

Reference:

UBD - Live well drilling and completion

Challenging drilling environment – maximize well performance

4½" UBD Liner installation

Background

During managed pressure drilling (MPD) with a conventional drilling rig into a gas bearing formation severe losses were encountered. Surface pressures up to 180 Bar were recorded.

The well was temporarily killed by pumping 250 mT of LCM material and a viscous seal pill and the drilling rig was demobilized. In total 5300 m³ of mud was lost. A HWO/Snubbing operation was required to complete the well.

Objective

The objective was to

- Mill and retrieve bridge plug.
- Drill further into the gas bearing formation.
- Install 4½" liner.
- Install production completion.

Underbalanced well condition had to be expected during all activities.



Execution

- HWO/Snubbing unit was required in order to deal with pressurized well conditions.
- 21m high BOP stack was assembled to lubricate BHA's in- and out of the well.
- Well deepening was conducted utilizing a MWD assembly with a 5 7/8" PDC bit powered by a 4 3/4" GT Motor. The HWO unit rotary table provided additional rotating performance.
- 4½" Liner needed to be deployed under pressure.



Results

- Successfully retrieved bridge plug.
- Sufficient depth was reached to ensure a good producing well. Drilling conditions were harsh as the continuous lost circulation had a negative impact on the total drilling performance.
- 4½" Liner was snubbed in the well under pressure and was successfully installed.
- Successfully installed production completion under dead well conditions.
- Zero incidents and accidents.
- Entire operation was completed in 58 Days.
- Operation was conducted to full customer satisfaction.

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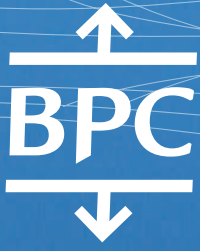
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Reference:

Rig-less abandonment

Rig-less abandonment

Safe and efficient

Background

The platform was located on an old depleted oil field in the Dutch Continental Shelf.

Oil production had ceased. The condition of the platform was such that the owner decided to abandon the wells and to remove the platform.

Hydraulic workover was identified as the most efficient way to cut the casings and conductor of each well below the seafloor.

Objective

The objective was to cut the 13 5/8" casing, the 20" casing and the 30" conductor at 6 meter below the sea-floor and prepare the casings for removal for 11 wells.



Execution

- HWU was required in order to deal with the extreme small space present on the platform and the limited load bearing capacity of the platform.
- The cut was made utilizing a mechanical tubing conveyed rotating cutting device.
- Hydraulic cylinders were used to apply pre-tension on the conductor while cutting.
- The 3 casings were retrieved in one lift utilizing the same crane vessel as used to remove the platform.



Results

- Successfully cut all casings and conductors.
- Technical challenges were the eccentricity of different sizes of casing and the interference of loose sand and items travelling from the sea floor into the wellbore by the open cut.
- No support vessel was required during the cutting operation.
- All tubular was successfully retrieved.
- Zero incidents and accidents.
- Operation was conducted to full customer satisfaction.

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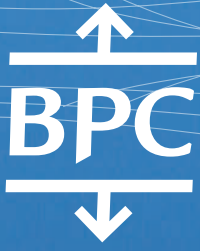
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Reference:

Gas storage well operation

Gas storage well operation in Berlin

Safeguarding a blown out well

Objective

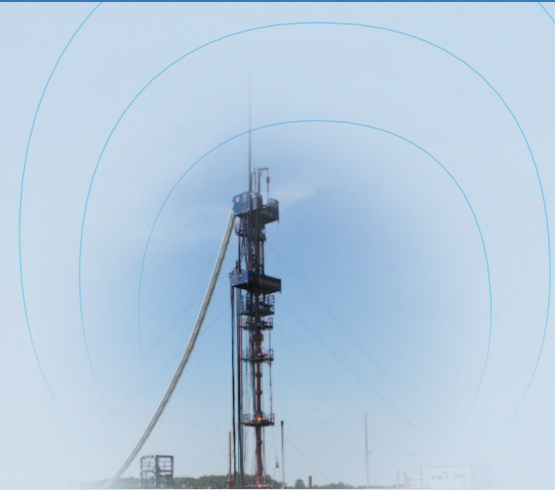
This was a gas storage well that supplied gas to the German capital, Berlin.

A down-hole explosion occurred during regular maintenance, which caused the well to blow out.



This explosion caused major damage to the completion, casing and well-head.

The primary objective was to safeguard the well by charging out the well-head and gaining access to the reservoir.



Execution

- BPC coordinated the entire project.
- The completion was found shattered in pieces, but access to the required depth was achieved.
- Well-head was changed out and the well was secured.

Location

The well side is located on the outskirts of Berlin close to residential areas.

Therefore maximum precautions had to be taken to ensure the safety of the nearby residents:

- Wells located in „cellar“ underneath location.
- Special substructure manufactured to ensure no well-head loading.
- Deluge system and fire monitors rigged up in case of fire.
- Contact with fire brigade on daily basis.
- Location set-up so that all planned activities could be carried out.
- Rig set up so that all scenarios could be handled safely.

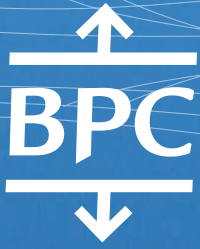
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Reference:

Straddle recovery

Straddle recovery on a Live gas well

Do not kill your well – safe your formation

Background

The well is a gas producer with a deviation of 48° that was completed with 5" completion in 1985.

Well integrity problems forced the operator to shut-in the well and to plan a re-completion workover.

Reservoir condition was such that killing the well would cause a significant production loss due to formation damage.

HWO/Snubbing operation was required to perform the remedial works on the live well.

Objective

The primary objective was to retrieve the 600m long straddle without killing the well on the formation, set a plug in the tail pipe and replacing the leaking Cr-13 completion.

Execution

- HWO/Snubbing unit was required in order to deal with pressurized well conditions.
- 22m high BOP stack was assembled to deal with all challenges present on the live well.
- Straddle pipes and packers were stripped to surface under pressure.
- New CR13 completion was installed without surface pressure.



Results

- Successfully retrieved the 600m long straddle.
- Formation was saved and well was brought into full production.
- Zero incidents and accidents.
- Technical challenges were successfully achieved.

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