



Point Thomson Gas Cycling Project

Future Expansion and Foreseeable Development – Technical Analysis

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Executive Summary:

Future expansion of the proposed cycling project and foreseeable future development scenarios have been considered for recognized oil and gas resources located in and around the Point Thomson Field. These potential developments can be generally categorized as follows:

- (1) incremental growth of the base cycling project
- (2) future oil development (Thomson oil rim and/or Brookian)
- (3) future gas sales from the Thomson Sand

A key criteria in the layout and design of the proposed cycling project was to provide sufficient flexibility to accommodate uncertainties in the reservoir size and resource continuity that impact cycling recovery. The three well pads proposed have been located at the east and west flanks and in the center of the Thomson Sand reservoir to access all regions of the reservoir to be cycled. Our current understanding of the reservoir limits has improved with the interpretation of the newly reprocessed 3D seismic. Additional data has also become available in the west with the incorporation of the Challenge Island 3D seismic survey. Based on this new interpretation, we no longer anticipate the need for a fourth pad during gas cycling operations.

Incremental growth or expansion to the base cycling project includes the drilling of additional wells from the proposed well pads (no pad expansion required) and/or an increase in the gas cycling throughput.

Although not presently considered commercial, foreseeable development of the oil resources located in and around Point Thomson could become feasible in the future. Consideration has been given to future developments in the Brookian oil sands and Thomson Sand oil rim. The potential for development of any of the Brookian prospects is low based on our current interpretation. A substantial improvement in sand

continuity and quality would need to be demonstrated before an economic development could be brought forward. These concerns have been substantiated with the recent experiences at the Badami development. The thin Thomson Sand oil rim faces similar challenges to make it commercial. Additional data obtained from drilling development wells in the gas cycling project will help to better define the structure and improve the resource description.

The proposed cycling project does not include any facilities to accommodate oil production. Given the different operating characteristics required for oil development, in comparison to gas cycling, additional infrastructure and facilities (separation, gathering systems) would be required, resulting in the expansion of at least the central pad containing the cycling facilities. Foreseeable future development of oil resources, accessible from the three proposed well pads, may also result in minor expansion of the pads for additional drillwells. Major oil accumulations that reside away from the cycling area would require new well pads to access the oil for development.

A future gas sale scenario has also been considered. The proposed cycling project is compatible with future gas sales, with much of the infrastructure directly applicable to gas sales. Well pad expansions may be necessary to accommodate the additional facilities associated with gas sales (boost compression, dehydration, etc.), as well as more wells that may be drilled to increase gas sales capacity. An additional well pad may also be needed to access remote gas reserves should a gas sale development become viable.

The following table is a summary of how each potential expansion activity could impact the pad footprint.

Potential for Expansion	Gas Cycling Project Expansion	Oil Development	Gas Sales
Central Pad	Limited Change	Increased Pad Size	Increased Pad Size
East Pad	Limited Change	Limited Change	Limited Change
West Pad	Limited Change	Limited Change	Limited Change
New West or South Pad	Unlikely	New South Pad	Additional Pad

Introduction:

The current development plan for Point Thomson is a gas cycling project that will nominally produce and inject back into the reservoir 1.5 GCFD of gas from three onshore well pads and a central processing facility. Project plans and footprint have been carefully designed to minimize environmental impact while attempting to provide maximum flexibility to accommodate key reservoir uncertainties (such as sand quality and reservoir continuity). The three well pads have been located to enable access to all regions of the reservoir targeted for cycling. Each well pad has adequate space to handle a few additional wells beyond those currently planned, should this be needed.

ExxonMobil has received a request for information pertaining to any planned future expansion of the proposed facilities, all reasonably foreseeable future developments, and the impact to Point Thomson should a gas pipeline be constructed.

Technical Analysis:

The future foreseeable developments and expansion scenarios considered are discussed below.

1. Expansion - Incremental Growth of the Base Cycling Project

Summary: Only limited expansion of the cycling project is likely based on the new seismic data base and the proposed project can accommodate minor expansions.

a. Revised or modified development plan / strategy

Subsurface well placement will be modified as additional reservoir information becomes available through development drilling. The proposed cycling project can accommodate changes in well placement, as well as the drilling of additional wells that might be needed to maximize cycling recovery.

b. Increase injection/production capacity

Facility upgrades could be made in the future to expand processing rate. If expansion is performed, the proposed cycling project can accommodate this increase, without change to the footprint.

c. Expand development to cycle larger reservoir extent/limits

There may be some upside reserve potential, primarily in the far western extent of the reservoir, that is currently believed to be too remote and too small to justify gas cycling. ExxonMobil does not anticipate expanding the gas cycling project to access potential isolated reservoir accumulations but may consider an additional western pad should a gas sales development become feasible in the future.

2. Future Oil Developments

Summary: Foreseeable oil developments near the proposed cycling operations would require pad expansions to accommodate separate oil facilities and possibly more wells (closer spacing for oil development than gas).

Background:

All of the foreseeable future oil developments have a common technical constraint - high risk of commerciality. Uncertainty in resource description, size, and reservoir quality make the oil development scenarios unlikely.

For all future oil development scenarios, it has been assumed that oil produced from any of the foreseeable developments can be blended with condensate from the proposed cycling operations and transported in the line to Badami for sales. It has also been assumed that separate infrastructure and separation facilities for oil production will be required given the vastly different operating requirements for oil production in comparison to high pressure gas cycling.

a. Thomson Sand Oil Rim Development

The commercial development of the Thomson Sand oil rim has been considered and determined to be unattractive to pursue at this time. Rapid gas and water breakthrough expected with the production of the thin, low gravity oil rim, even with horizontal drillwells, makes development both technically and economically unfeasible.

Should oil rim development become viable in the future, with advanced technology or improved resource understanding, we anticipate developing the oil residing in the area of the proposed cycling project with only minor pad expansions to accommodate separate oil infrastructure/facilities. Any Thomson Sand oil development on the southern flank of the reservoir may require additional well pads to access and develop.

b. Brookian Development near Cycling Operations

Brookian oil sands that reside in the area of the proposed cycling project should be accessible from the three pads. Only minor pad expansions are anticipated to provide for more wells that may be required to develop, and to accommodate separate oil infrastructure/facilities.

c. Brookian Development away from Cycling Operations

Numerous oil accumulations have been penetrated or mapped in the Point Thomson area away from the proposed cycling operations. The primary difference in development scenarios for oil accumulations remote from the planned cycling operations is the recognition that satellite operations would be required for development. At least one additional pad would be needed for wells and standalone facilities.

3. Future Gas Sales from the Thomson Sand

Summary: Given the long life of the proposed cycling project (30 years), it is assumed that cycling operations would continue, at least initially, simultaneously with gas sales if they were to occur.

Impact of Gas Sales:

The proposed cycling operations would be compatible with future gas sales should a gas pipeline be constructed.

Pad expansions, particularly on the central pad, are anticipated to accommodate the addition of lower pressure compression and facilities associated with gas sales (e.g., dehydration), as well as potentially more drillwells to increase gas sales capacity. An additional well pad may also be needed if the far-western extent of the reservoir becomes viable for gas sales.

There will likely be spare condensate capacity already available once gas sales initiates, so only minor facility expansion for liquids handling is expected.