Continued Revitalization of the Brage Field

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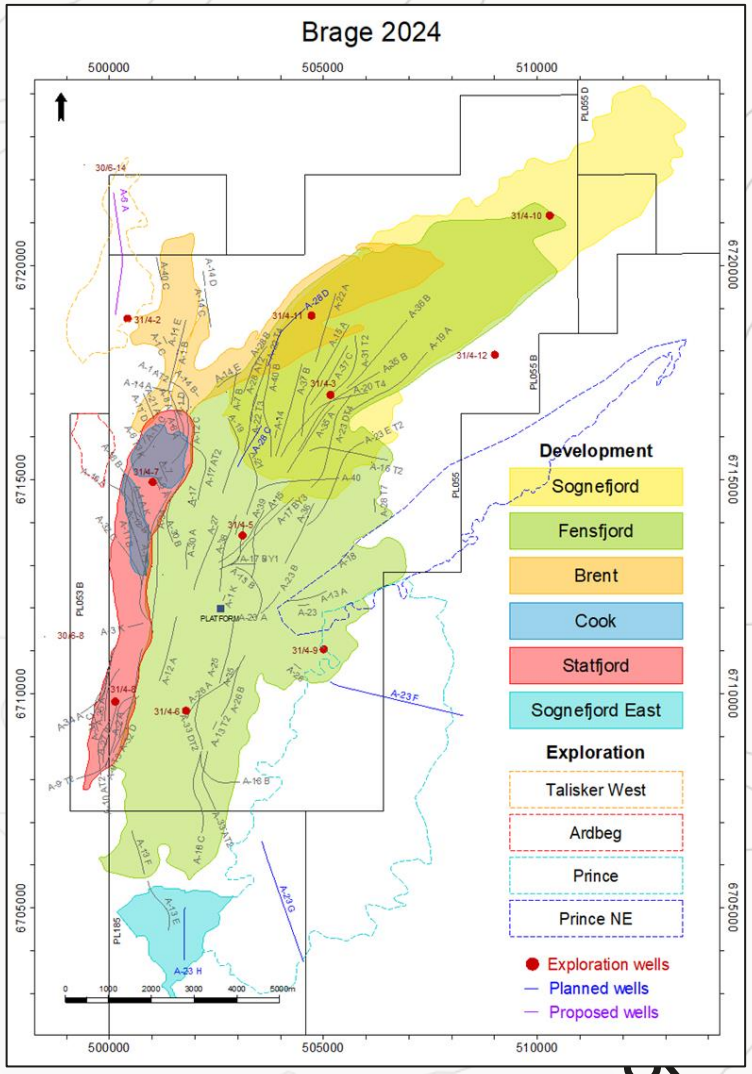
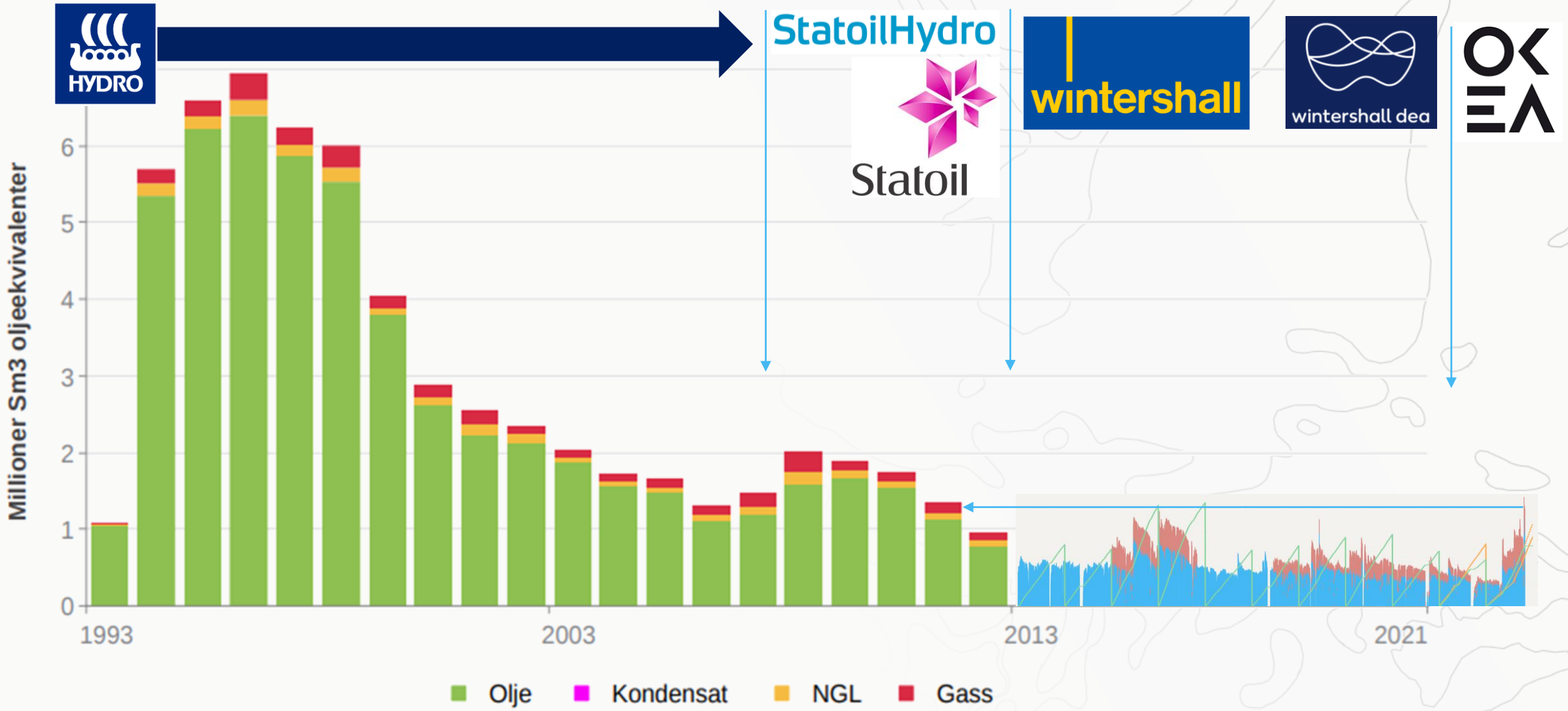
Brage Overview

