UKCS J-Area

Maximising recovery through active field management
Themes

• What is J-Area?

• Where did J-Area begin, and where are we now?

• Focus areas
  • New wells
  • Production delivery & optimisation
  • Facility maintenance and optimisation

• The future – maintaining J-Area as a key Central Graben hub
J-Area – facilities and infrastructure

- Key Central Graben processing and export hub complex of five platforms and one subsea manifold
- Export via CATS and Norpipe
- Discovered 1984, first production 1995
- Produces a mix of gas condensate and volatile oil
- Produced 600 MMboe from 1995 to YE 2016
J-Area - subsurface

- Complex of accumulations on the Josephine ridge
- Focal point for migration from flanking Jurassic basins
- Trapping structures related to mobile salt above basement high
- Palaeocene sandstone, Cretaceous Chalk and Triassic fluvial sandstone reservoirs
J-Area in 1992: Judy/Joanne development Annex “B”

- Conventional manned platform at Judy and subsea at Joanne
- Capacity 300 MMscf/d gas, 95 Mb/d liquid
- 16 Palaeocene/Chalk and 6 Triassic wells premised
From 1992 to 2017

J-Area FDP vs actual MMboe gross

J-Area FDP vs actual
How did we get here? New data for ILX and infill drilling

- Newly acquired or reprocessed seismic data led to new drilling campaigns:
  - 2001 to 2002: Judy un-appraised fault blocks
  - 2006: Jasmine discovery and development

- New data and active reservoir monitoring
  - 2004: Judy targets identified from anomalous well behaviour
  - GOR modelling implied pressure support
  - Re-mapping indicated a well target to the south
Optimising existing well stock – PLT data and PO activity

- “Secondary” Josephine Sandstone Member reservoir perforated in Jasmine well
- Significantly exceeded expectations
- Time-lapse PLT data has shown sustained nature of Josephine contribution
- Josephine target drilling candidates identified

- PLT data from Jasmine wells showed no or limited production below hold-up depths in several wells
- Coiled tubing clean-out and reperforation led to significant sustained production uplift
- Additional clean out and reperf candidates identified
Where next - more new data supporting further drilling

- **2013** - Direct pressure measurements confirmed Palaeocene reservoir pressure recharge

- **2012-2013** - Jasmine well penetrations proved extension of Palaeocene accumulation to west

- Ocean Bottom Node seismic data acquired by ConocoPhillips over Jasmine (2011) and East Judy (2014) and by Apache over Isabella (2012)

- Sim-source and non-uniform source spacing (CSI) technology used on East Judy acquisition

- All three surveys co-processed in-house in 2015

- Significant image quality uplift, even in reprocessed data
Evolution of East Judy seismic data quality (1992–2016), IL1505

- Low frequency content
- Multiple attenuation
- Steep dip imaging
- Signal-to-noise ratio

1992 PreSTM
1999 PreSTM
2004 PreSDM
2005 PreSTM
2008 DAZ PreSDM
2016 East Judy OBN PreSDM

Judy / Joanne development drilling
Jade development / Judy infill drilling
Judy infill drilling / Jasmine discovery
Judy / Jade infill drilling
2017 J-Area drilling campaign
Maximise Existing Production – facility optimisation

**Objectives**

- Continuously improve HSE Performance
- Optimise DOE
- Prepare the facilities for the long term: 2020+
- Fully exploit existing well count
- Maximise remaining field development potential

**Actions**

- Execute fabric maintenance programme
- Execute plant reliability improvements, and optimise shutdowns to improve base DOE
- Execute Judy Life extension project (control system upgrade)
- Optimise existing well stock (cycle well management, suction pressure reduction)
- Long term compression strategy - JCOP
J-Area history

J-Area Monthly Average Gross Production

Production Rate


Judy, Joanne First production 1995, constrained due to commercial dispute
Jade discovery
Long offset 3D data acquired
Jade first production
Jade first infill drilling
Jade second infill drilling
Jade 3D data re-processed in-house
Jade Judy Member infill
Jasmine discovery
Jasmine first infill drilling
Jasmine infill
Jasmine OBN data acquired
East Judy OBN data acquired and co-processed with Jasmine OBN
Judy workovers
Jade workovers
Judy NUI installed
Jade NUI installed
Suction pressure reduction
Add Judy beds
Control system upgrade
Install Jasmine Infrastructure
JCOD

ConocoPhillips
Key messages

• Longevity depends on active field management

• Investment in data is key to maximising potential

• For J-Area, focus areas have been
  • Maximising recovery by drilling new infill wells
  • Extending the field by drilling step-out exploration wells
  • Optimising production from existing wells
  • Facility maintenance and management
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