

# Response to Testimony and Q/A Discussions Held on June 17, 2008

# Do we have enough data in Point Thomson to define a Full Field Plan of Development for both the oil and gas reserves?

- 19 wells have been drilled
- 14 wells penetrated Point Thomson reservoirs
- 3600 ft of high quality core has been taken and analyzed
- 20 well tests have been completed, defining rates and pressures
- Eight 3D seismic surveys have been acquired and interpreted
- Multiple fluid samples have been taken and fluid property evaluations have been conducted
- Conclusion: The type and amount of reservoir data is sufficient to develop a Full Field Plan of Development for oil and gas development at the Point Thomson Field

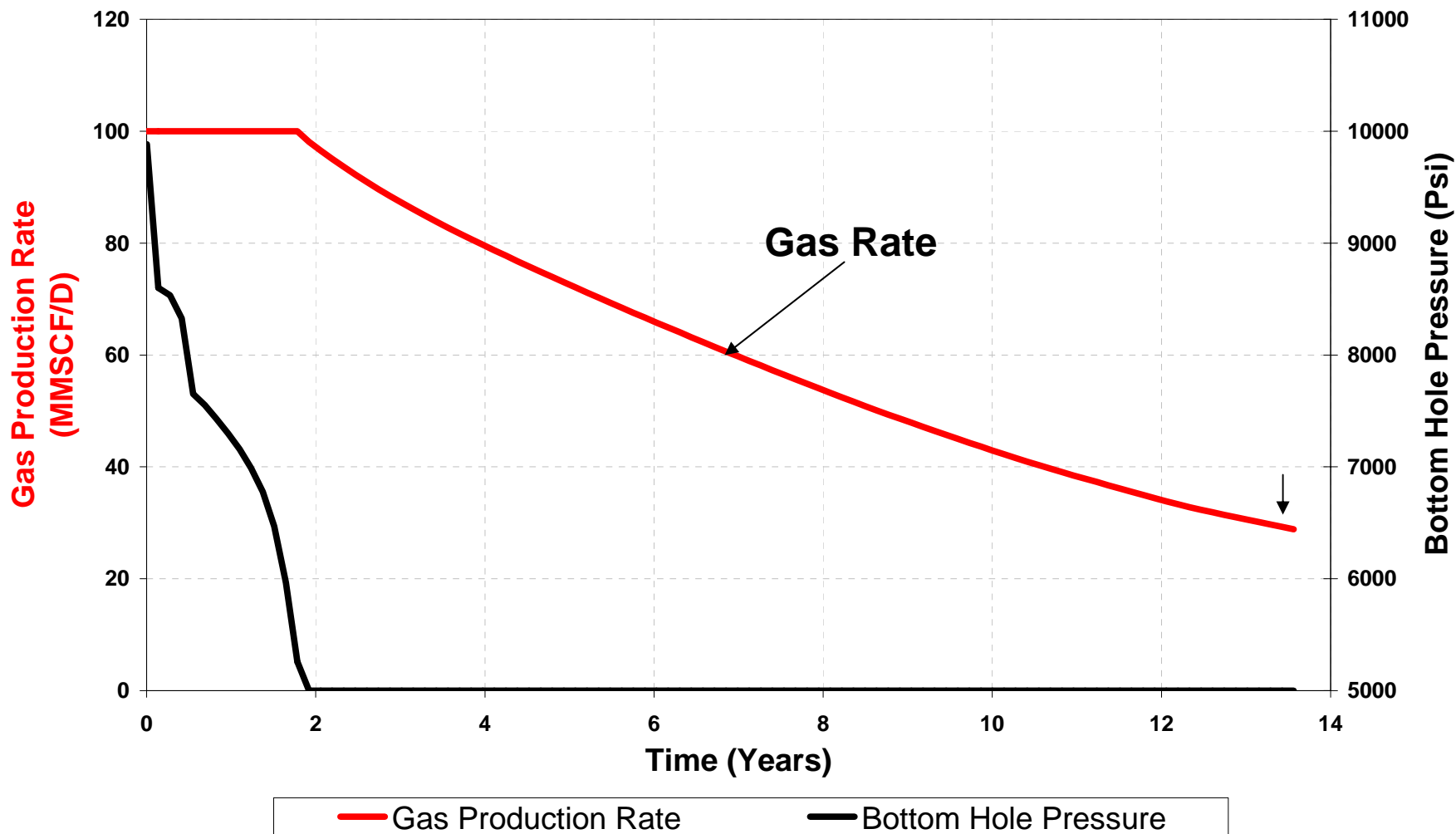
# Response to Exxon Presentation

- Exxon presented yesterday that they did not see a reduction in Pt Thomson well productivity due to condensate dropout.
- Their own published work on the Arun Field in Indonesia (with a condensate yield of 65 STB/MMSCF shows a 50% reduction in well productivity occurring during blowdown.
- As a result, Exxon initiated lean gas injection in Arun, as soon as production began, to minimize liquid drop out and to maximize condensate recovery.
- In a blowdown scenario, 2 to 3 times the number of wells will be required to maintain the same rate. Producing oil earlier, will require fewer number of wells in the long term.
- Condensate will be trapped in the reservoir in a blowdown scenario, thereby reducing liquid recovery.