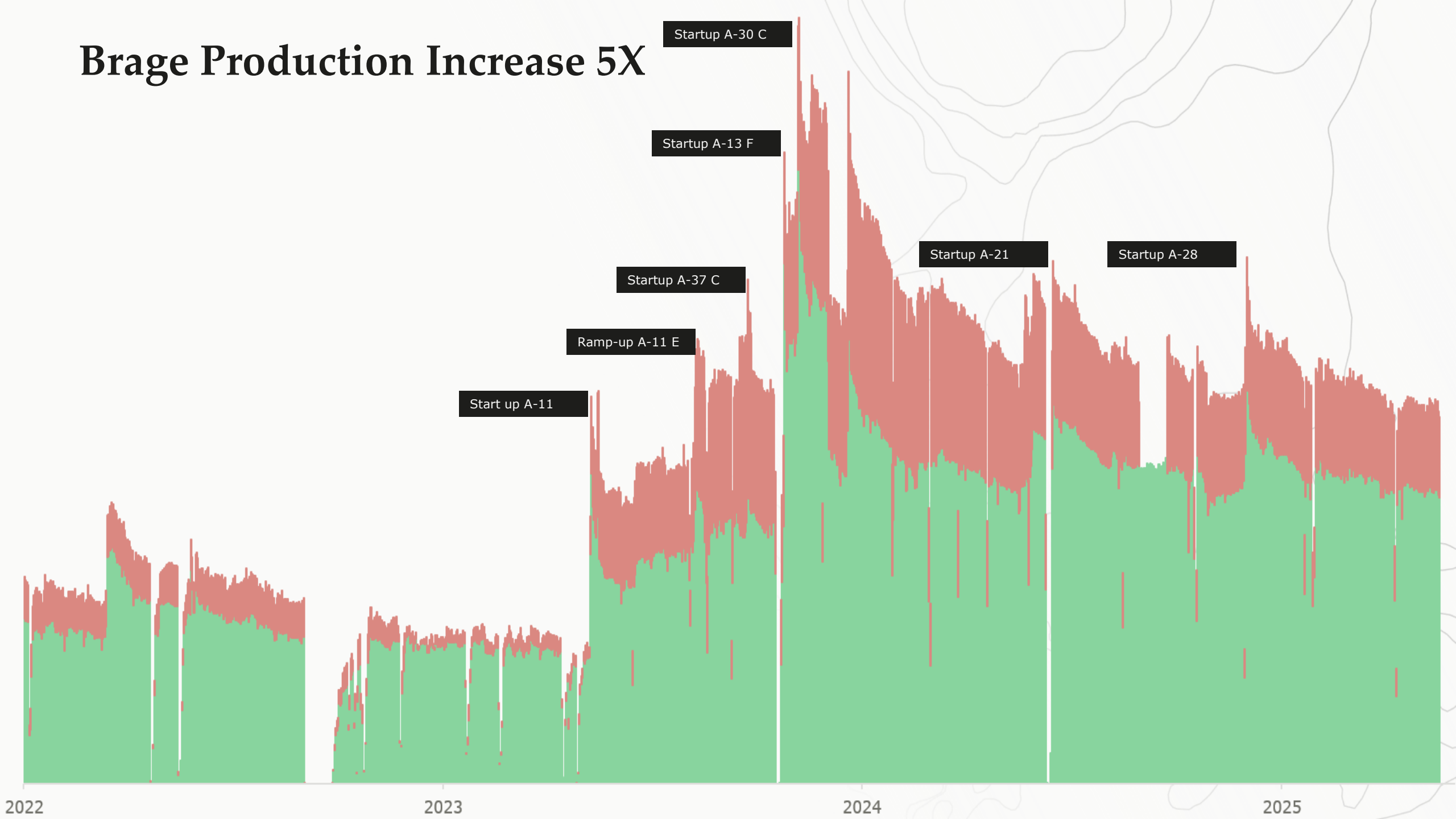
- Brage platform: steel jacket @135 m
- Well capacity: 40 platform slots
- Production start-up: September 1993
- Processing capacities:
  - Rich gas: 2.5 Mill Sm^3/sd
  - Total liquids: 48 000 m^3/sd
- Reservoirs in production
  - Statfjord – Original PDO (1988)
  - Fensfjord – Original PDO (1988)
  - Sognefjord – Exempt PDO (2005)
  - Brent – Exempt PDO (2012)
    - Talisker East area Exempt PDO (2022)
  - Cook - Exempt PDO (2023)
  - Kim- Exempt PDO (2024)



Brage Production

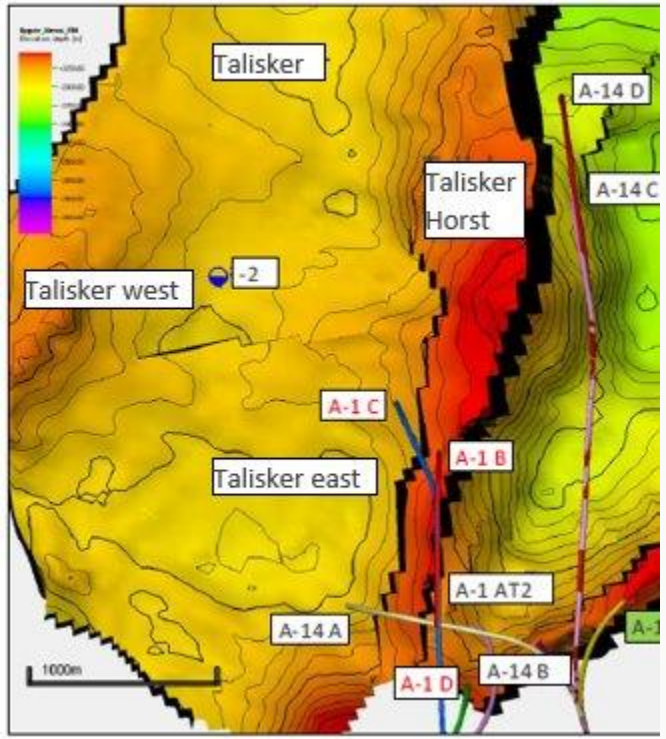


Brage Production Increase 5X

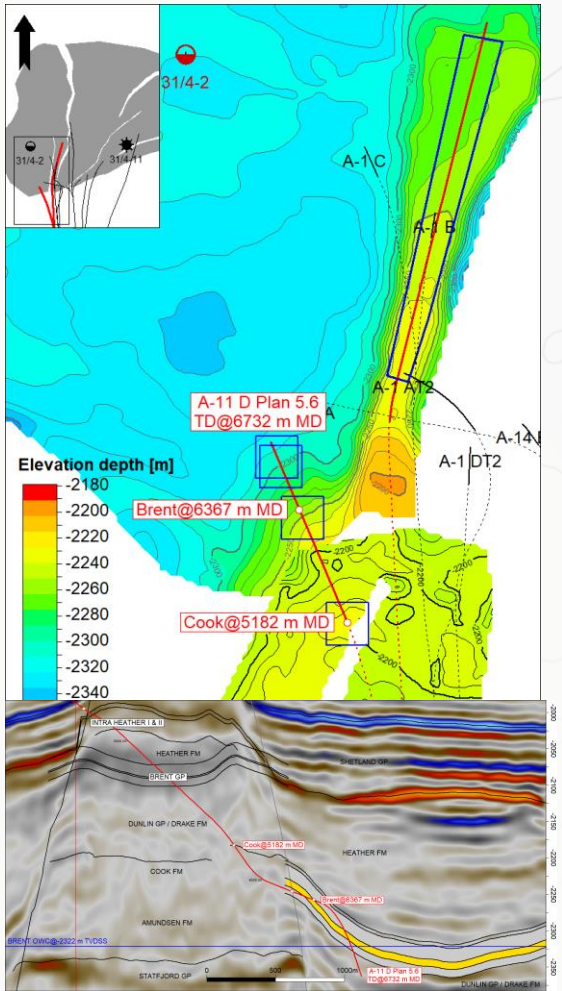


Smart Piloting Strategy

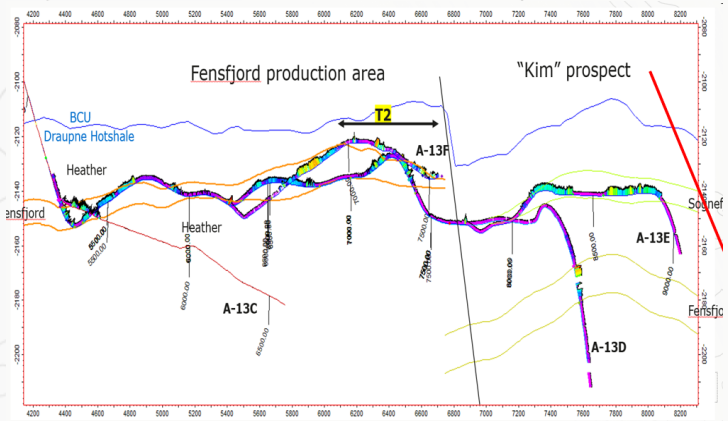
Talisker East
Pilot from A-1 DT2 producer



