

## OVERVIEW

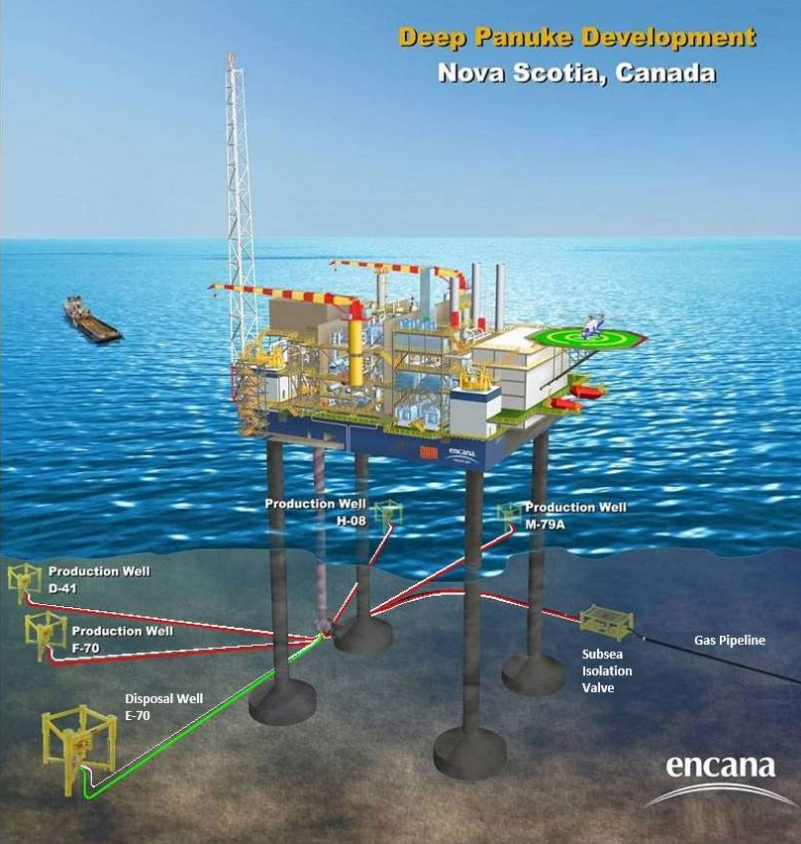
Encana Corporation is the owner and operator of the Deep Panuke natural gas development, located in the marine environment approximately 175 kilometres offshore Nova Scotia. The development includes facilities required to produce natural gas from the Deep Panuke field, such as the offshore production platform, 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. 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 production platform, subsea structures, flowlines, umbilicals, gas pipeline, and onshore facilities
- Well plugging and abandonment and subsea structure removal
- Offshore platform removal and final field survey

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



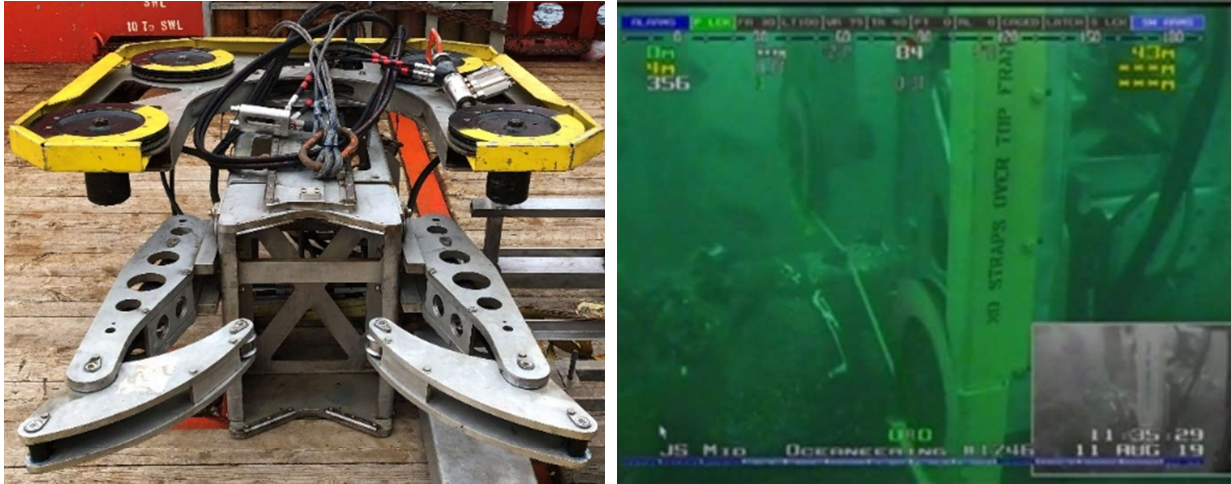
## GAS PIPELINE DISCONNECT (AUGUST 2019)

Encana completed the gas pipeline flushing program in July 2019. The offshore pipeline was left filled with seawater. In August, the pipeline was disconnected at the following locations:

- at the riser connecting the pipeline to the platform; and
- on each side of the subsea isolation valve, located approximately 50 m from the platform (see these elements on the above schematic).

