

# 3M™ Ceramic Sand Screens for open hole applications. Wintershall Dea operated Dvalin field

## Why 3M Ceramic Sand Screens (CSS)?

Production rates were estimated to be approximately 3 MSM<sup>3</sup>/day per well with a worst-case scenario of 90% contribution from a 2 metre interval, so a highly erosion resistant solution was required.

After installing CSS Wintershall Dea stated, "Field production is meeting expectations and producing at maximum capacity. This was achieved by optimising production of the individual wells, offering flexibility at a field monitoring level whilst producing at maximum field capacity."

## The customer challenge

Mitigate high erosion risk caused by prolific flow rates from thin high permeability zones.

## Customer key decision drivers

- ▶ The most erosion resistant and cost-effective sand control
- ▶ Subsea field development requiring low risk of intervention
- ▶ Standardised solution for all wells
- ▶ Challenges of high temperature on completion fluids
- ▶ Reduce rig time, offshore personnel and equipment
- ▶ Assess erosion risks for different stages of field
- ▶ Limit constraints imposed by traditional sand control methods
- ▶ Resist corrosive properties of reservoir fluids

## Solutions

Installed standalone 3M™ Ceramic Sand Screens with 7.88" OD, 5.5" 26# base pipe, 13CRS110, VAM TOP HC with zonal isolation packers in planned production zones.

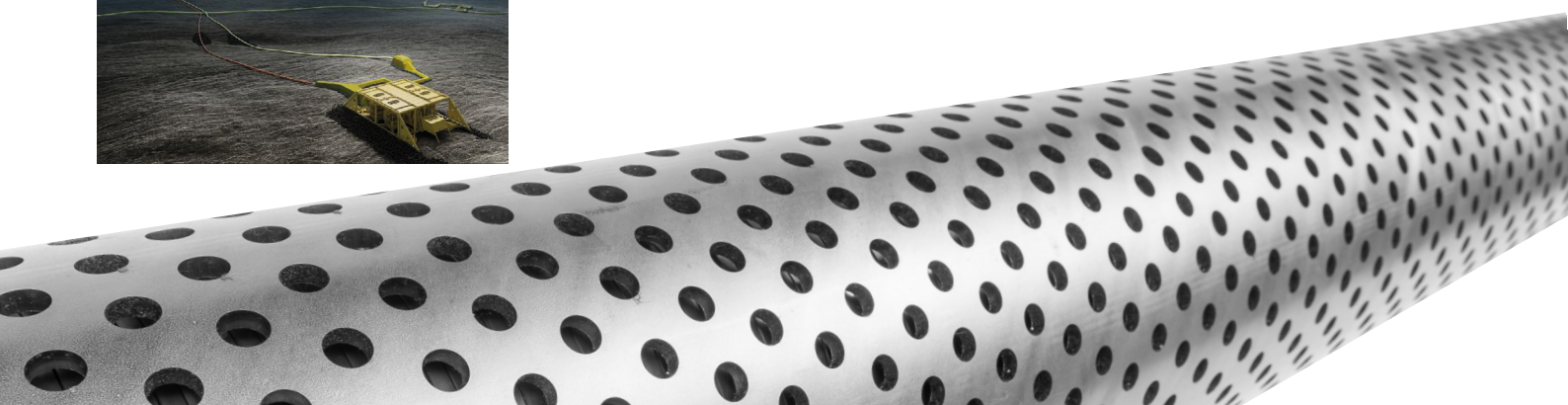
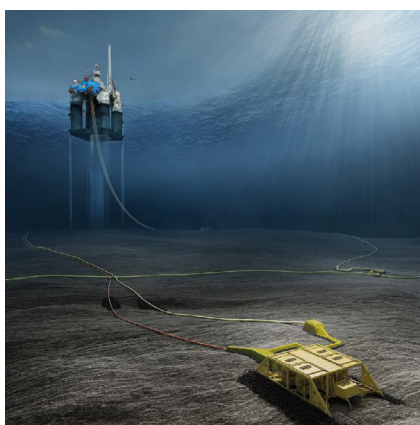
Real-time decision to increase the length of production zone was completed using back-up 3M™ Ceramic Sand Screens 5.528" OD, 3.5" 9.2# base pipe, 13CRS110, VAM TOP HC.