Cook
Pilot from A-11 E Producer

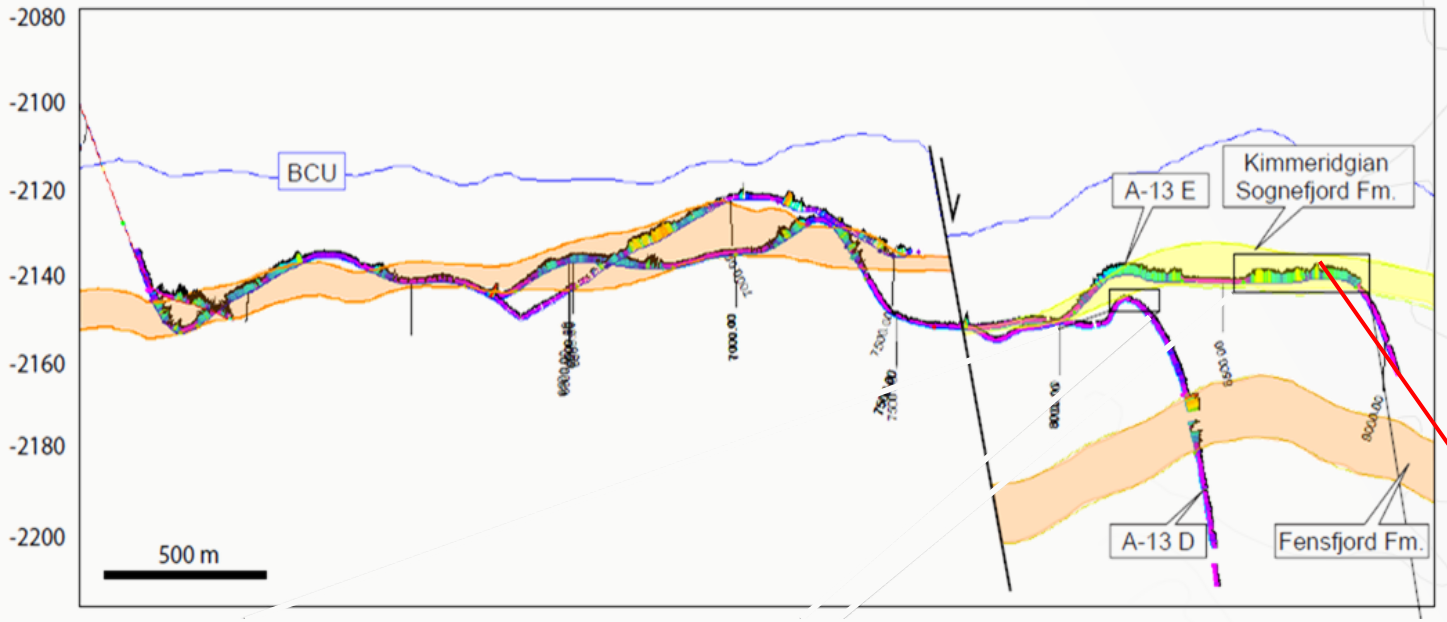


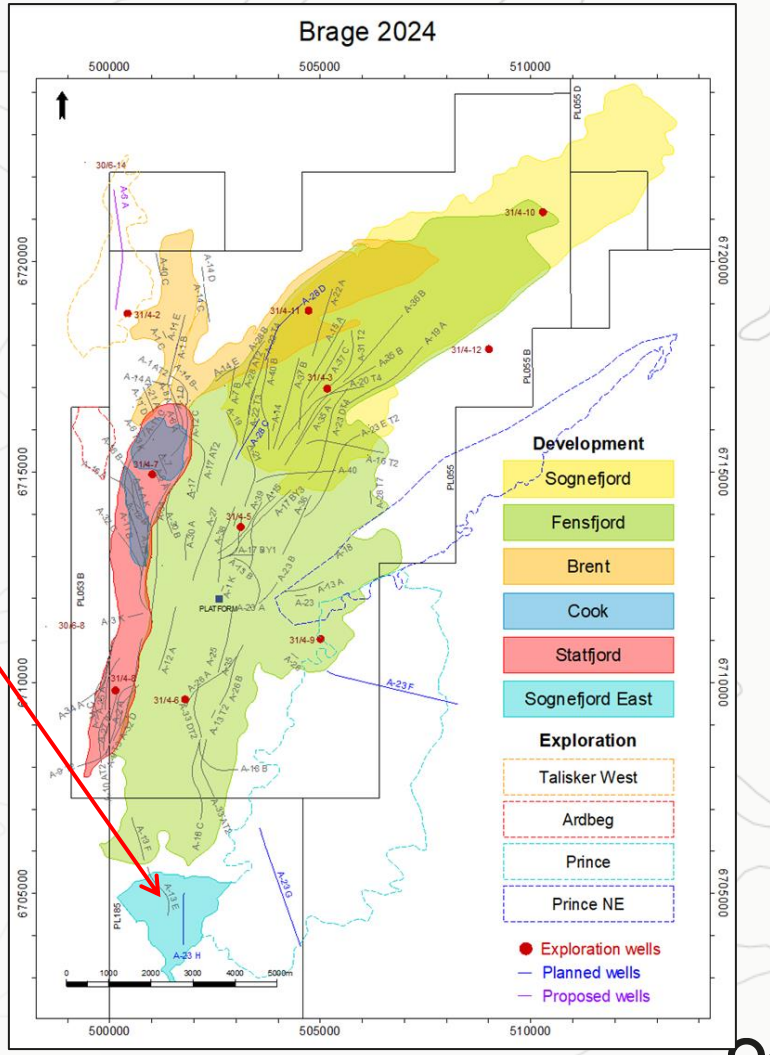
Kim Discovery
Pilot from A-13 F producer



Over **60%** of production coming from new discovered areas

Agile and Adaptable Operation





A-13 D: Production well in Fensfjord with exploration pilot to Kim prospect

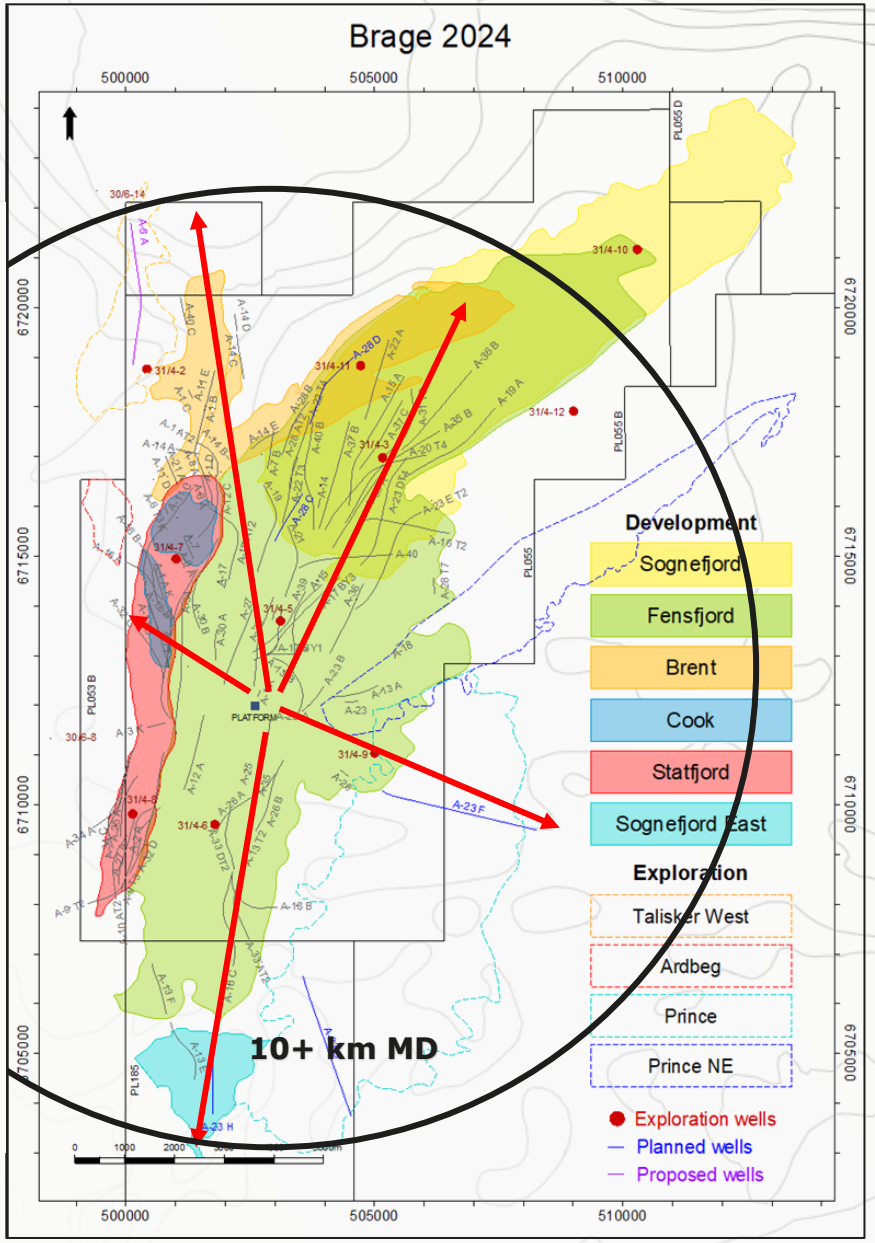
A-13 E: Open hole sidetrack: Investigate High resistivity feature observed on Geosphere in A-13D