A diamond wire saw mounted on a subsea remotely-operated vehicle was used to clamp on and cut through the pipeline. Short sections of pipeline were removed at the base of the platform and on both sides of the subsea isolation valve and were recovered onboard the support vessel. A short section of the umbilical that controlled the subsea isolation valve was also cut and recovered (see pictures below). Recovered cut sections were sent to shore for recycling and/or disposal.

The subsea isolation valve will be removed during the subsea removal program with the DOF Subsea Canada construction support vessel in 2020.



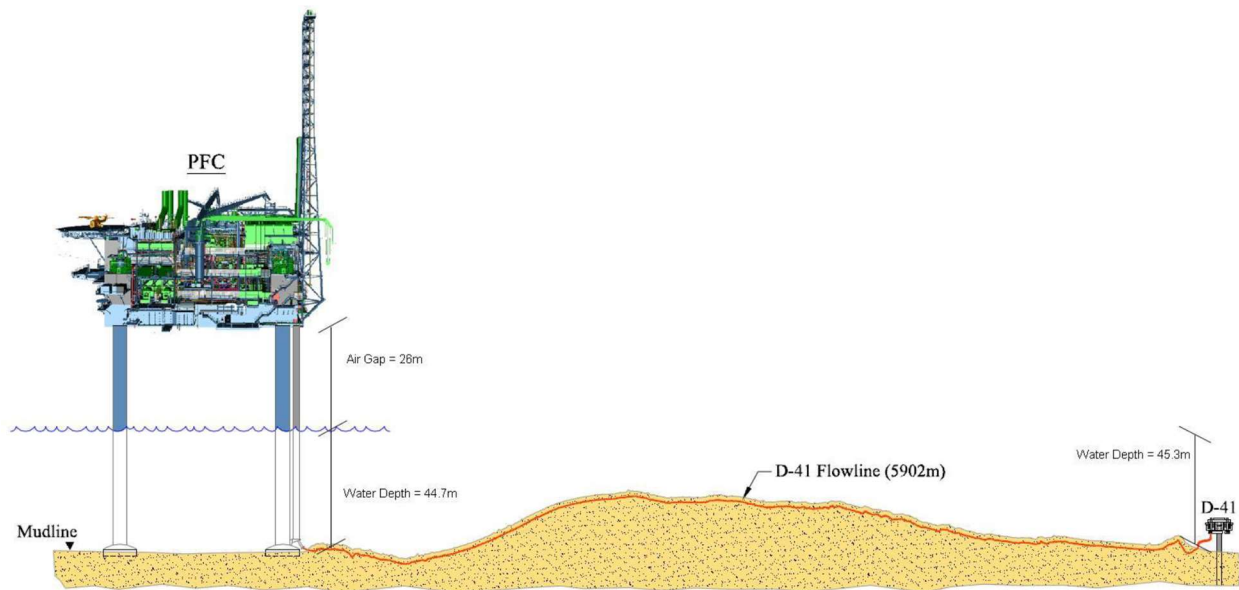
Diamond Wire Saw Used to Cut the Pipeline



Recovered Sections of Disconnected Pipeline

## FLOWLINE FLUSHING AND CLEANING (SEPTEMBER 2019)

In September, Encana completed the flushing and cleaning of the four production flowlines and one disposal flowline connecting the wells to the platform (see schematic below). Each flowline was flushed from the platform with the contents pushed into the respective wells. A mix of seawater with small volumes of non-toxic, citrus-based surfactant was used during the initial phase of the flushing, followed by additional flushing with only seawater. Each flowline was flushed with a minimum of 4.5 times the flowline volume and left filled with clean seawater.



**Cross-Section of a Buried Flowline**

In October 2019, flowlines will be disconnected near the wells to install isolation plugs. The flowlines will be disconnected at the wellheads and at the platform in 2020.

Following the flowline disconnects in October 2019, ongoing platform decommissioning activities will continue. The next offshore program will be the well plugging and abandonment with the Noble Regina Allen mobile offshore drilling unit, which is expected to start in early 2020 and take approximately 5 months.

## SCHEDULE

Activity	Target	Estimated Duration
<b>Gas Pipeline and Onshore</b>		
Gas pipeline flushing and pigging	Completed (June-July 2019)	1 month (actual)
Gas pipeline offshore disconnects	Completed (August 2019)	1 week (actual)
Onshore facilities removal and restoration	2020	1 month
<b>Subsea</b>		
Flowline flushing and cleaning	Completed (September 2019)	2 weeks (actual)
Flowline disconnects at wells	Ongoing (October 2019)	2 weeks
Flowline disconnects at platform	2020	2-3 weeks
Subsea structures removal	2020	1-2 weeks
<b>Well Plugging and Abandonment</b>		
Offshore execution	Beginning early 2020	5 months
<b>Production Platform</b>		
Platform decommissioning	Ongoing	-
Platform de-install	July-August 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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Also visit Encana's Atlantic Canada website for more information, including business opportunities: <https://www.encana.com/communities/canada/atlantic/>