

OVERVIEW

Encana Corporation (Encana) is the owner and operator of the Deep Panuke natural gas development, located in the marine environment approximately 175 kilometres (km) offshore Nova Scotia. The development includes facilities required to produce natural gas from the Deep Panuke field, such as the offshore platform (production field centre or PFC), subsea wells, flowlines, control umbilicals and protection structures for subsea equipment. Natural gas is processed offshore and transported via a subsea pipeline to shore near Goldboro, Nova Scotia for further transport to markets using the Maritimes & Northeast Pipeline (M&NP). Encana permanently ceased production from Deep Panuke on May 7, 2018 and has begun the work required for decommissioning activities.

DECOMMISSIONING PROCESS

It is currently Encana's plan to generally complete the decommissioning of the Deep Panuke development as follows:

- Decommissioning of the offshore platform (PFC), subsea structures, flowlines, umbilicals, gas export pipeline, and onshore facilities
- Well plugging and abandonment and subsea structure removal
- PFC removal and final field survey

Deep Panuke Development Nova Scotia, Canada	
<p>Wells</p> <ul style="list-style-type: none"> • Plug and abandon four production wells • Plug and abandon one disposal well • Remove subsea production trees 	<p>Gas Export Pipeline (GEP)</p> <ul style="list-style-type: none"> • Flush and clean GEP • Remove subsea isolation valve (SSIV) • Remove above ground onshore facilities • Abandon GEP in place
<p>Subsea Facilities</p> <ul style="list-style-type: none"> • Remove wellhead protection structures • Flush and clean flowlines • Disconnect flowlines and umbilicals; abandon in place 	<p>Production Field Centre (PFC)</p> <ul style="list-style-type: none"> • Flush and clean • Remove

