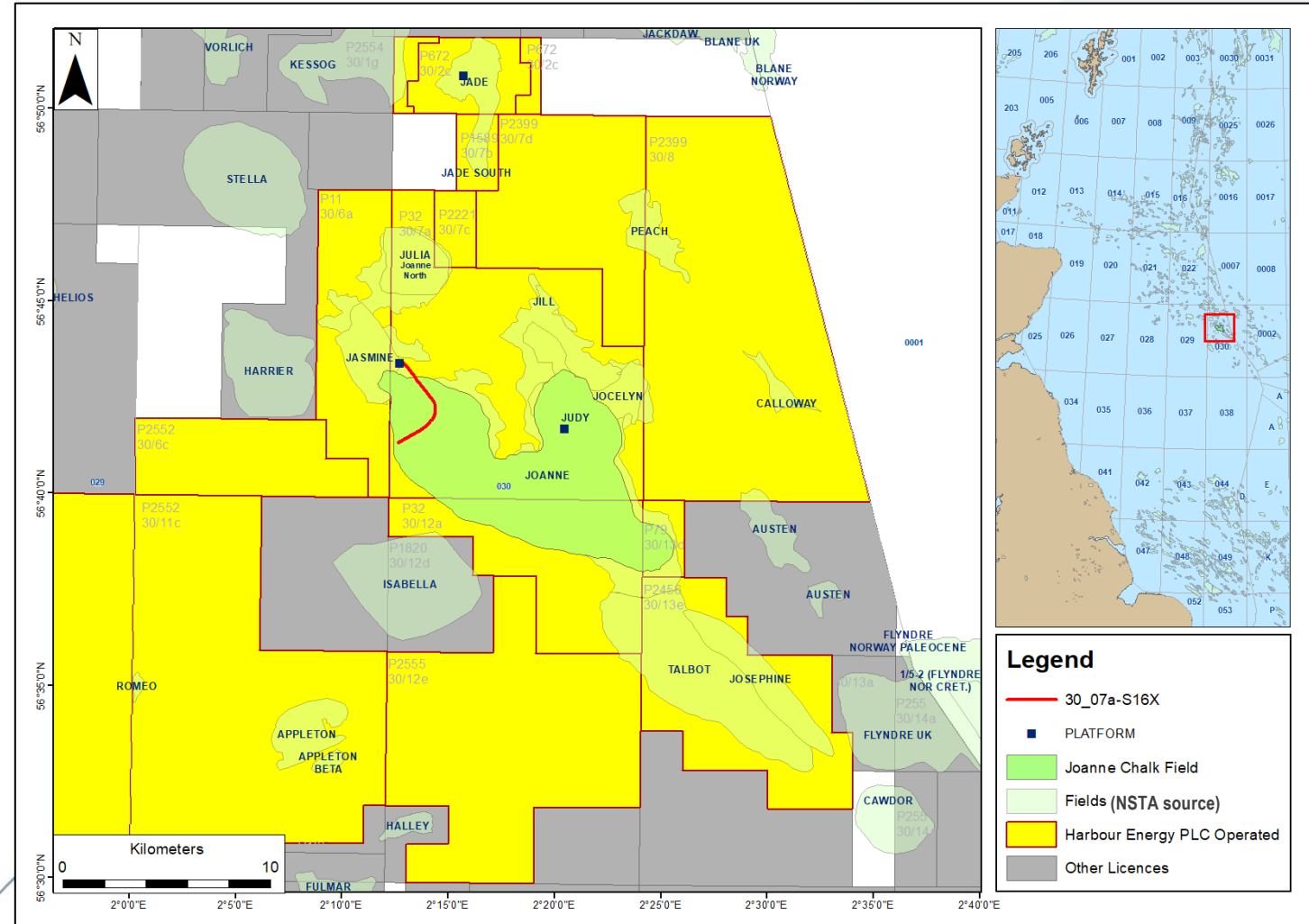


# Transformative well placement strategy in the Joanne Chalk Field (30/7a-S16X)

Simon Robinson (Presenting)  
