the Project need and achieve the Project purpose. Sections 4.1, 4.2 and 4.3 of this EA provide additional information on the pipeline routing.

2.3 Alternative Means to Carry Out the Project

Alternative means are the various ways that are technically and economically feasible to implement and carry out the Project. These could include alternative locations/routes and methods of development, implementation and mitigation.

Alternative means to the Project were considered including locating the pipelines storage facility in closer proximity to the third party shipper pump station. However, alternatives were limited due to weight restrictions on the nearby access roads. Sections 4.1, 4.2 and 4.3 of this EA provide additional information on the pipeline routing.

2.4 Construction

2.4.1 New Pipeline Construction Activities

Table 2.2 describes standard activities and typical equipment requirements for construction of the proposed pipelines. These activities are generally presented in the order of occurrence during construction. All of these activities are considered in the environmental and socio-economic effects assessment (Section 6.0) of this EA.

TABLE 2.2 PIPELINE CONSTRUCTION ACTIVITIES

Pipeline Construction Phase	Associated Activities
Engineering	The proposed pipeline will be designed and constructed in accordance with all applicable Canadian Standards Association (CSA) standards.
Construction Survey	Activities include line-of-sight clearing with chain saws, flagging and staking of the boundaries of the construction right-of-way, temporary workspace and facility sites as well as marking the trench line and existing utilities. Avoidance areas, such as protected habitats or rare plants, will be appropriately fenced or flagged.

Pipeline Construction Phase	Associated Activities
Clearing	Brush and other vegetation will be generally cleared or mowed from the construction right-of-way and extra temporary workspace. Non-salvageable vegetative debris will be burned unless required for chipping or rollback. Equipment used during clearing activities may include bulldozers and trackhoes.
Topsoil Salvage	Topsoil will be salvaged to ensure that the soil capability is maintained. The width and depth of topsoil salvage depends on the land use, soil conditions, micro-topography, landowner requests and grading requirements. Equipment used during topsoil handling activities includes bulldozers, graders and trackhoes.
Grading	Following topsoil salvage, grading will be conducted on irregular ground surfaces (including temporary workspace) to provide a safe work surface. Graders, trackhoes and bulldozers will be used for this activity.
Stringing and Welding	The pipes will be transported by truck from the stockpile sites to the right-of-way. The pipes will be bent, lined-up, welded, joint-coated and inspected, prior to being lowered into the trench. Equipment used during stringing and welding activities includes pipe trucks, booms, pick-up trucks, and x-ray or ultrasonic inspection equipment mounted on pick-up trucks.
Trenching	The trench will be excavated using tracked excavators to a depth sufficient to ensure the depth of cover is in accordance or in excess of applicable codes. The minimum depth of cover will typically be 1.5 m. Road crossings will generally be bored.
Lowering-In	The pipes will be lowered into the trench using sideboom tractors. Trench dewatering may be necessary at certain locations during lowering-in (e.g., to ensure acceptable bedding for pipe, to prevent the pipe from floating or for performing tie-in welds).
Backfilling	Prior to backfilling, subsurface erosion control structures such as trench breakers will be installed on steep slopes along with subdrains, where warranted, to control subsurface drainage along the trench. The trench will be backfilled using backhoes, graders, bulldozers or specialized backfilling equipment. Backfill material will generally consist of native trench spoil material. Displaced subsoils will be crowned over the trench to compensate for settlement and any excess trench spoil will be feathered-out over adjacent portions of the right-of-way where topsoil salvage had occurred.
Clean-Up and Reclamation	See Section 2.4.5 of this EA
Watercourse Crossings	Watercourses will be either open cut or bored.

2.4.2 Temporary Facility Construction Activities

Temporary facilities will be utilized solely during the construction phase of the Project and are primarily related to the construction of the proposed pipelines. Table 2.3 describes the activities associated with the construction, operation and decommissioning of facilities such as stockpile and staging areas, off load areas and temporary access roads.

TABLE 2.3 CONSTRUCTION ACTIVITIES FOR TEMPORARY FACILITIES

Temporary Facility	Associated Activities
CONSTRUCTION	
Engineering	The temporary facilities will be designed and constructed in accordance with all applicable CSA standards.
Site Preparation	Initial site preparation will involve clearing or mowing of vegetation, where present. Grading of temporary facility sites is not anticipated, however, topsoil salvage will be conducted at sites where heavy traffic could result in rutting, severe compaction or pulverization of the topsoil.
Facility Construction	Sites may be gravelled and/or fenced, depending on use of the site.

OPERATION	
Access	Access to the various types of temporary facilities will be controlled during use of the site, if warranted, for public safety and to prevent vandalism of equipment and/or facilities.
DECOMMISSIONING	
Facility Dismantle	Any aboveground structures (e.g., fencing, office buildings) will subsequently be dismantled and removed from the site. Access roads and associated gravel will also be removed.
Reclamation	Reclamation procedures will be initiated following the dismantling of aboveground structures using bulldozers, backhoes and graders. Garbage or debris remaining at the temporary facility site will be removed and disposed of in compliance with local regulations. The site contours will be returned to a stable and maintenance-free condition. Depending on the intended land use of the site, topsoil will be replaced where salvaged, and disturbed areas will be seeded with an appropriate seed mix.

2.4.3 Testing of the Pipeline

EOG plans to hydrotest the proposed pipeline as per the appropriate CSA guidelines.

2.4.4 Reclamation and Restoration

Initial (rough) clean-up and reclamation activities along disturbed portions of the pipeline construction right-of-way and temporary access trails (shoo-flies) will be initiated following backfilling, once weather and soil conditions permit. Garbage or debris remaining following construction will be removed and disposed of in compliance with local regulations.

