CASE STUDY

MEGADRIL drills the longest extended-reach well in North America

"We now have successfully landed the 9 5/8-in. liner. I personally have been involved with a number of world records over the years, but this accomplishment in my book far exceeds all of these."

Operator's Drilling Operations Superintendent

Well Information

Location	Offshore, US
Date	October 2009 - January 2010
Total Depth	over 37,000 ft (11,277 m)
Intervals drilled	over 26,800 ft (8,168 m) of 12 ¼-in. hole
	over 2,200 ft (670 m) of 8 ½-in. hole (to TD)
Well type	Extended-Reach 0° – 88° – 45° (at TD)
Disposal method	CRI

The Situation

The operator programmed an extended reach well that posed a number of technical demands, including an extremely long 27,274 ft (8,301 m) 9 5/8-in. liner in the 12 ¼-in. hole. In addition, the well was designed with more than 6.3 miles (10.14 km) of lateral offset, which was restricted by extremely limited deck space and pit capacity on the rig.

The Solution

M-I SWACO recommended the MEGADRIL* oil-base drilling fluid system with MEGAMUL*, a single-drum emulsifier/wetting agent package that simplifies maintenance, logistics, and reduces inventory on location.

MEGADRIL is engineered to provide a stable emulsion, inherent low HTHP filtrate and lower rheological properties than a traditional invert-emulsion system, which combines to lower pump pressure and ECDs. Consequently, MEGADRIL is the preferred system when tight emulsions and thinner fluids are required. The system already had been proven to be effective over a wide range of temperatures, densities and oil-water ratios in over two hundred vertical and deviated wells.

The Results

- Successfully drilled the longest extended well in North America
- World's longest extended-reach well drilled from an offshore fixed platform drilling rig.
- Extremely fast drilling process and high quality wellbore saved 90 days drilling time
- Reduced well AFE by 20%
- Zero environmental incidents

The Details

In this area, the operator relies on rig site mud engineering consultants. Accordingly, M-I SWACO worked very closely with the operator's drilling team and the mud engineering consultants for the entire duration of the project. Mud samples were shipped from the rig site to M-I SWACO regional technical support lab every two to three days for HTHP rheology testing. Afterwards, M-I SWACO Technical Services in Houston used the results to better calibrate the VIRTUAL HYDRAULICS* wellbore simulator to accurately monitor the downhole cleaning, ECD's and ESD's.

Based on the very frequent HTHP rheology tests and the VIRTUAL HYDRAULICS hole cleaning simulations, the rheological properties of the fluid were lowered to the point of providing very good ECD and SPP without compromising the cuttings carrying capacity. The high quality wellbore and its cleanliness were confirmed by running the 27,274 ft. (8313 m) of 9 ⅝-in. liner in the 12 ¼-in. intermediate hole problem-free to TD.

Mud Weight	Plastic Viscosity	Yield Point	6-rpm	10 sec Gel	10 min Gel	HTHP FL	Electrical Stability	LGS %
(lb/gal/sg)	(cP)	(lb/100 ft²)	(lb/100 ft²)	(lb/100 ft²)	(lb/100 ft²)	(ml/30 min)	(Volts)	(%)
10.65/1.27	22	23	21	21	32	12.1	285	1.86
10.65	24	20	17	18	25	11.7	284	3.23
10.65	24	21	19	22	27	11.5	308	1.45
10.4/1.24	23	21	20	19	26	11	662	2.49
10.2/1.22	21	19	15	17	22	11.5	645	1.9
10.3/1.23	26	17	17	20	26	3	972	2.42
10.35	23	19	16	21	28	3.4	848	3.49
10.4	24	16	15	20	31	3.2	726	6.99
10.5/1.26	29	17	13	17	27	2.6	669	6.32
10.35/1.24	26	15	14	15	27	2.6	660	5.73
10.35	28	18	12	18	28	2.4	658	6.89
10.35	27	15	12	16	31	2.4	658	7.11
10.4	27	18	13	18	29	2.4	708	7.98
10.4	29	20	12	12	24	3	709	6.96

Table 1. The main mud properties while drilling the 12 ¼-in interval shown every 2500 ft (762m). The rheological properties presented were measured with Fann 35 Rheometer @120°F (49°C)

Questions? We'll be glad to answer them.

If you'd like to know more about the MEGADRIL system and how it's performing for our other customers, please call the M-I SWACO office nearest you.

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