& Carl Elliott

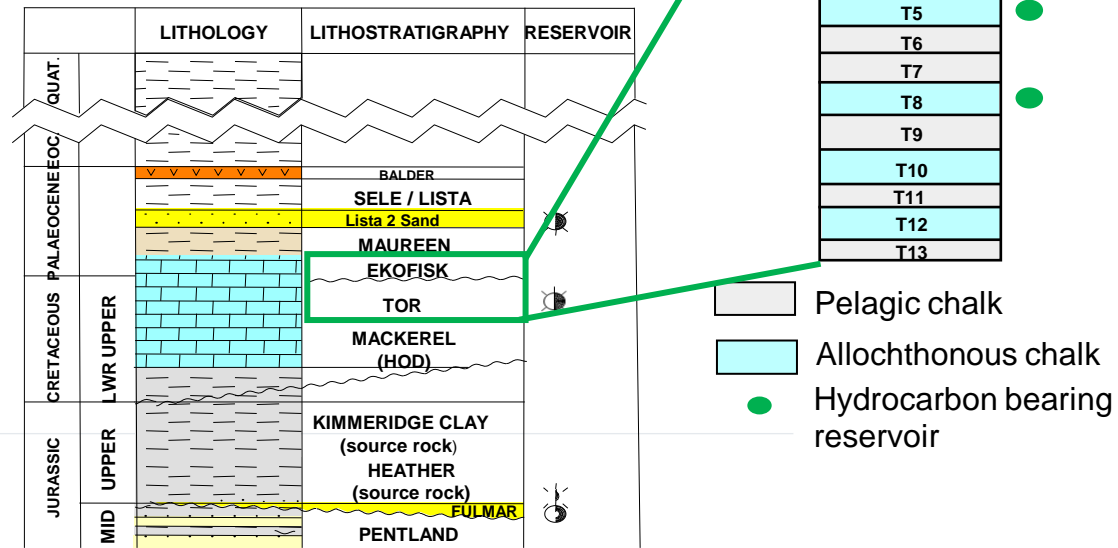
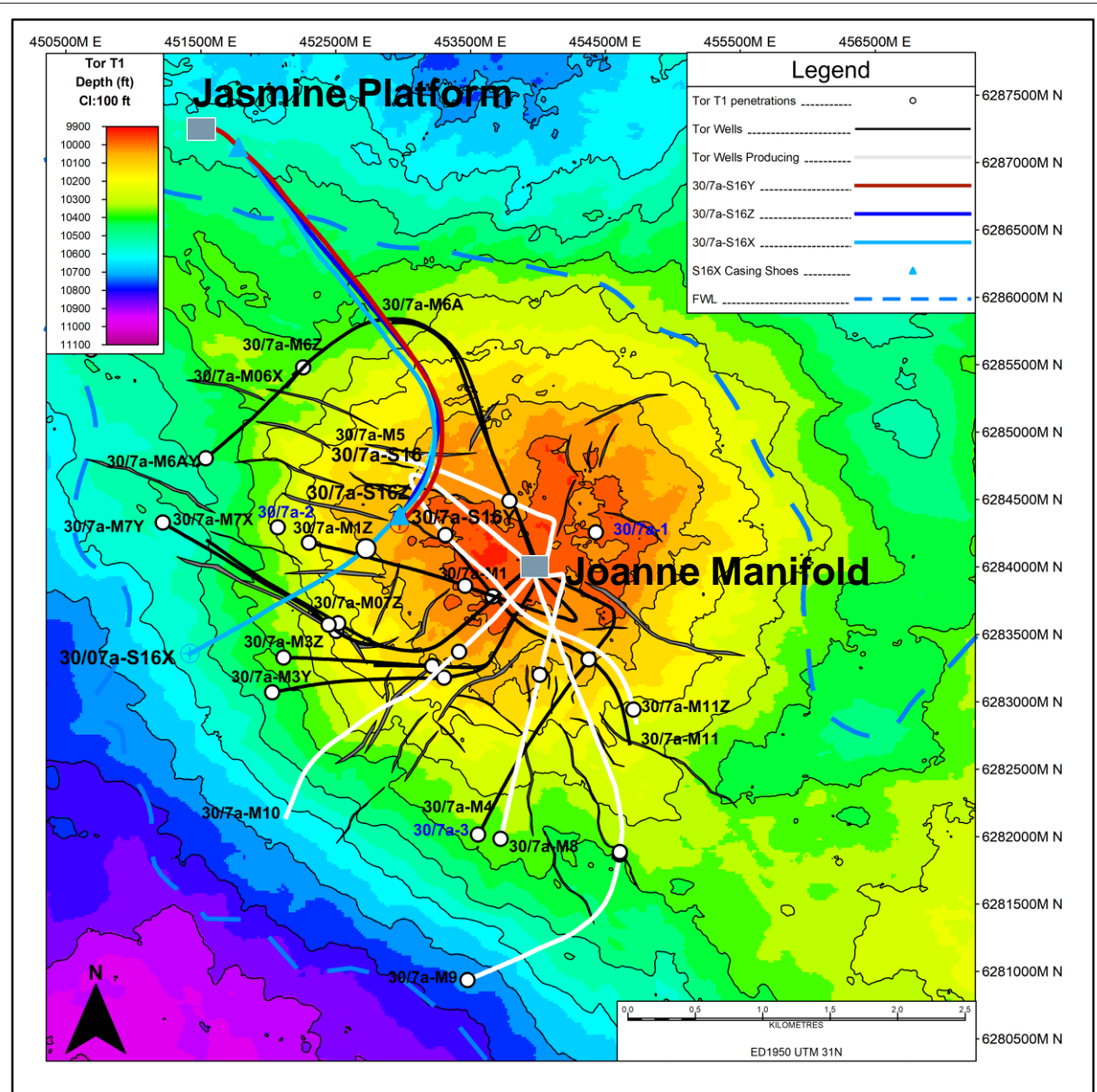
DEVEX 2022 - 10 – 11 May 2022