A-13 F: Open hole sidetrack: Redrill Target T2 in A-13D

Technology Enablers – Geosphere

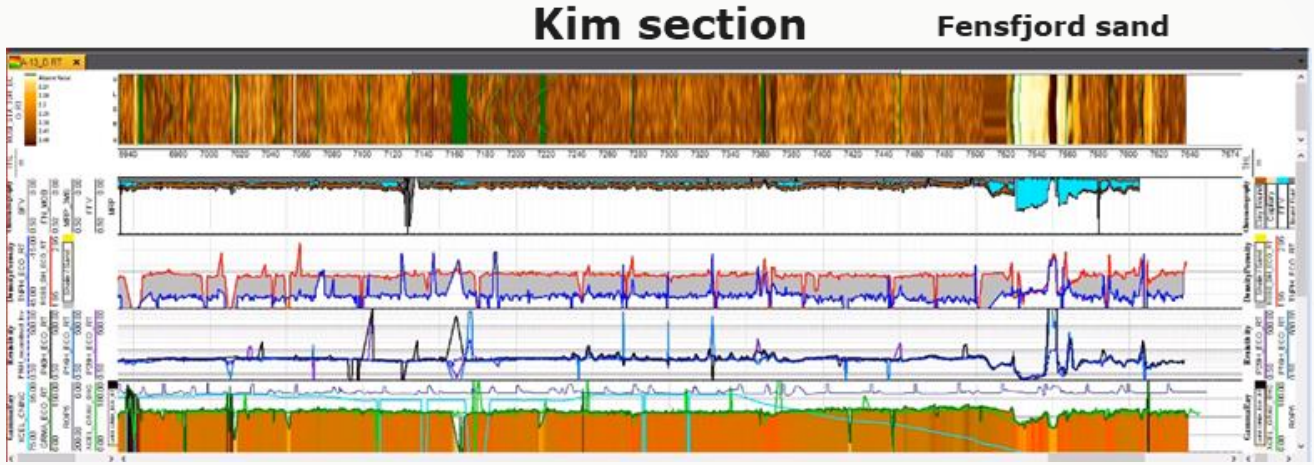
- Challenge:
  - Most oil in thin layers (1-10 m TVD)
  - Horizontal wells with water lock
  - Art of right placement of wells

- GeoSphere measures resistivity (hydrocarbon presence) above and below the wellbore
- GeoSphere technology main tool to steer accurately towards and within thin reservoirs, but also a tool to discover additional reserves near the bit
- Geosteering without Geosphere (only from composite logs) has limtations

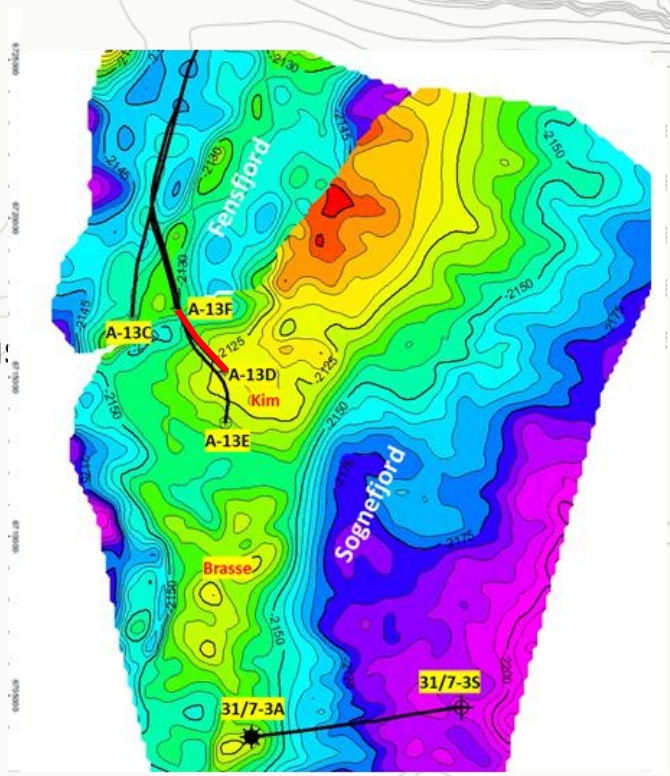


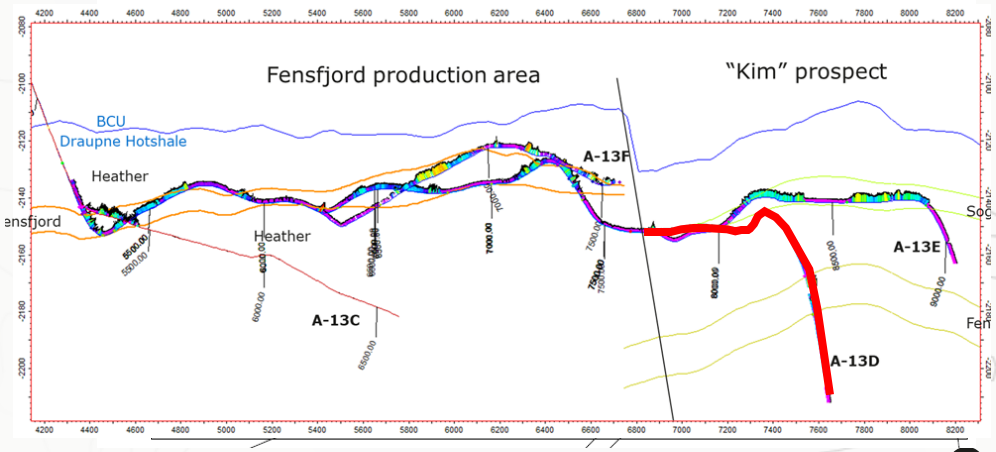
Kim Discovery Story: A-13 D and A-13 E

- A-13 D - Exploration well to the Kim prospect
- Drilled into Heather Fm. after bounding fault - No Sognefjord sands detected on logs
- Set TD and leave the area
- BUT…



