

“The effective use of Specialized Tools and WARP VERSAPRO* fluid allowed us to successfully run the expandable sand screen and eliminate a cleanout trip, saving approximately 30 hours of rig time.”*

Operator Sr. Completions Engineer

Well Information

Location Offshore Malaysia
Well type..... Deepwater producer
Completion type..... 150-micron openhole expandable sand screens
Water depth 4285 ft (1306 m)
Well depth, measured depth 10,443 and 14,337 ft (3183 and 4370 m)
Well depth, true vertical depth..... 8727 and 10,026 ft (2660 and 3056 m)
Section drilled 1217 and 777 ft (371 and 237 m)
Hole size 8½ in.
Maximum hole angle 65 and 71°
Maximum bottomhole temperature 170 and 190°F (77 and 88°C)
Mud weight..... 10.4 and 11.1 lb/gal (1,246 and 1,330 kg/m³)

The Situation

A 150-micron expandable sand screen (ESS) was selected as the sand face completion type. This screen needed to be run through 4308 ft (1313 m) of 20-in. riser, 9⁵/₈-in. production casing and 8½-in. openhole without plugging the screens. Almost any solid would be coarse enough to plug the screen; barite ground to API specifications would also plug this fine-mesh screen. In addition to the plugging challenge, the completion assembly needed to be run to TD through an 11.1-lb/gal and an 10.4-lb/gal oil-base mud, respectively. Use of a water-base system would create emulsification problems with produced hydrocarbons.

The Solution

WARP VERSAPRO and Specialized Tools were recommended for use as an effective combination to clean the casing, the riser and leave a fluid which would allow the efficient running of the screens. The fluid technology, which uses weighting agents ground to 1/50th of their original size, has been shown to eliminate sag and other technical and HSE problems encountered with conventionally weighted drilling/completion fluids.

The Results

The combination of the Specialized Tools and WARP VERSAPRO fluid enabled the operator to effectively run the ESS. Through the effective and engineered use of the BRISTLE BACK* Riser Brush tool and WARP VERSAPRO fluid in combination to reach the desired cleanliness criteria the need for a dedicated riser displacement tool was eliminated. By eliminating this single trip an estimated 30 hr of rig time were saved. This effective combination has been used on two wells, allowing the ESS to be successfully installed while eliminating a dedicated riser displacement tool run. Both wells were brought online with expected or better than expected results.



The Details

The M-I SWACO Specialized Tools engineer cleaned the riser while rotating at 80 rpm and reciprocating down to the flex joint of the BOP stack. The tool string was run successfully to plug back total depth with no loss of time and recovered 3.5 kg of cement and metallic debris specifically from within the riser.

Wellbore Clean String Configuration

8½-in. rock bit	9⅝-in. RAZOR BACK* CCT	X Over
Bit sub	9⅝-in. BRISTLE BACK CCT	16-in. SABS*
8½-in. watermelon mill	X Over	X Over
5⅞-in. drill pipe	5⅞-in. drill pipe	5⅞-in. drill pipe
9⅝-in. HEAVY DUTY RAZOR BACK* CCT	X Over	X Over
9⅝-in. BRISTLE BACK CCT	9⅝-in. RAZOR BACK CCT	BRISTLE BACK Riser Brush
9⅝-in. MAGNO BACK* CCT	9⅝-in. BRISTLE BACK CCT	9⅝-in. MAGNO BACK*
X Over	9⅝-in. WELL PATROLLER*	X Over
5⅞-in. drill pipe	X Over	5⅞-in. drill pipe to surface
X Over	5⅞-in. drill pipe	

Table 1 – Drilling Fluid Properties

	Specifications	Initial	TD
Mud Weight (lb/gal)	11.0–11.4	11.1	11.1
6 rpm (Fann 35 @ 50°C)	3–4	3	3
10 min gel		5	6
PV (cP)	ALAP	19	23
YP (Pa)	7–10	7	7
HTHP FL @ 250°F (mL)	< 4	< 4	< 4
OWR	70:30–75:25	71:29	71:29
Salt (mg/L Br ₂)	160,000	166,500	162,000
ES (v)		258	410

Questions? We'll be glad to answer them.

If you'd like to know more about the Specialized Tools line or WARP Advanced Fluids Technology and how they are performing for our other customers, please call the M-I SWACO office nearest you.



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