# Location and opportunity

# Joanne Chalk

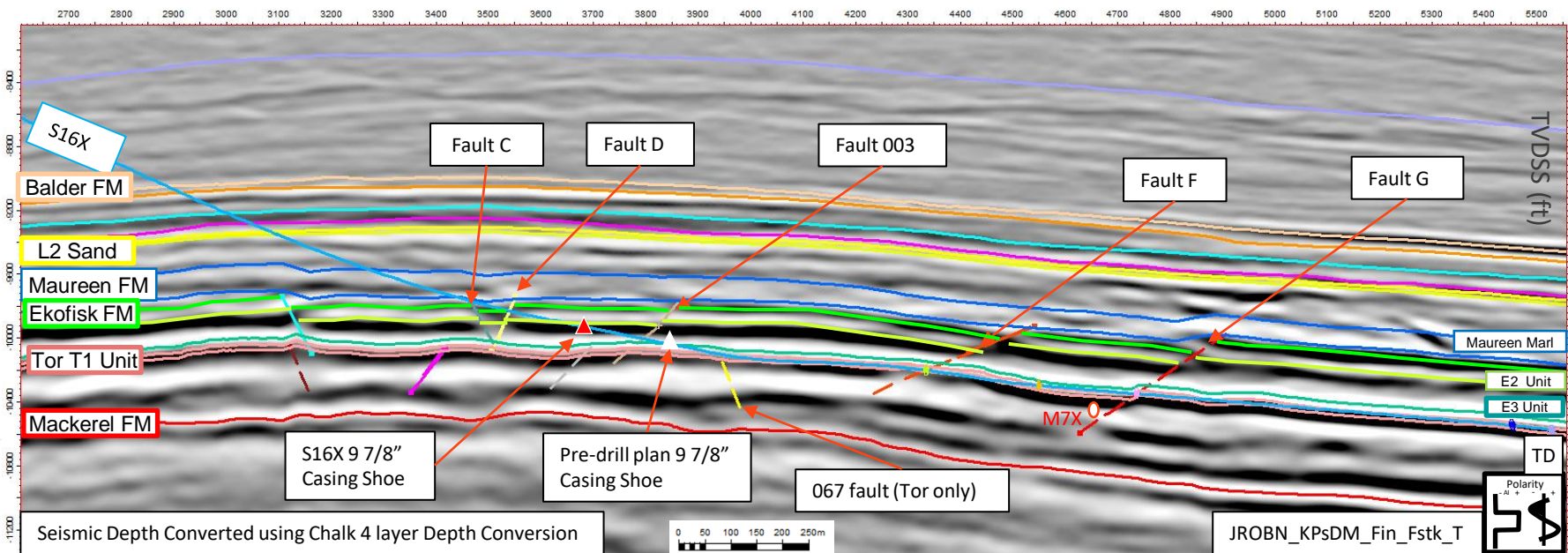
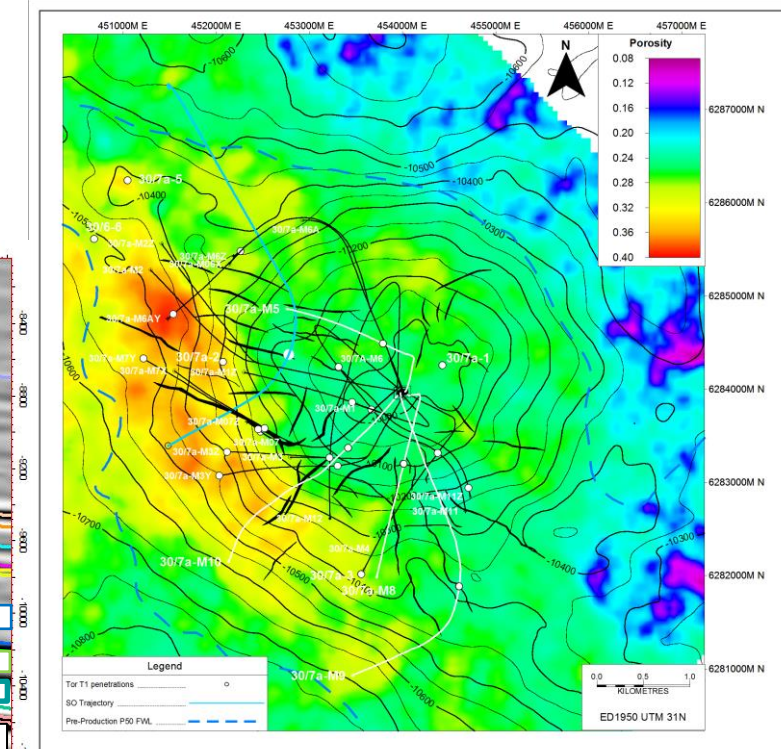
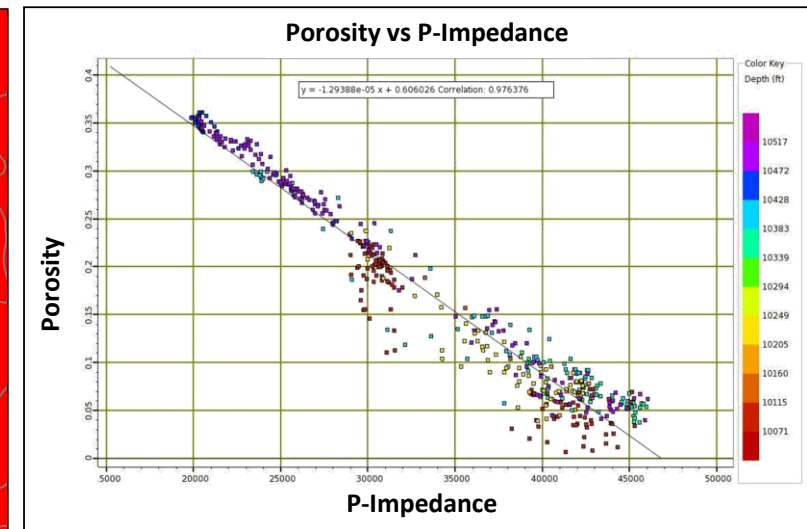
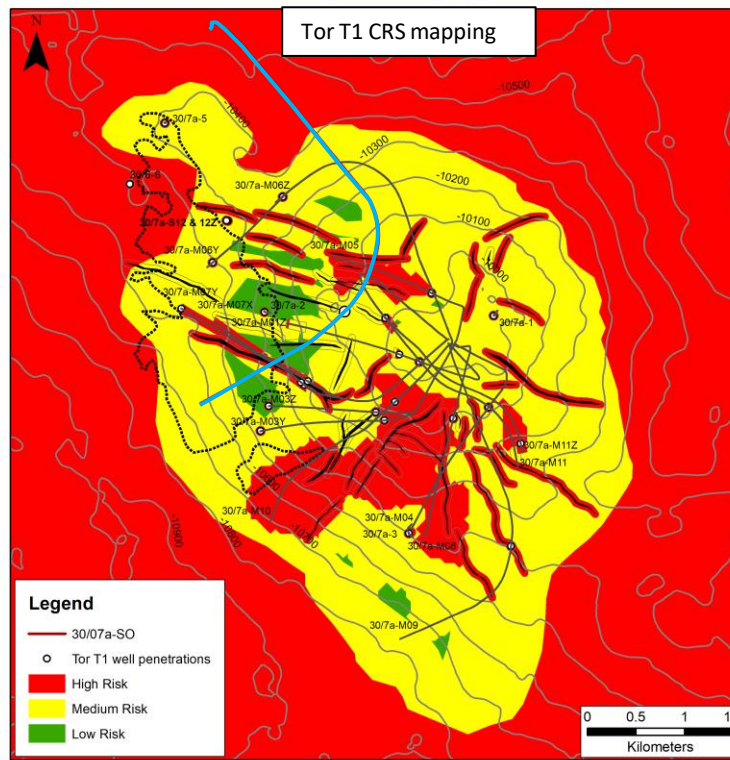
- Four-way dip closure formed by salt halokinesis and differential compaction
- Tilted FWL contact
- Ekofisk (E1) and Tor (T1, T3, T5 & T8) chalk reservoirs
- Tor porosity: 5-35%, permeability: ~1-4mD, Ekofisk: E1 25%, ~20μD
- First production from Joanne manifold in 1996
- J-shape horizontal wells completed with matrix acidise or frac
- Drilled 11 chalk wells: 10 Tor & 1 Ekofisk
- Current producing wells: 6 Tor, 1 Ekofisk