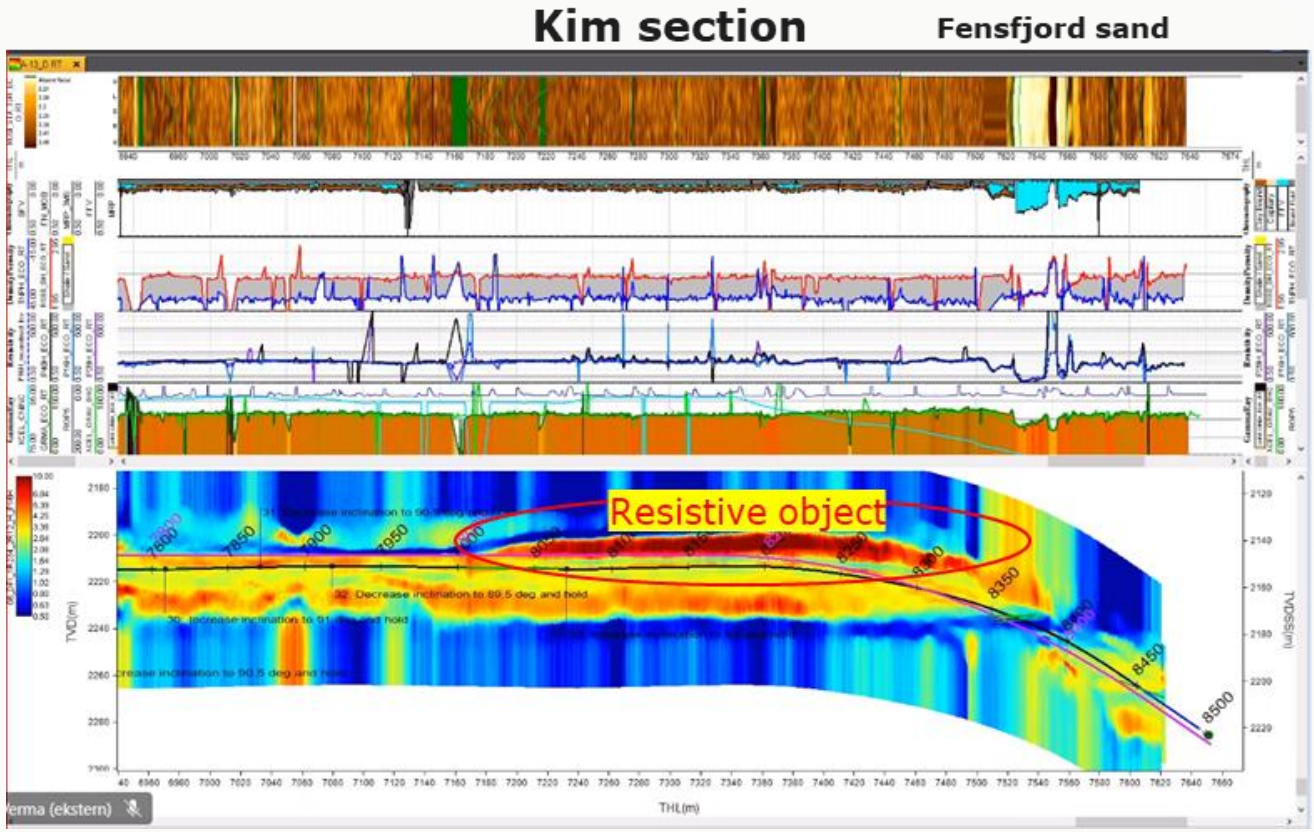
Composite logs along wellbore

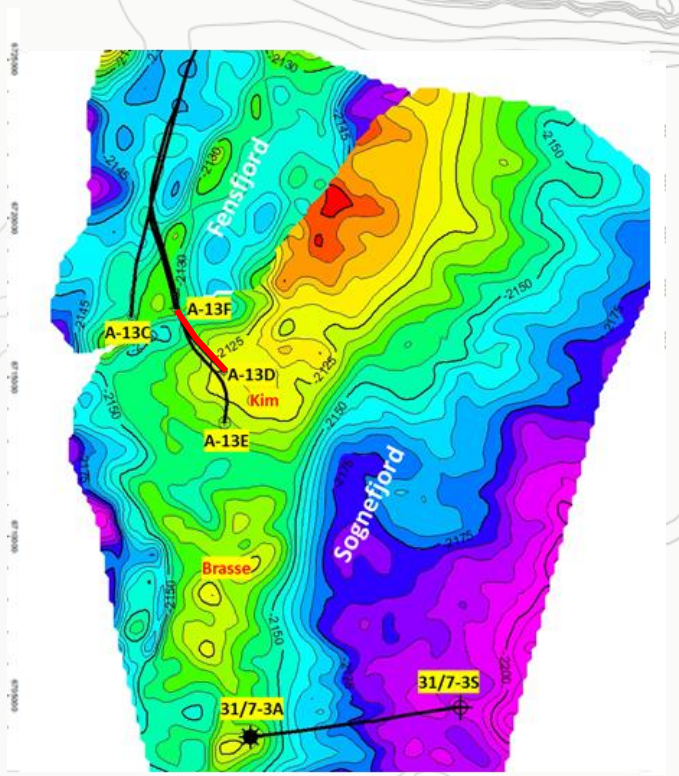


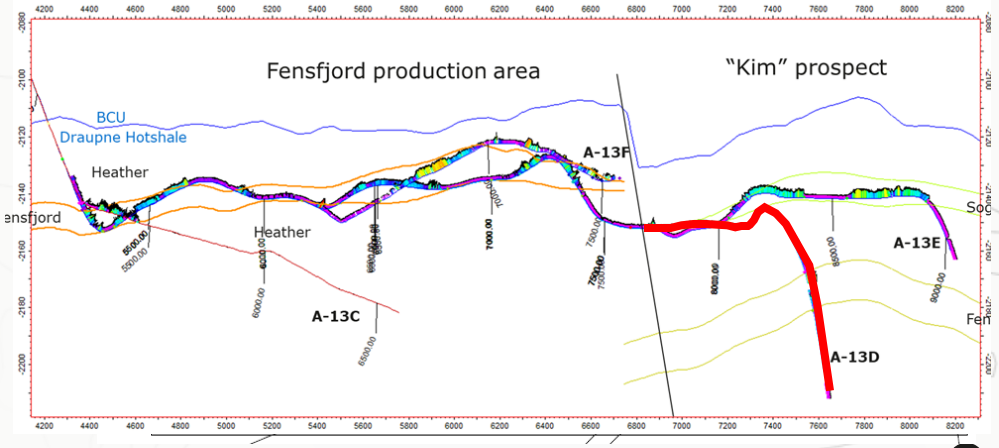


Kim discovery - A-13 D and A-13 E

- … Geosphere observed a high resistive object 5-10 m above the well bore
- Performed open hole sidetrack to test resistivity object → A-13 E