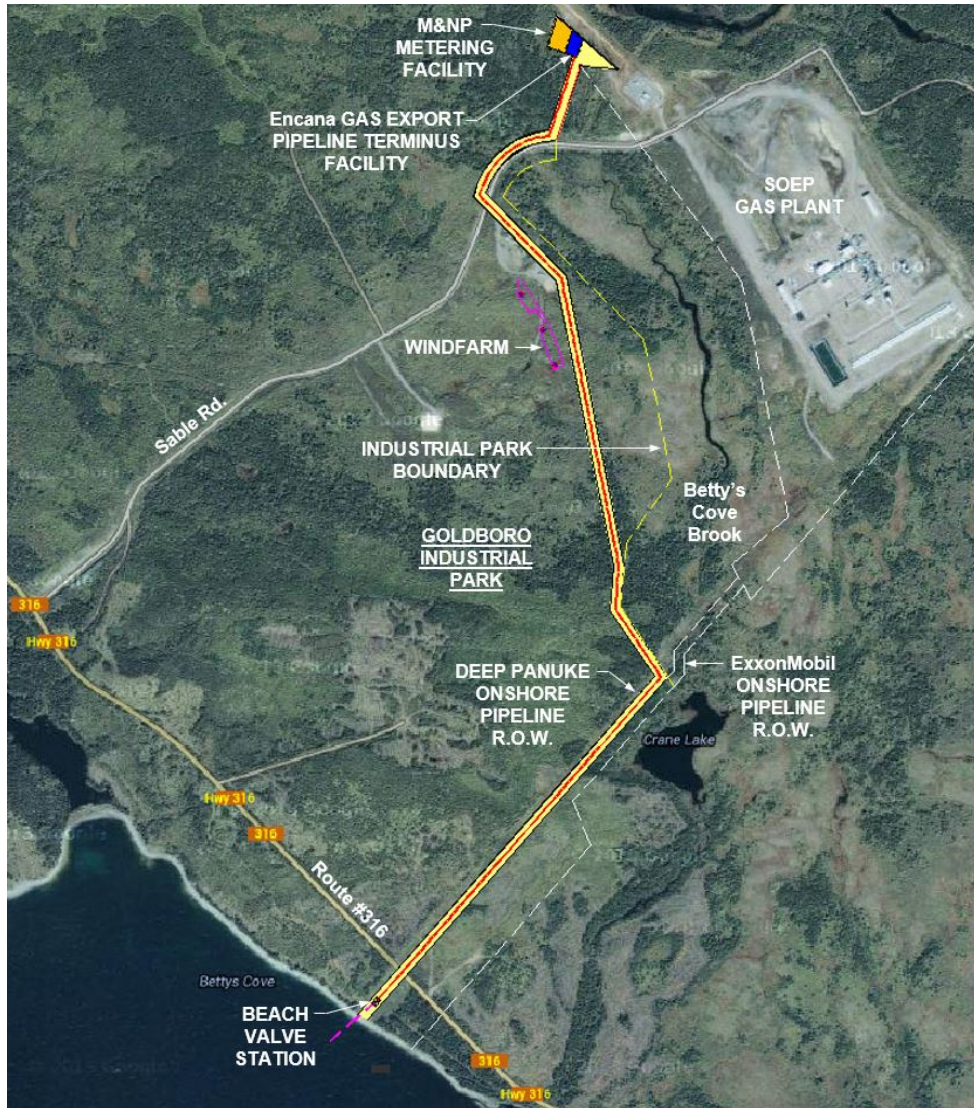
2019 GAS EXPORT PIPELINE (GEP) FLUSHING

This spring/summer, Encana will conduct the GEP flushing program. The GEP (175 km long, 22” diameter) connects the offshore platform to the onshore metering station in Goldboro. The GEP will be flushed with seawater to remove the sales-quality gas that it currently contains.

Pipeline pigs (devices inserted into the pipeline to create a seal) will be propelled with nearshore filtered seawater from onshore to offshore. The flush water received at the PFC is not expected to contain any liquid hydrocarbons or require treatment since the pipeline has never been exposed to liquid hydrocarbons, only natural gas. Recovered flush water will be discharged overboard once it is confirmed that water quality meets regulatory requirements. In the unlikely event that water received at the PFC does not meet regulatory requirements, the water will be injected in a disposal well or sent to shore for disposal at an approved facility.

Equipment will be mobilized onshore for the GEP flushing program at both the metering station and landfall. At the end of the program, the entire offshore GEP will be filled with seawater. The onshore section of the GEP will be dewatered. The landfall site (including the existing gravel pad and fence, no-anchor sign, and the new temporary laydown areas created to store water pumping/storage equipment) will be restored and re-vegetated with native species seeds/transplants. The onshore metering station site will be restored in 2020.

The GEP flushing work will take approximately two weeks between mid-June and July.



