

# CASE HISTORY

## MagTraC MWD RANGING™ AVOIDS COLLISION AND PLACES WELLBORE

### APPLICATION

Collision Avoidance and Close Proximity Drilling

### TECHNOLOGY

MagTraC MWD Ranging™

### LOCATION

Denmark

### CUSTOMER CHALLENGE

The 12-1/4" and 8-1/2" intervals of a planned well were to be drilled in close proximity (SF < 1.0) to three offset wells ("A", "B", and "C"). To avoid collision with the high angle offset wells ("B" and "C"), the plan was to detect and approach Well "A" in the 12-1/4" section with a low angle of approach (< 10°). After detecting Well "A", the new well would twin Well "A" to mitigate the collision risk at higher inclinations with Well "B" and Well "C" in the 8-1/2" section.

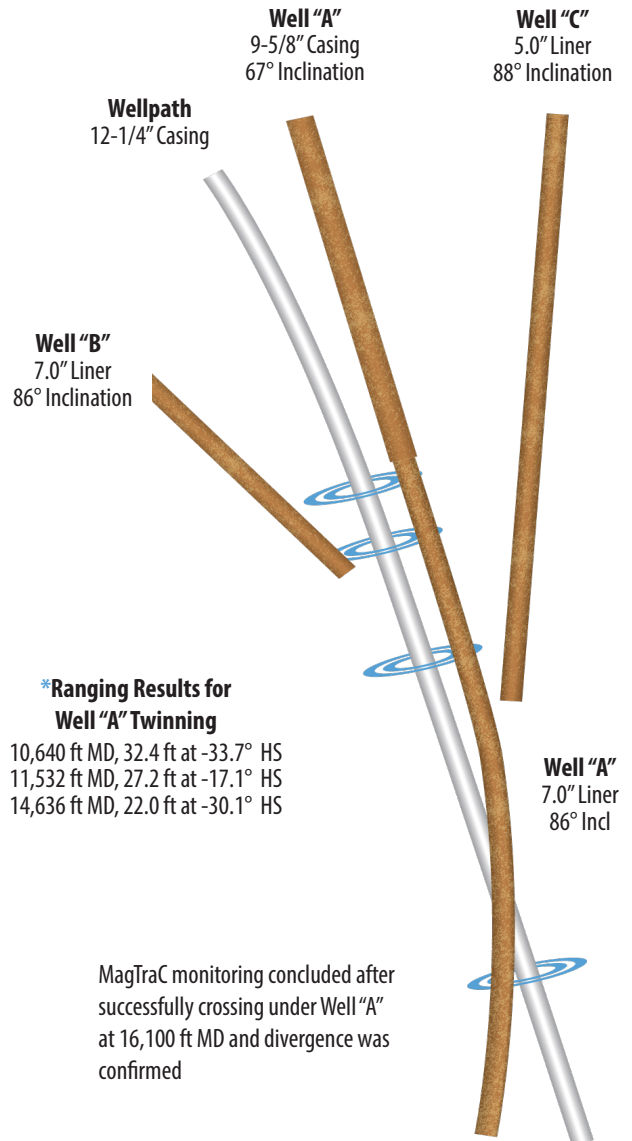
### SCIENTIFIC SOLUTION

**12-1/4" Section:** MagTraC monitoring began at 8,100 ft MD (SF < 1.0) on the approach toward Well "A", which was initially detected at 10,640 ft MD (9-5/8" casing). Based on MagTraC data and existing surveys of Well "A", the well was steered closer to Well "A" so that it could be twinned, using MagTraC, to maintain the desired offset until TD of the 12-1/4" section at 11,570 ft MD.

**8-1/2" Section:** After setting casing and drilling out, MagTraC service continued to monitor/range the twinning operation. After the collision risk with Well "B" had passed, at approximately 13,780 ft MD, the well was geosteered away from Well "A" so the reservoir could be explored across the different layers. MagTraC monitoring continued during geosteering and was then utilized to guide the well back to continue twinning Well "A" again at 14,380 ft MD, to reduce the collision risks for the close approach interval of Well "C". After successfully avoiding Well "C" to the desired depth (15,780 ft MD), the well was steered to the left and crossed below Well "A" at approximately 16,100 ft MD. MagTraC monitoring ceased after Well "A" was crossed and divergence confirmed end of collision risk.

### CUSTOMER VALUE

MagTraC MWD Ranging™ enabled successful execution of an extremely complex well plan by mitigating the collision risk associated with three close offset wells. Scientific Drilling used MagTraC to range, monitor, and avoid, while drilling over 5,000 ft of hole, and provided safe and efficient drilling. Additionally, since Well "A" was a good producer, drilling the new well in close proximity to it across certain intervals ensures improved productivity of oil recovery.



**Well "A" Collision Avoidance**  
SF<1.0 from 8,100 ft to 16,800 ft MD

**Well "B" Collision Avoidance**  
SF<1.0 from 13,680 ft to 13,740 ft MD

**Well "C" Collision Avoidance**  
SF<1.0 from 14,380 ft to 15,780 ft MD