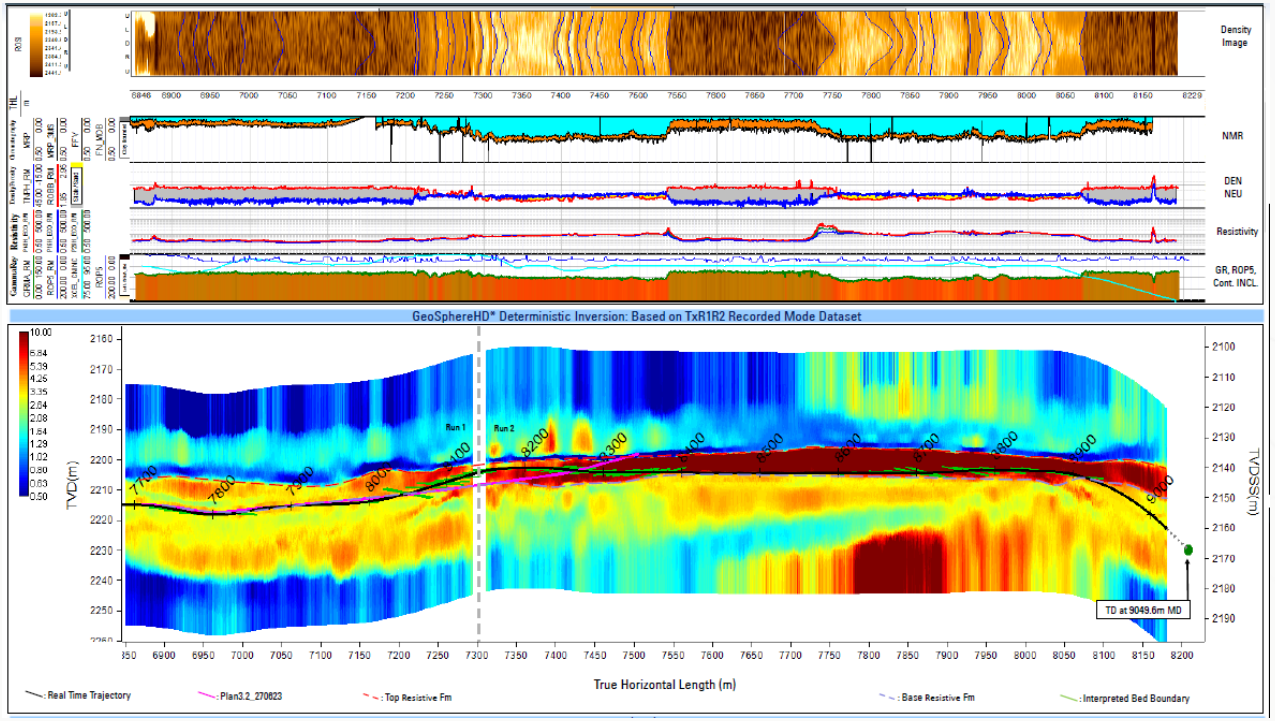


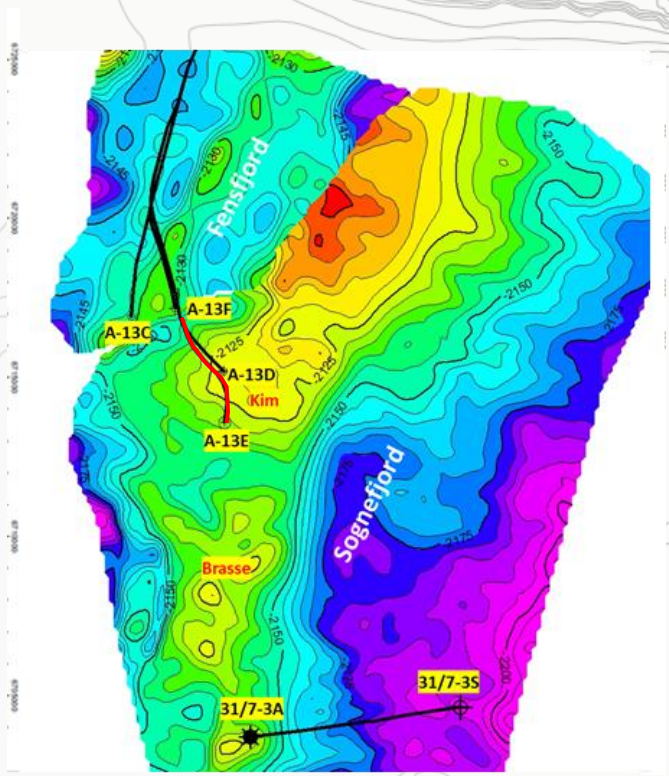


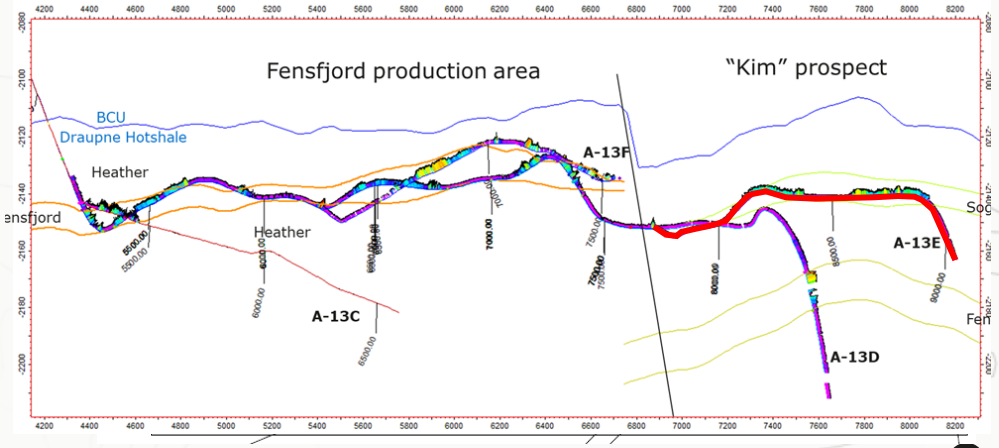


Kim discovery - A-13 D and A-13 E

- A-13 E – Kim discovery well
- Geosteered towards the high resistive object observed in A-13 D
- The well entered the object from below and logs and pressure observed oil filled sand, interpreted to be the Sognefjord Fm.

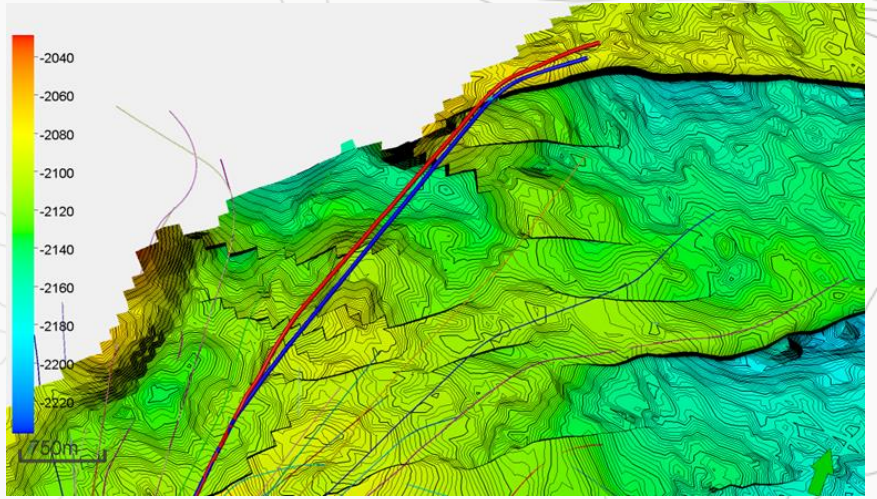


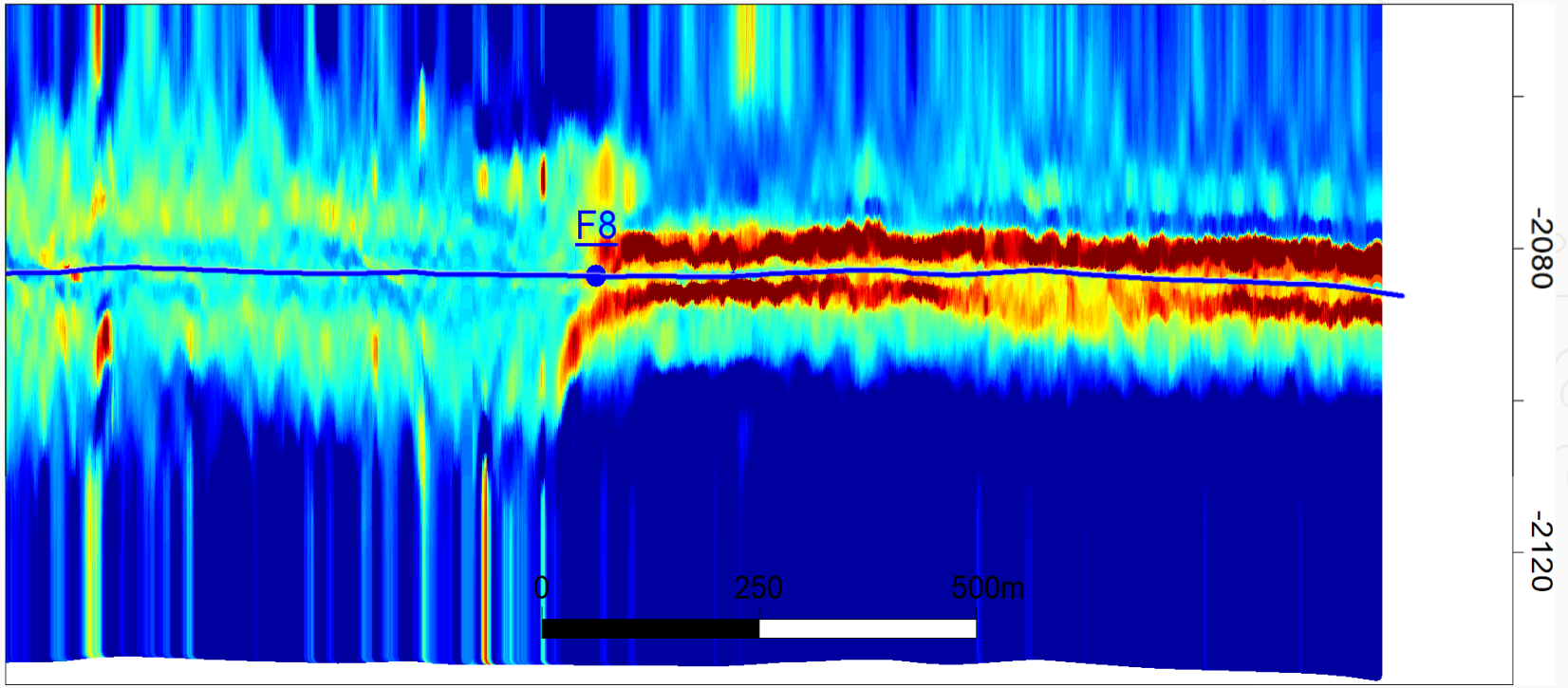




Fensfjord producer A-28 DT2

- Geosteered in thin reservoir (0.5-2 m TVD) between two calcite layers.
- Proactive geosteering contributed to optimal well placement, with calcite nodules being avoided resulting in a high net-to-gross ratio/shorter section length