# S16X well planning

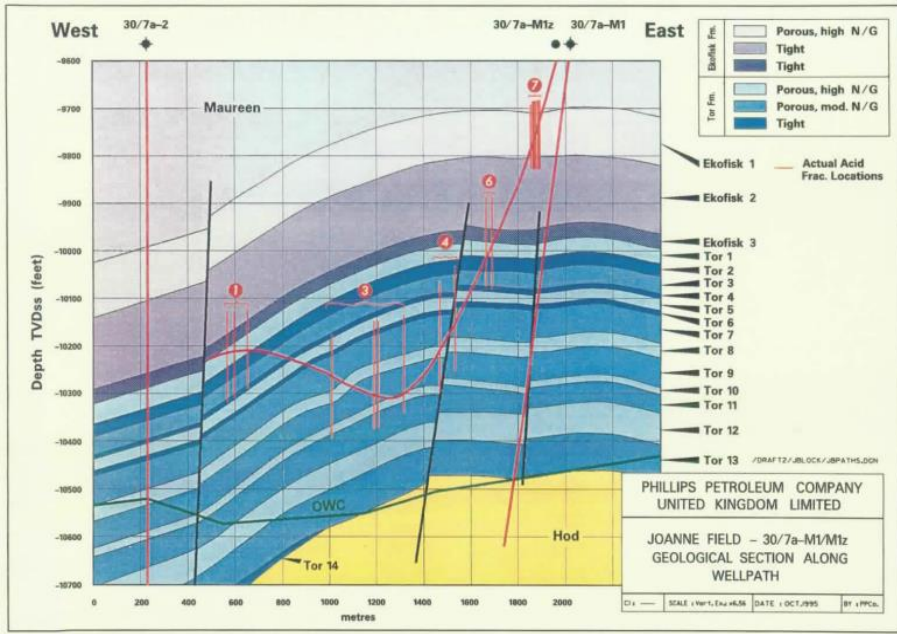
## S16 criteria:

- Targeting T1 only (31 ft mean thickness), not as depleted as T5 & T8
- Heel location kept high on structure
- Avoid depleted areas
- Take faults on in perpendicular manner
- Toe location to target higher porosity T1 area
- TD called when Sw >50% & Por >18% for over 200 ft MD



# Evolution of approach and technology

## 30/7a-M1Z 1994 (J-shaped well)

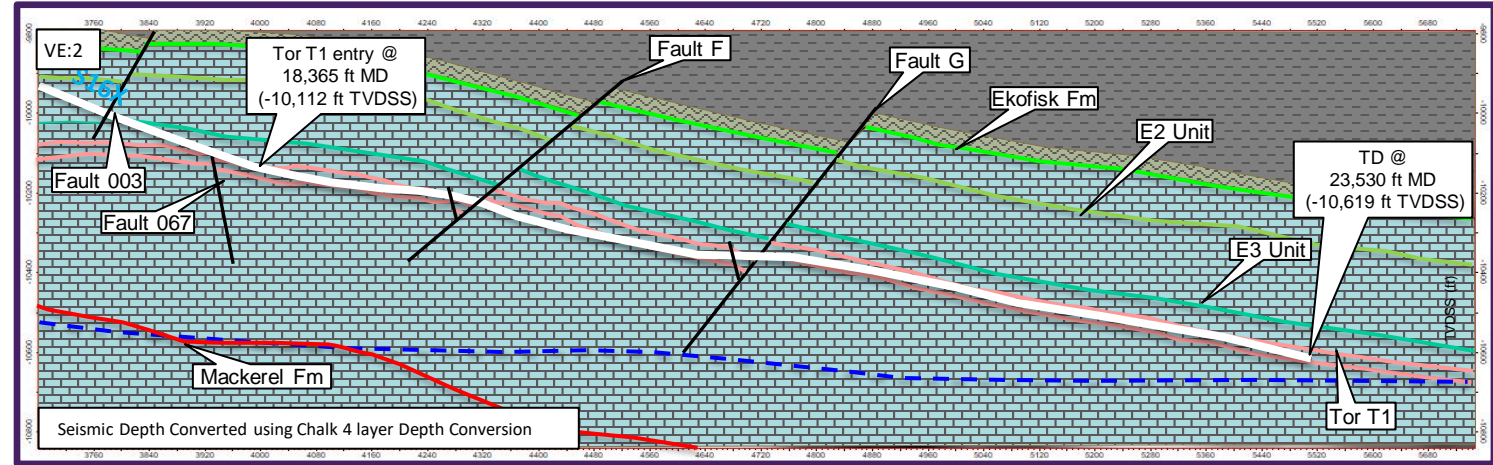


## 8 1/2" hole data acquisition:

Pilot Hole (M1)

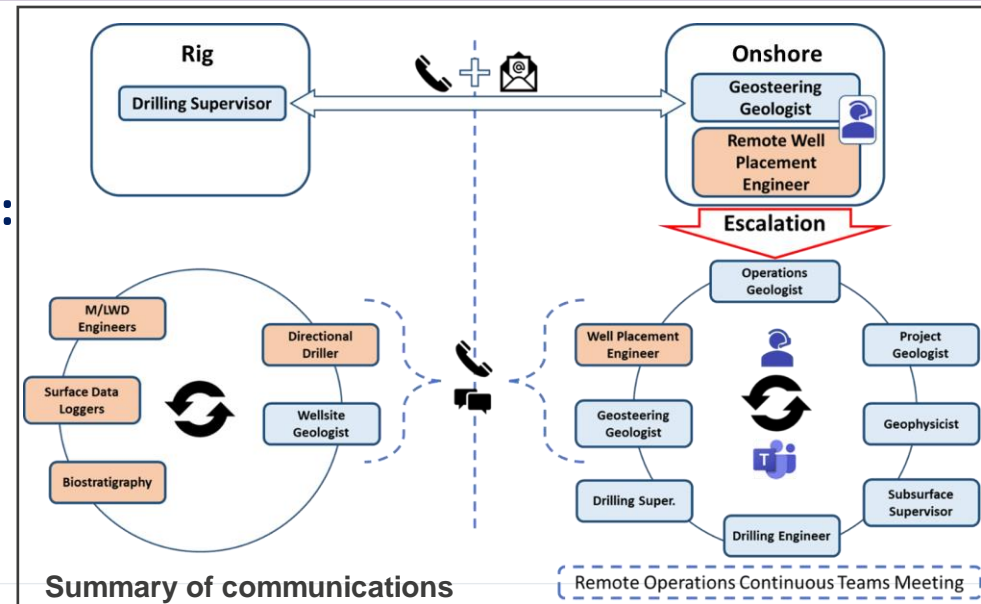
Gamma Ray –Resistivity–Density–Neutron–Sonic & Biostratigraphy