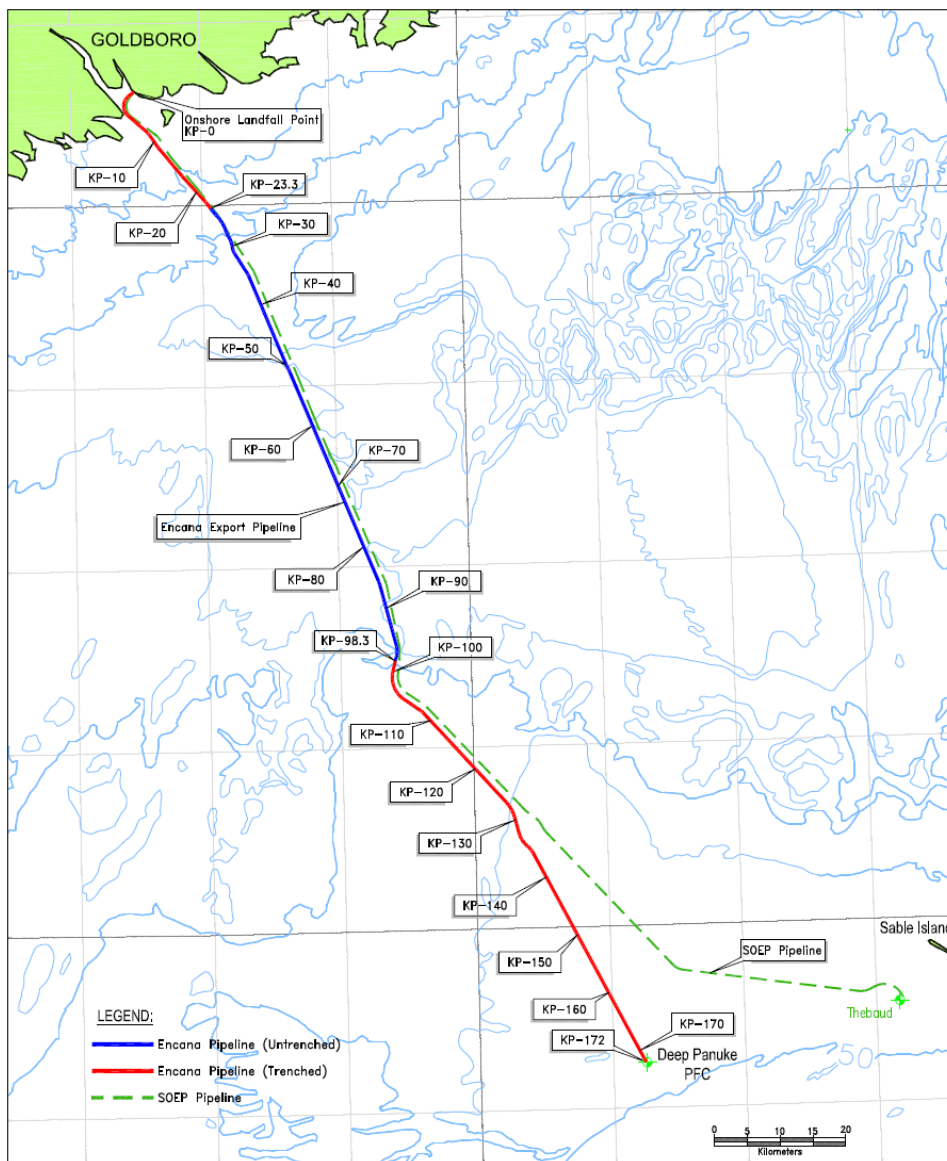
Onshore Section of the GEP



Existing gravel pad, fence and no-anchor sign at the landfall site



Example of the type of pumping equipment that will be used at landfall during the GEP flushing program



Offshore Section of the GEP

REGULATORY PROCESSES

Decommissioning and abandonment of the Deep Panuke development requires approvals from the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB) and the National Energy Board (NEB). The CNSOPB will issue Operations Authorizations and well approvals for the decommissioning and abandonment of Deep Panuke facilities. The NEB issued a Leave to Abandon for the Deep Panuke gas export pipeline and onshore facilities.

NEB – Leave to Abandon Application

The NEB granted Encana leave to abandon the Deep Panuke GEP and associated facilities on May 2, 2019, subject to conditions. Click [here](#) to view the NEB decision and associated conditions.

CNSOPB – Operations Authorizations

An Environmental Study Report for Deep Panuke decommissioning and abandonment activities has been accepted by the CNSOPB. Other authorizations required include:

- Amendments to Operations Authorization – Production
- Well plugging and abandonment: Approval to Alter the Condition of Wells
- PFC removal: Operations Authorization – Removal

ENVIRONMENTAL PROTECTION AND MONITORING PLANS

The following plans have been developed to support the decommissioning and abandonment of Deep Panuke: Onshore Environmental Protection Plan (EPP), Onshore Reclamation and Reclamation Monitoring Plan (RRMP), Offshore Environmental Protection and Compliance Monitoring Plan (EPCMP) and Abandoned Pipeline Monitoring Plan (APMP). The table below summarizes contents of each plan and provides links to the plans (filed on the NEB website).

Plan	Purpose
Onshore	
<u>EPP</u>	<ul style="list-style-type: none"> • Describes protection measures • Addresses routine and emergency conditions • Educational tool for project personnel • Defines roles and responsibilities
<u>RRMP</u>	<ul style="list-style-type: none"> • Establish a vegetative cover comparable with surrounding vegetation • Use reclamation techniques to control erosion • Re-establish footprints to stable condition
Offshore	
<u>EPCMP</u>	<ul style="list-style-type: none"> • Describes protection and monitoring measures • Addresses routine and emergency conditions (platform/subsea) • Educational tool for project personnel • Defines roles and responsibilities
Onshore and Offshore	
<u>APMP</u>	<ul style="list-style-type: none"> • Outlines plan for monitoring abandoned pipeline

PROCUREMENT AND CONTRACTING

Encana is committed to providing full and fair opportunities for Nova Scotians and Canadian companies, and first consideration to Nova Scotians where competitive on a best value basis. SBM Nova Scotia Contractors Inc. (SBM) operates the PFC on behalf of Encana Corporation, and is also committed to providing opportunities for Nova Scotian and Canadian companies through procurement and contracting on an internationally competitive basis.