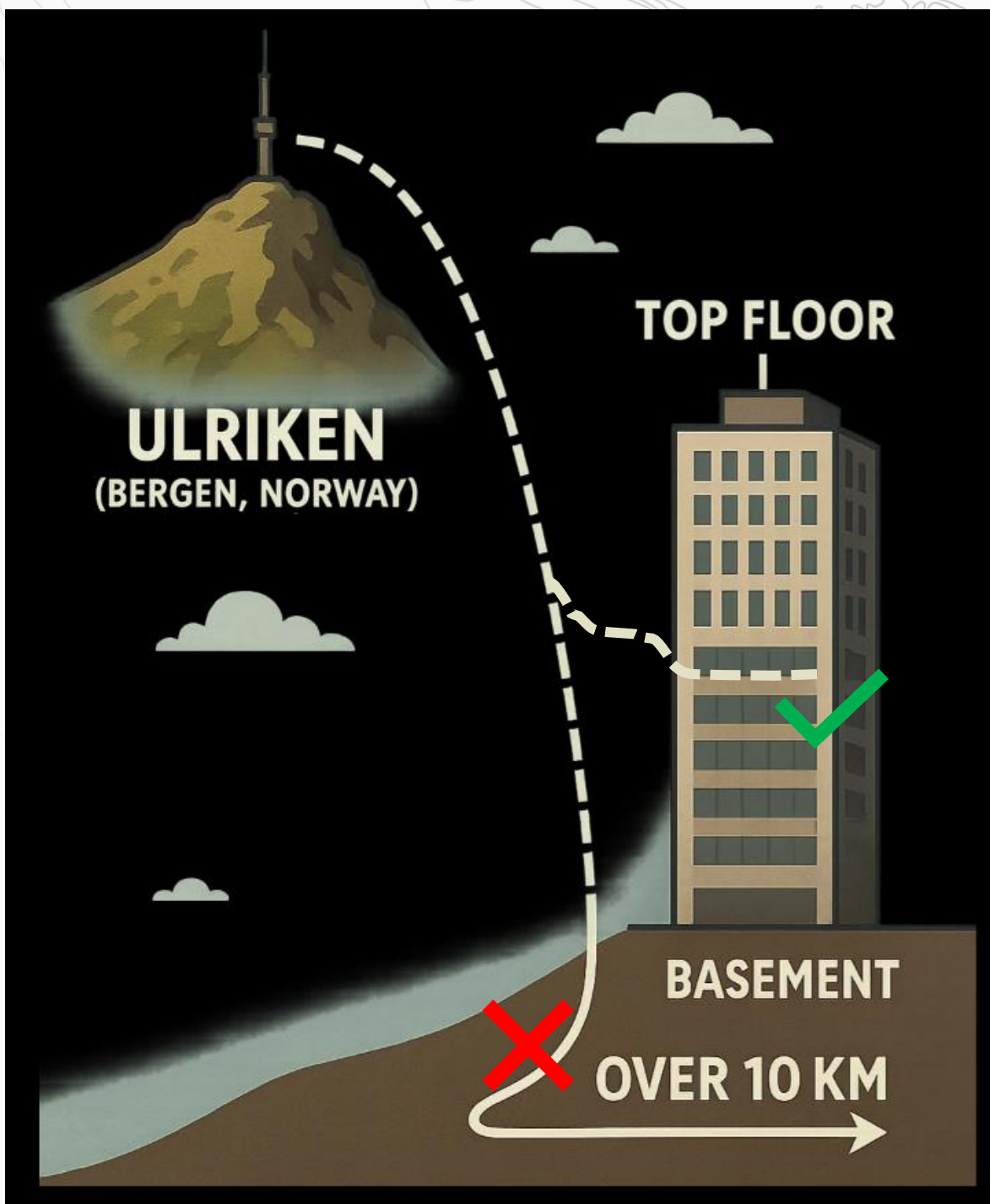


Drilling Longer Wells (ERD wells)

- More and more ERD wells drilled in Brage
- Brage A-23 F/G/H - Geosteering with supreme precision down to 10.023 m

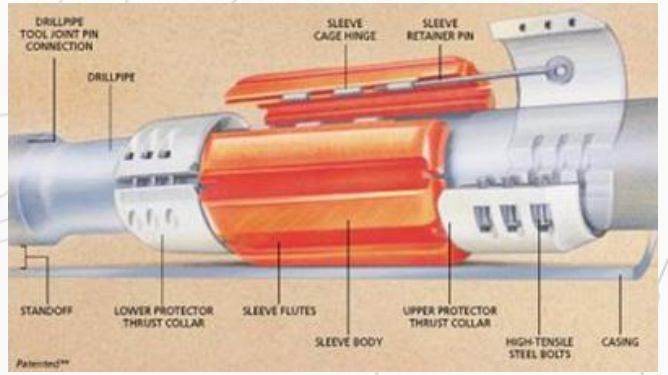
Wells exceeding 9000 m MD on NCS (from total 5881 wells)

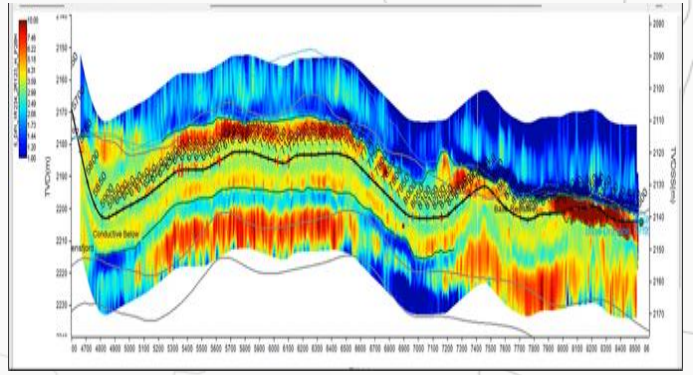
Rank	Well	Operator	Field	Year	mMD	Drilling facility
1	31/2-D-6 BY3H	Equinor Energy AS	TROLL	2023	10200	TRANSOCEAN ENDURANCE
2	31/3-S-23 CY3H	Equinor Energy AS	TROLL	2021	10042	TRANSOCEAN ENDURANCE
3	31/4-A-23 G	OKEA ASA	BRAGE	2025	10023	BRAGE
4	31/2-P-14 DY2H	Equinor Energy AS	TROLL	2022	10014	TRANSOCEAN EQUINOX
5	30/9-B-47	Equinor Energy AS	OSEBERG	2004	10007	OSEBERG B
6	31/3-S-23 CY2H	Equinor Energy AS	TROLL	2021	10003	TRANSOCEAN ENDURANCE
7	31/5-I-21 DY1H	Equinor Energy AS	TROLL	2022	9929	TRANSOCEAN ENDURANCE
8	34/10-A-32 C	Equinor Energy AS	GULLFAKS SØR	2008	9910	GULLFAKS A
9	31/2-P-14 DY1H	Equinor Energy AS	TROLL	2021	9698	TRANSOCEAN EQUINOX
10	31/2-D-1 CY3H	Equinor Energy AS	TROLL	2022	9686	TRANSOCEAN ENDURANCE
11	31/4-A-23 H	OKEA ASA	BRAGE	2025	9646	BRAGE
12	15/9-A-14 A	Equinor Energy AS	SLEIPNER ØST	2008	9661	SLEIPNER A
13	31/2-D-1 CY2H	Equinor Energy AS	TROLL	2022	9392	TRANSOCEAN ENDURANCE
14	31/3-S-23 CY1H	Equinor Energy AS	TROLL	2021	9374	TRANSOCEAN ENDURANCE
15	30/6-C-26 A	Equinor Energy AS	OSEBERG	1995	9327	OSEBERG C
16	31/2-L-24 EY2H	Equinor Energy AS	TROLL	2021	9299	TRANSOCEAN EQUINOX
17	31/4-A-40 C	OKEA ASA	BRAGE	2023	9247	BRAGE
18	31/2-L-24 EY3H	Equinor Energy AS	TROLL	2021	9168	TRANSOCEAN EQUINOX
19	31/2-L-24 EY1H	Equinor Energy AS	TROLL	2021	9109	TRANSOCEAN EQUINOX
20	34/8-A-6 AH	Equinor Energy AS	VISUND	2005	9082	VISUND
21	31/4-A-13 E	OKEA ASA	BRAGE	2023	9050	BRAGE
22	31/4-A-36 B	Wintershall Norge AS	BRAGE	2019	9023	BRAGE
23	31/2-M-13 BY3H	Equinor Energy AS	TROLL	2021	9022	TRANSOCEAN ENDURANCE