## 30/7a-S16X 2020 (Geosteered well)



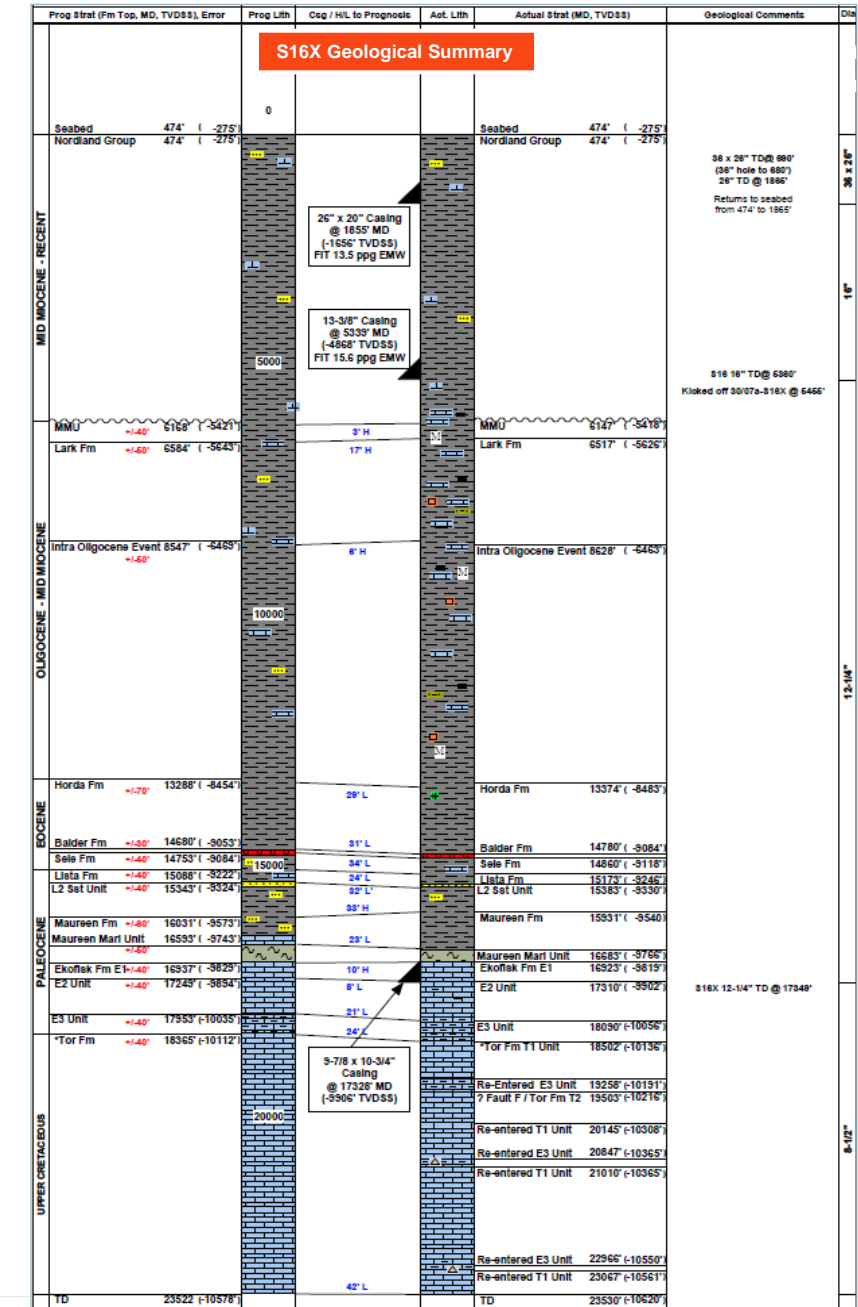
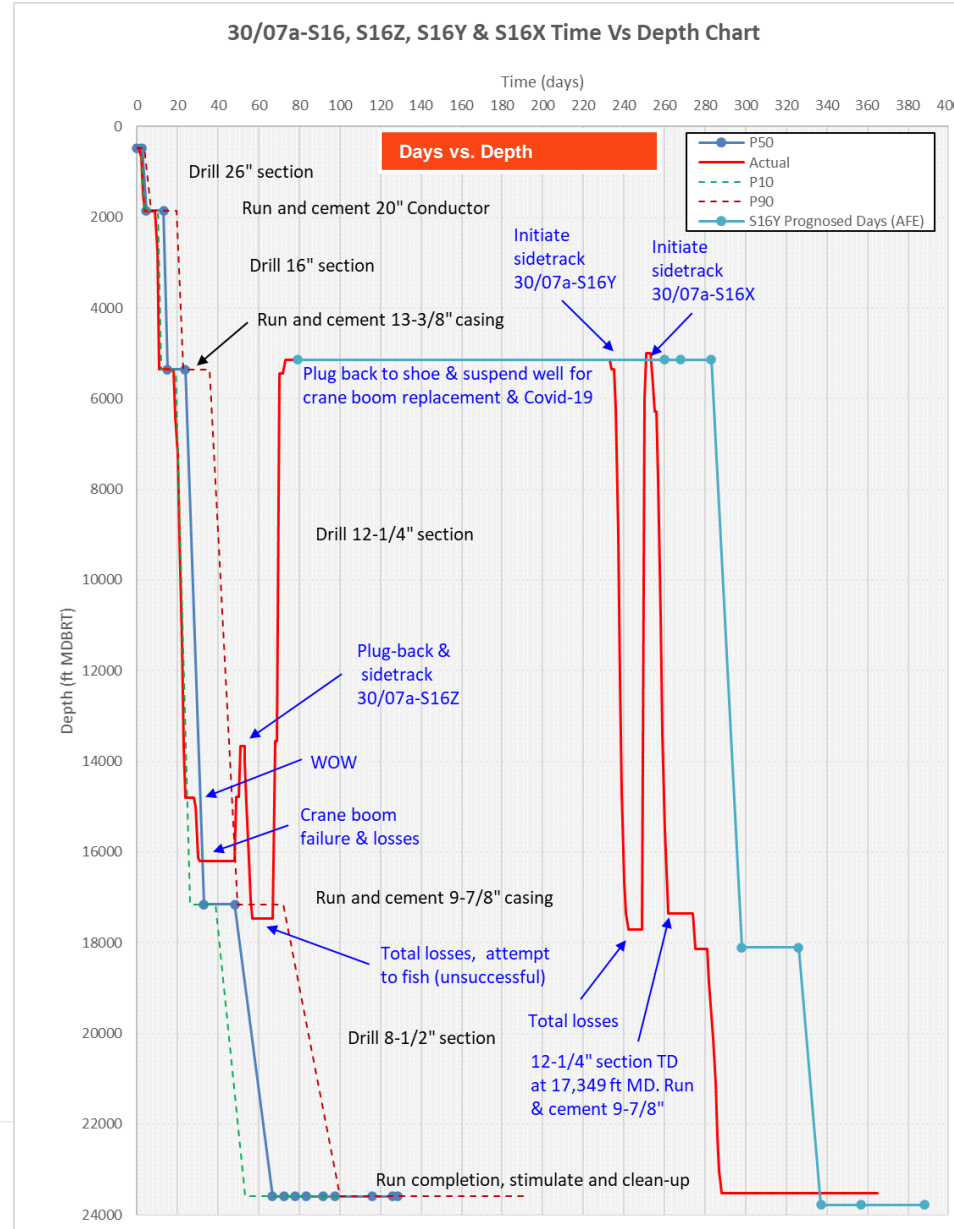
## 8 1/2" hole data acquisition:

Gamma Ray –Resistivity–Density–Neutron, **Density images, At bit Resistivity**, Biostratigraphy and ultra-deep resistivity tool **GeoSphere** (including Geosteering team - 2 Geosteering Geologists and 2 well placement engineers)

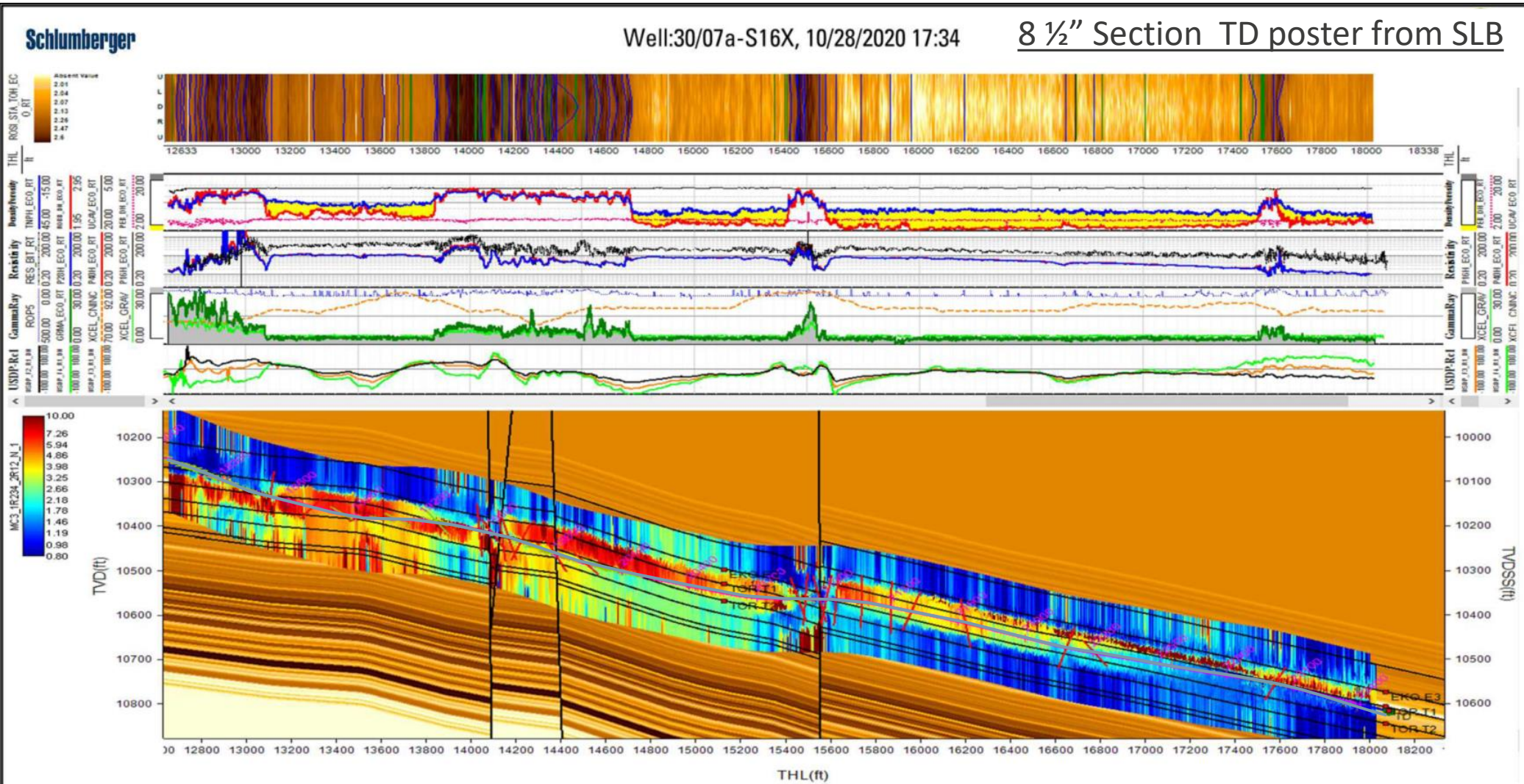


# Operations timeline

- **16<sup>th</sup> January 2020:** S16 Spud
- **28<sup>th</sup> January:** S16 loss event
- **7<sup>th</sup> March:** S16Z side-track initiated
- **4<sup>th</sup> April:** S16Z suspended due to COVID-19
- **1<sup>st</sup> September:** Re-commenced drilling operations
- **6<sup>th</sup> September:** Drilled out suspension plugs and side-tracked S16Y from 5,390ft
- **12<sup>th</sup> September:** Drilled S16Y to 17,698 ft MD. Observed total losses in Ekofisk E2
- **24<sup>th</sup> September:** Abandoned S16Y and commenced S16X side-track
- **28<sup>th</sup> October:** Drilled S16X 8½" to TD - 23,530 ft MD
- **31<sup>st</sup> October:** Commenced running lower completion
- **15<sup>th</sup> January 2021:** Production start-up