## Results

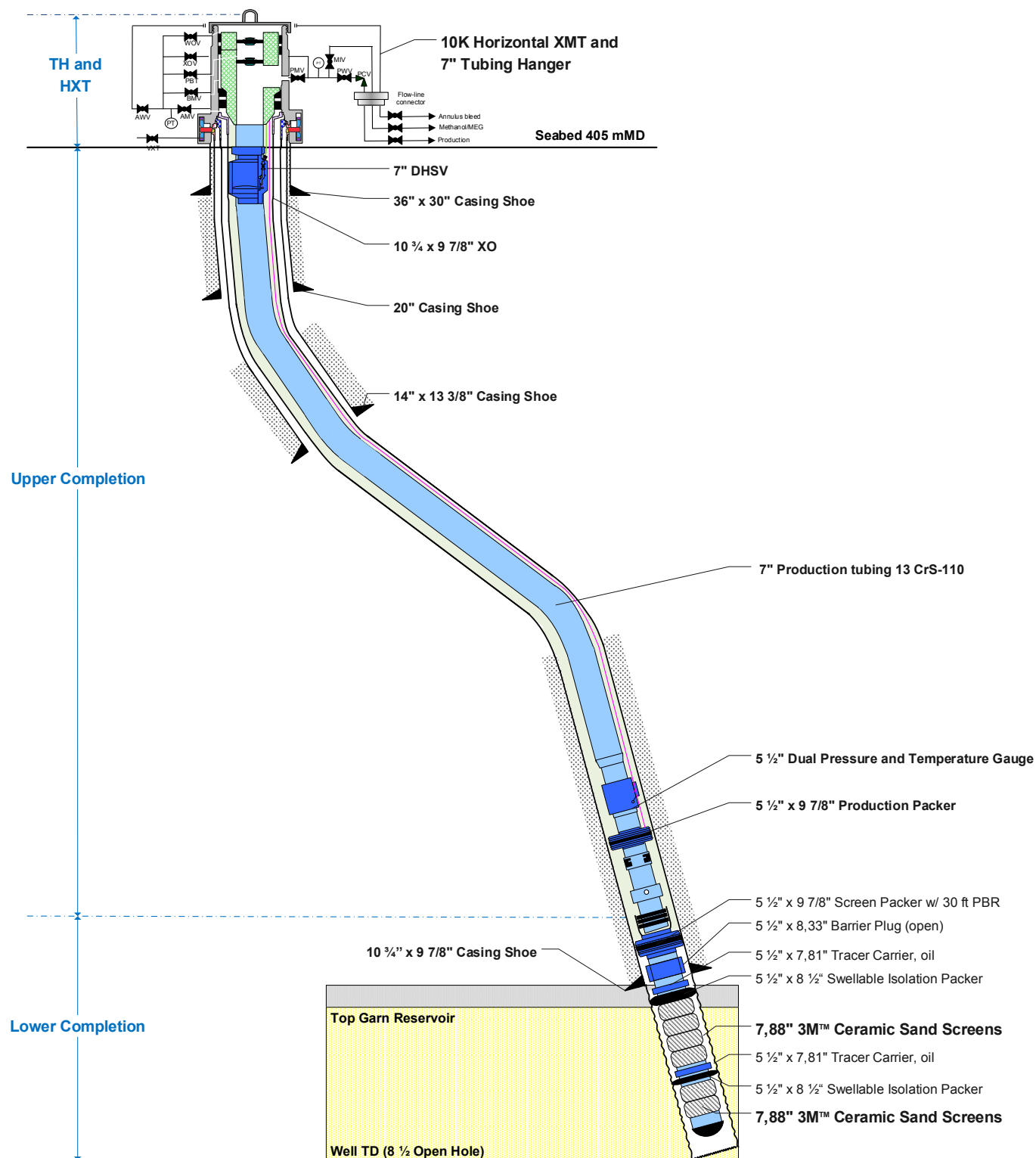
CSS successfully installed in all four wells in 2020 without any downtime.

Post installation erosion assessment of CSS validated erosion resistance at higher than planned flow rates.

Production started in Q3 2023 with individual wells producing up to 4.5 MSM<sup>3</sup>/Day – significantly above the nominal rates.



# Dvalin well schematic



## 3M™ Ceramic Sand Screens

Maximum OD 7.88 (5 1/2 26#, 13CRS110 base pipe) – 2. modules/joint

Property	Typical values
Approximate overall length [ft]	32.48
Maximum outer diameter [inch]	7.88
Inner diameter [inch]	4.548
Overall make up length [ft]	32.06
Tong area: pin side/box side [ft]	3.95/5.58
Total weight per joint [lbs]	~ 1500
Number of modules per joint	2
Screen's jacket length [ft] end cap to end cap	21.64
Effective filter length [ft]	19.68
Standard slot opening [µm]	400
Minimum burst pressure [PSI]	1500
Minimum collapse pressure [PSI]	4500
Dog leg severity [°/100ft]	8.0
Screen steel parts metallurgy	Alloy 825/Alloy 718
Filtering material	3M™ Silicon Carbide
<b>Base pipe specification</b>	
Outer diameter [inch]	5 1/2"
Weight (pounds per feet)	26.00
Material	Super Cr13
Yield strength [KSI]	110
Perforations diameter [inch]	0.492
Perforations per feet	38
<b>Connections</b>	
Upper connection	Box
Lower connection	Pin
Connection type	VAMTOP HC 5 1/2"

## 3M™ Ceramic Sand Screens

Maximum OD 5.528" (3 1/2." 9.2#, 13CRS1-10 base pipe) – 2 modules/joint

Property	Typical values
Approximate overall length [ft]	32.48
Maximum outer diameter [inch]	5.528
Inner diameter [inch]	2.992
Overall make up length [ft]	32.22
Tong area: pin side/box side [ft]	4.11/5.89
Total weight per joint [lbs]	~ 700
Number of modules per joint	2
Screen's jacket length [ft] end cap to end cap	21.64
Effective filter length [ft]	19.68
Standard slot opening [µm]	400
Minimum burst pressure [PSI]	1500
Minimum collapse pressure [PSI]	4500
Dog leg severity [°/100ft]	8.0
Screen steel parts metallurgy	Alloy 825/Alloy 718
Filtering material	3M™ Silicon Carbide
<b>Base pipe specification</b>	
Outer diameter [inch]	3 1/2"
Weight (pounds per feet)	9.2
Material	Super Cr13
Yield strength [KSI]	110
Perforations diameter [inch]	0.492
Perforations per feet	38
<b>Connections</b>	
Upper connection	Box
Lower connection	Pin
Connection type	VAMTOP HC 5 1/2"

## Sand control. Simplified.

Contact us if you need product, technical or application advice or want to collaborate with a 3M Technical Specialist.

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