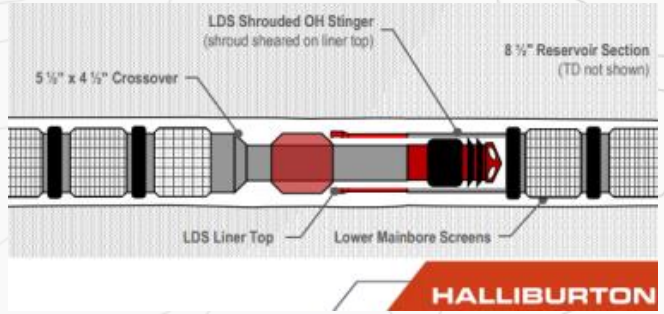


Drilling Technology for ERD Wells

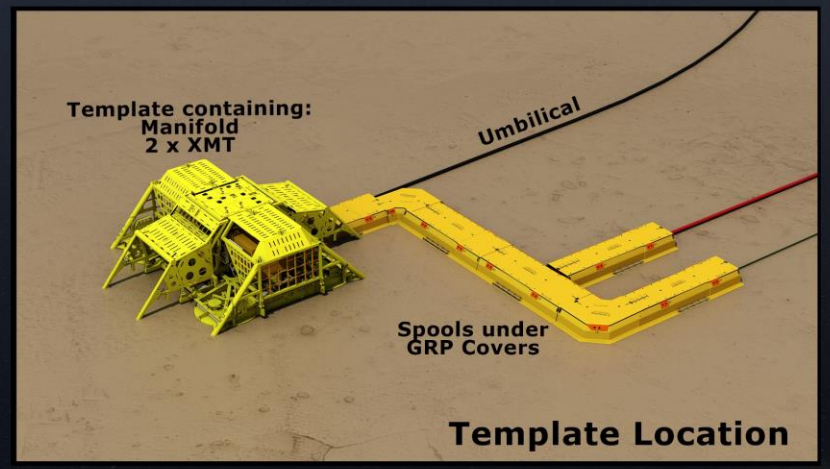
- SLB Rheguard Prime OBM
  - Flat rheology - improves ECD/pump pressure, TnD, wellbore stability and mitigates sag
- SLB Stream (AI empowered telemetry)
  - Enabled reliable and high-resolution Geosphere HD data transfer while geosteering
- SLB OptiDrill: Real-time drilling intelligence service monitoring BHA and drilling parameters
- FlairFlex real-time formation evaluation and reservoir characterization supported geosteering.
- Rotation swivels for liners and lower completion
  - Enabling overcoming friction in the wellbore by rotating the landing string
- SLB K&M ERA simulation software
  - The increase in Brage's drilling range/envelope was planned with ERA as OKEAs main TnD simulation software.



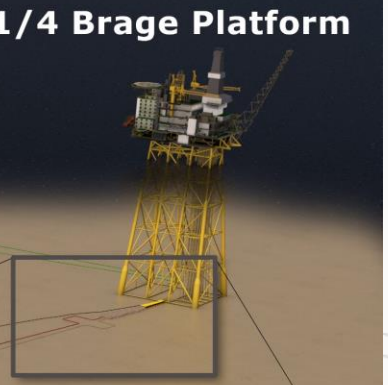


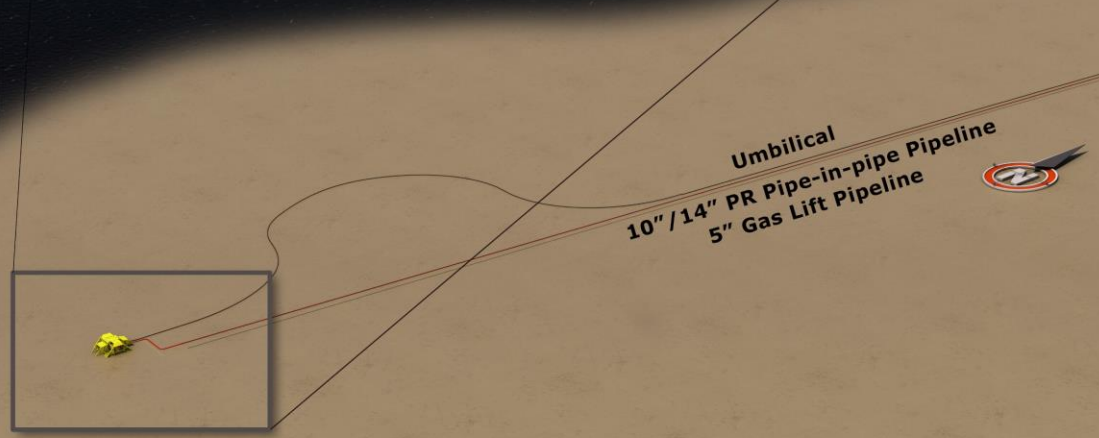


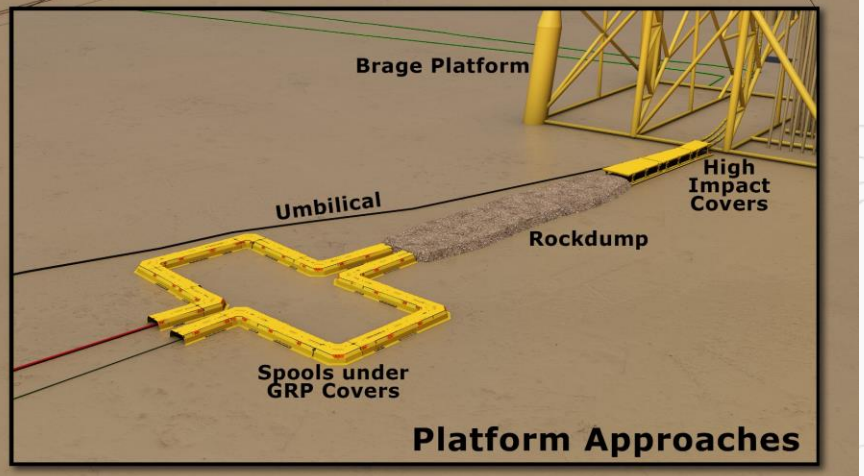
Brage Further Development – Bestla development

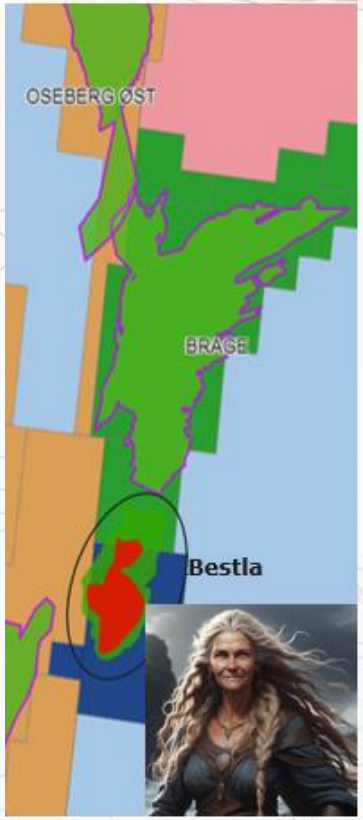


- 24 million boe estimated
- Expected to come on stream during the first half of 2027







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EST - 1971
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