Information on procurement and contracting opportunities, including Expressions of Interest, Bidders Lists, and Contract Awards, are posted on the Encana’s Atlantic Canada webpage www.encana.com/deeppanuke, in addition to being published in the Maritimes Energy Association bulletin and on www.bids.ca. Contact information is provided with all notifications for interested parties who wish to contact Encana, SBM, and potential and successful bidders.

The table below lists contracts awarded by Encana and SBM for decommissioning activities, and contracts expected to be awarded during the second quarter of 2019.

Decommissioning Contracts Awarded	Awarded to
Supply of Marine Gas Oil and Low Sulphur Diesel	Irving Oil
Tubular Running and Fishing and Milling Services	FI Oilfield Services Baker Hughes Canada
Onshore Civil Works (Goldboro)	MacLane & Bernard Construction
Removal of Subsea Structures, Transport and Disposal	DOF Subsea Canada
Mechanical Isolation Plugs and Services	Interwell
Purchase of Pipeline Pigs	Propipe Limited Turbulent Research
Fluids, Cement, Swarf Management and Storm Packers	Halliburton Group Canada
Bleed-off Package and Landing String	Expro Group Canada
Intervention and Workover Equipment and Services	Halliburton Group Canada
Gas Export Pipeline Flushing and Pigging Services	IKM Testing (Canada)
High-Pressure Riser & Conductor Cutting Services	Claxton Engineering Services
Subsea Flow Lines Flushing and Cleaning Services	Halliburton Group Canada
Waste Disposal	EnviroSystems
Harsh Environment Jack-Up Mobile Offshore Drilling Unit	Noble Drilling Services (Canada)
Engineering and Technical Support Services	AMEC Black & MacDonald Avara Solutions Eastpoint Engineering HEDSA Project Management Stantec Consulting Limited.
Regulatory and Environmental Support Services	Stantec Consulting Limited
GEP Flushing Piping & Support Fabrication	AECON Atlantic
PFC De-Installation	Kvaerner Canada Ltd.
Piping Bulks	TTL Supply Ltd. PJ Piping
PFC Decommissioning Services	Amec Black & McDonald Limited EM&I Stantec Ltd.
Support Vessels (Anchor Handler & Supply)	Atlantic Towing Ltd. Secunda Canada LP
Remote Operated Vehicle (ROV) Services	DOF Subsea Canada
Marine Warranty Surveyor	London Offshore Consultants
Contracts to be Awarded Q2 2019	
Third Party and Rig Inspection Services	
Rig Positioning / Survey Services	
Refurbishment of Temporary Hydraulic Power Units	

Subsea Removal Contractor

DOF Subsea Canada has been awarded the contract for the removal, transport and disposal of the subsea structures in 2020.



DOF Construction Support Vessel



Deep Panuke wellhead protection structure during deployment

PFC De-Install Contractor

Kvaerner Canada has been awarded the contract for the de-installation of the PFC in July-August 2020.



Deep Panuke PFC being towed to site during installation in July 2011

SCHEDULE

Encana anticipates conducting the following decommissioning activities during the 2019-2020 timeframe.

Activity	Target	Estimated Duration
Gas Export Pipeline (GEP) and Onshore		
GEP flushing and pigging	mid-Jun and Jul 2019	2 weeks
Onshore facilities removal and restoration	2020	1 month
Subsea		
Flowline flushing and cleaning	Q3 2019	3 weeks
Subsea structures removal	2020	1-2 weeks
Well Plugging and Abandonment		
Offshore execution	Beginning in late 2019-early 2020	4-5 months
Production Field Centre (PFC)		
PFC de-install	Jul-Aug 2020	1 week

CONTACTS

A key component of this information update is to provide up-to-date information on key activities. Encana is available to meet with interested groups that would like to discuss potential effects, concerns, and interests related to the decommissioning activities so that these may be considered in the decommissioning planning process.

For additional information, please feel free to contact:

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Encana's Atlantic Canada website, including business opportunities:

<https://www.encana.com/communities/canada/atlantic/>