# Point Thomson Well Productivity During Blowdown

Drainage Area 3400 Acres,  $k=120$  md, thickness = 200 ft,

Initial Pressure = 10,200 psi



# Take Home Point

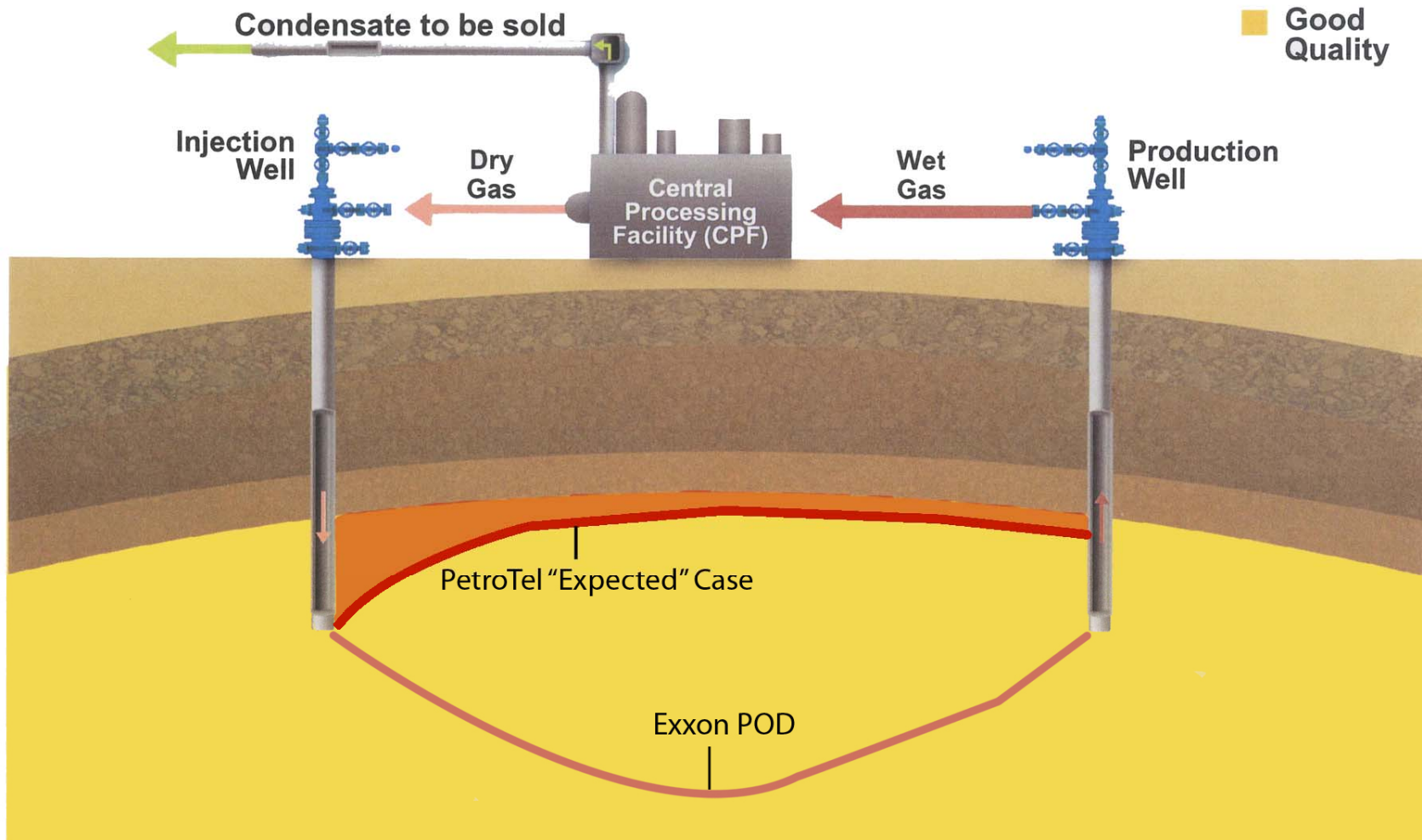
## Point Thomson Blowdown

- It will require very aggressive additional drilling schedule (\$100 Million/well) for up to 50 wells to maintain a stable gas rate for the pipeline for the next twenty-five years.
- This is because of the condensate dropout and the drop in reservoir pressure over time.

# Exxon Description of Gas Cycling

- “What do we mean by cycling gas to produced condensate? The cycling of gas requires two wells; a production well and an injection well. These wells will be placed four miles apart in the heart of the reservoir to provide a true test on the effectiveness of cycling gas at Point Thomson....”

# Gas Cycling



# What is Gas Cycling?

- Exxon's gas cycling description is NOT a gas cycling project by industry definition. Their depiction of fluid movement is wrong by laws of physics. The dry gas will go to the top and gravity tongue. It will breakthrough to high permeability zones to the producing well resulting in poor sweep. They show dry gas which is lighter going to the bottom of the reservoir.
- In PetroTel's design of gas cycling, the injectors are placed at the apex or at the highest points in the structure to maximize sweep.
- Exxon's 4 miles distance (per their written testimony) is too long a distance to observe pressure support in a reasonable amount of time



# Prudhoe Bay Gas Requirements

- Prudhoe Bay is undergoing a major APEX water injection program to maintain pressure
- The purpose of water injection project was to facilitate gas sales.
- AOGCC have quantified the effect of different gas offtakes based on modeling work.
- This work was used to justify the offtake in 2019 for AGIA pipeline requirements from Prudhoe Bay.
- Black and Veatch study shows the AGIA pipeline is still robust without Point Thomson gas.