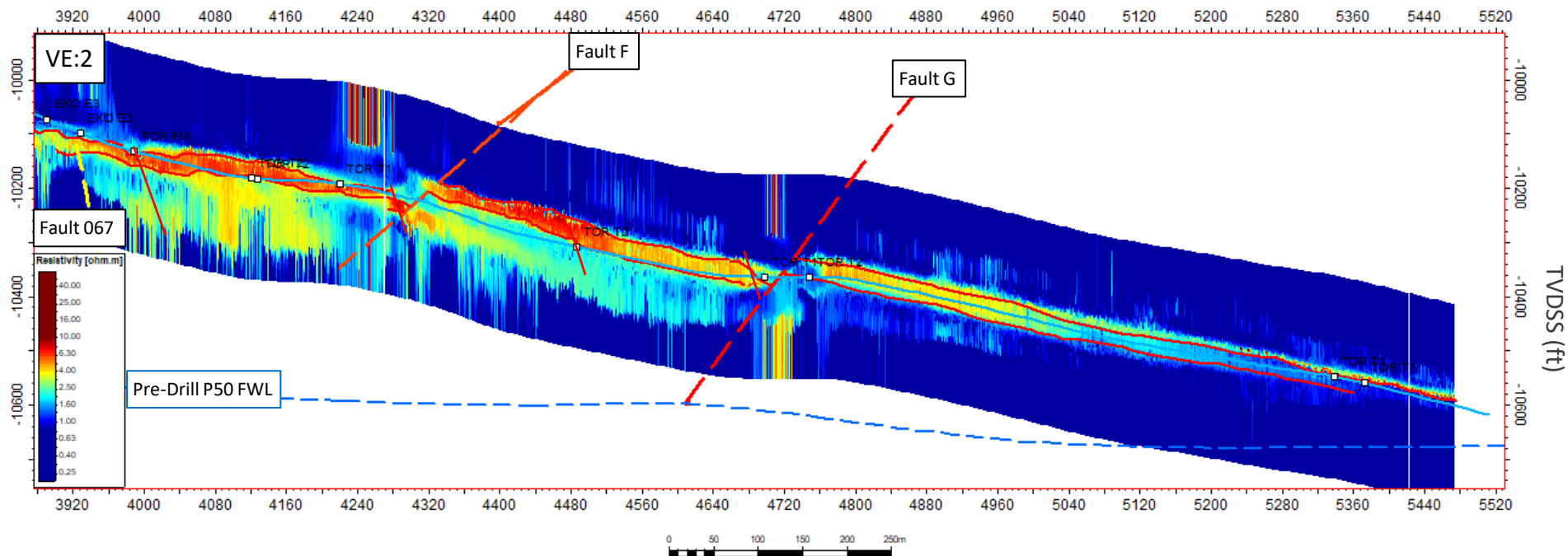


# Geosteering and post well results



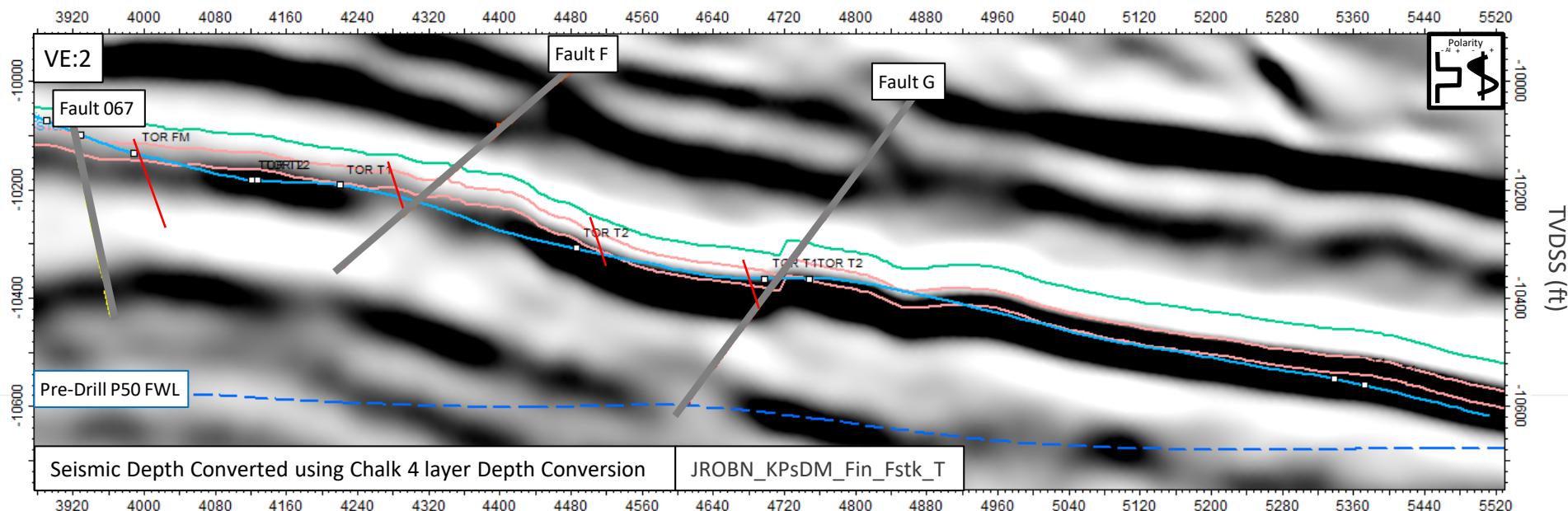
# Comparison of Geosphere and pre-drill interpretation

Post-drill  
GeoSphere  
interpretation  
in red.