The pipeline easement will be returned to a stable and maintenance-free condition. All disturbed, non-cultivated, upland areas will be seeded with an appropriate seed mix and special reclamation measures will be applied, where warranted.

2.4.5 Estimated Workforce Requirements

The following are estimates of the workforce for the key components of the Project:

- pipeline construction: workers, inspectors, surveyors, construction manager x 1 spread = 30 total pipeline workforce.

2.4.6 Environmental Permits / Approvals

The environmental permits and authorizations that must be obtained prior to the commencement of construction activities related to the Project are identified in Table 2.4.

TABLE 2.4 ENVIRONMENTAL PERMITS / APPROVALS

Manitoba	
Manitoba Conservation – Environmental Assessment and Licensing Branch	Application to Manitoba Conservation - Environmental Assessment and Licensing Branch for an <i>Environmental Act</i> licence for a Class II pipeline
Rural Municipalities	Local Development Permits, Herbicide Permits, Burning Permits, Excavation Permit, Road Crossing Permits, Utility Crossing Permits
Manitoba Culture, Heritage and Tourism	<i>Historical Resources Act</i> clearance

2.4.7 Construction Schedule

Pipeline Construction Schedule

The construction period (including clearing, grading, trenching, testing and reclamation) for the proposed pipeline is assumed to commence upon receipt of approvals.

Pipeline construction activities are progressive. The duration of activity at any location is relatively short (see Table 2.5). Consecutive phases of the pipeline construction process are expected to immediately follow the previous activity as construction progresses along the right-of-way (*i.e.*, right-of-way preparation, pipe stringing, welding, trench excavation, pipeline installation, backfilling and rough clean-up activities will all be occurring concurrently at different locations along the pipeline right-of-way).

Final clean-up activities, including reclamation, may be postponed until suitable soil and weather conditions occur.

TABLE 2.5 EXPECTED DURATION OF MAJOR CONSTRUCTION AND OPERATION ACTIVITIES

Major Activity	Expected Duration of Major Activity
Pipeline Construction	3 months
Pre-Clearing / Mowing	2 months
Surveying	3 months
Clearing	2 months
Topsoil Salvage	2 months
Grading	2 months
Stringing and Welding	2 months
Trenching	2 months
Lowering-in	2 months
Backfilling	2 months
Testing, if conducted	1 month
Clean-up and Reclamation	2 months

2.5 Operations and Ongoing Maintenance

Operations and maintenance activities will include regular ground patrol programs along the proposed pipeline right-of-way. No new pipeline maintenance bases will be required. EOG is an active participant in spill and emergency response exercises, and has corporate emergency response plans.

Pipeline and right-of-way operations and maintenance activities that could result in potential environmental effects are described in Table 2.6.

TABLE 2.6 OPERATIONS AND MAINTENANCE ACTIVITIES

Maintenance Phase	Associated Activities
Line Patrols	As part of routine operations and maintenance procedures, ground patrols will be conducted to visually inspect for: environmental monitoring issues; evidence of pipeline damage; erosion and wash-out areas; areas of sparse vegetation; exposed pipe; and other potential problems that may affect the integrity of safe operation of the pipelines. In addition, pipeline markers and signs will be inspected, and maintained or replaced, as necessary, to ensure the pipeline location is visible.
Vegetation Management	EOG has in place standard practices related to vegetation control (including weeds). Non-residual herbicides will only be used where mowing or other mechanical methods of vegetation management are impractical.

Maintenance Digs	Internal in-line inspection tools will regularly inspect the operating pipelines. In the event that an actual or suspected pipeline integrity problem is identified, the pipelines will be exposed and inspected visually. Repairs will be made as needed. Maintenance digs will be conducted in a manner similar to pipeline construction activities in that: topsoil will be salvaged and replaced; subsoil will be stockpiled separately, backfilled and feathered-out; and reseeding and reclamation will be undertaken.
Cathodic Protection	The new pipeline will be cathodically protected to prevent external corrosion of the pipeline. In the event of actual or suspected pipeline or coating damage, it may be necessary to expose and inspect the pipeline visually. Repairs will then be made if needed (see <i>Maintenance Digs</i> above).

The proposed pipelines are expected to operate at a rate between 200 m³/hr and 300 m³/hr. The pipelines will be continuously flooded with product, but will only operate intermittently when the pipelines storage vessels are at capacity and/or when the third party shipper can accept the pipelines product. The pipeline is expected to operate once every 4 to 9 days and will typically be flowing for a period of 4 to 8 hours at a time.

2.6 Decommissioning and Abandonment

It is difficult at this time to predict when or how the pipelines and facilities will be decommissioned and abandoned at the end of the Project's useful life. The pipeline industry has experience with pipeline abandonment and guidance documents are currently available, *i.e.*, Pipeline Abandonment Steering Committee (1996) and Pipeline Legal Working Group (1997). Pipeline decommissioning and abandonment will likely consist of abandonment-in-place. Any decommissioning or abandonment activities will require prior approval by the applicable agencies.

2.7 References

Pipeline Abandonment Legal Working Group. 1997. Legal issues relating to pipeline abandonment: a discussion paper. May 1997. Calgary, Alberta. 79 pp.

Pipeline Abandonment Steering Committee. 1996. Environmental and technical issues associated with pipeline abandonment - discussion paper. Calgary, Alberta.

APPENDIX 2A
CONSTRUCTION PLANS