Two receiver  
stochastic  
Geosphere tool

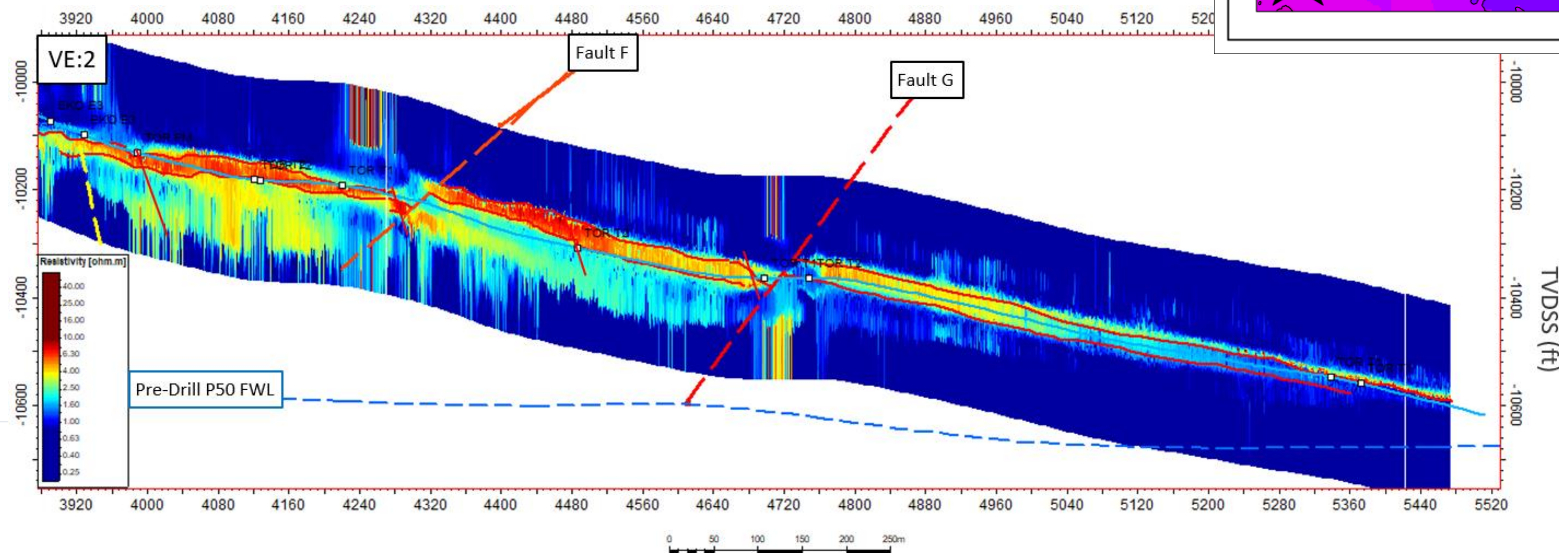
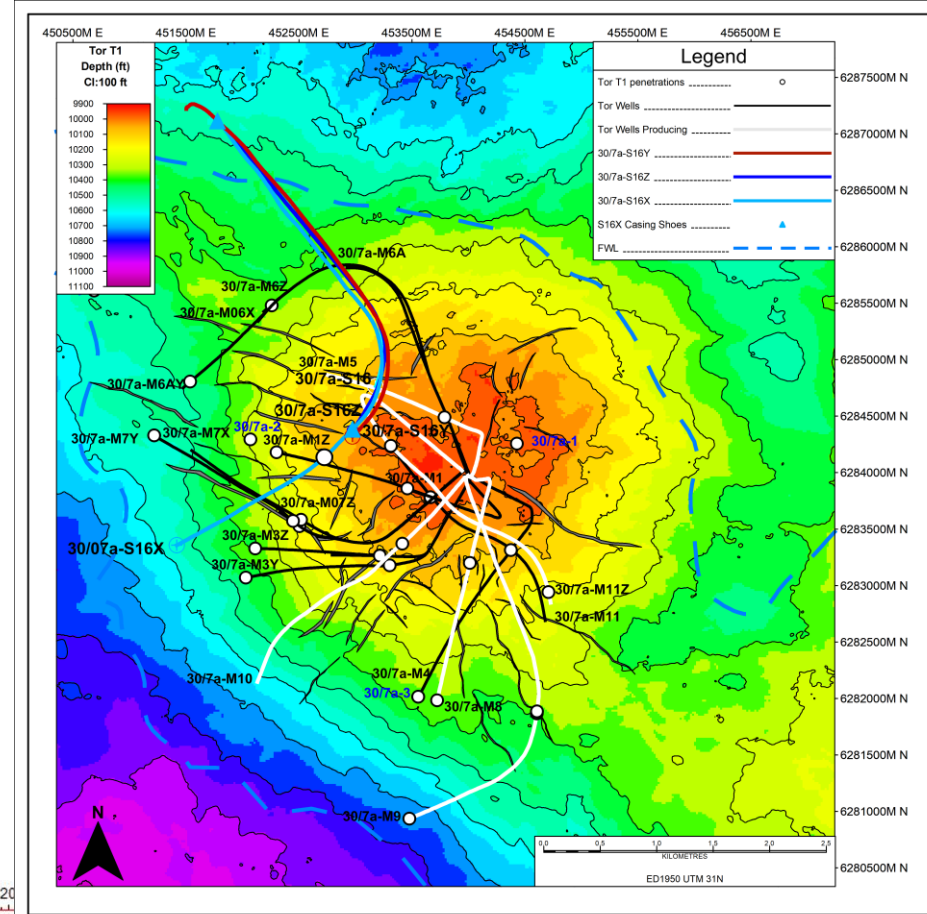
Seismic  
section  
with pre-drill  
interpretation  
of E3, T1 &  
T2



Seismic section  
with pre-drill  
interpretation

# Conclusions

- Targeted infill well to improve recovery from a mature depleted field
- Successful Geosteering operation that optimised placement within 31 ft reservoir (77% in zone)
- Characterised reservoir through the use of LWD, Geosphere and biostratigraphy
- AI-Porosity attribute validated
- Achieved maximum TD due to deeper than expected contact (lower Sw)
- Drilled longest well on Jasmine platform without having to trip





# Special mention and thanks to those involved:

**DEVEX 2022**

## Any Questions?

- **Geologists: Carl Elliott & Sarita Anston-Race**
- **Operations/Geosteering Geologist: Sara Newns, Simon Crooks and Rich Pattison**
- **Geophysicist & Subsurface Well Team Lead: Simon Robinson**
- **Reservoir Engineers: Ted Smith & Virginie Barrand**
- **Petrophysicist: Andrew Winter**
- **Subsurface Supervisor: Yann Jehanno**
- **Drilling Engineer: Kevin Grant**
- **Drilling superintendent: Richie Conachan**
- **Completions Engineer: Nathan Buksh**
- **Production Engineer: Beth Jones**
- **Production Performance Supervisor: Kirsten Agnew**
- **Schlumberger well placement team: Tudor-Remus Volintir and Valeria Vergani**
  
- **Our J-Area partner ENI UK Limited**