



FACT SHEET

HEAVY MUD AND THE RELIEF WELL

Drilling began at 1800 (CST) on 14 September 2009 to drill the relief well to a depth of 2.6km below the seabed to intersect the existing, leaking well and allow for the injection of ‘heavy mud’ directly into the existing well bore to stop the leak of water, gas and oil.

The well will then be considered ‘killed.’

What is the ‘heavy mud’?

‘Heavy mud’ is a mix of water, a natural material called Barite (also known as Baryte in some countries) and polymers (which thicken the mixture), or salt (which can be saturated into the mixture to make it heavier).

Barite is a dense sulphate mineral that can occur in a variety of rocks (including limestone and sandstone) with a range of accessory minerals such as quartz, dolomite and metal sulfides.

Barite is commonly used to add weight to drilling fluid. Its high Specific Gravity assists in containing pressures and preventing blow outs. It is insoluble in water and will sink in the marine environment.

Does it have any environmental impact?

Barite is an inorganic substance which is not expected to be harmful to aquatic life.

How does heavy mud work in this instance?

Barite will be mixed to a heavy mud weight (known as a ‘kill weight’ mud) on the *West Triton* drilling platform, using an onboard mud mixing system.

PTTEP will be making between 4,000 and 6,000 barrels of kill weight mud (between 635,950 litres and 953,900 litres) for the purpose of this operation.

This heavy mud mixture weighs more than oil and gas. It will be pumped from the platform down into the relief well. This therefore creates a hydrostatic pressure greater than that seen in the existing oil/gas/condensate reservoir – that is, it creates a force high enough to push the mud through. With a greater hydrostatic pressure in the well than in the reservoir, the heavy mud will displace the oil/gas/condensate and the flow will stop.

Once a hole has been inserted into the casing, it will take about three hours for the heavy mud to be injected into the well bore to stop the flow of oil and gas.



What happens then?

Monitoring of the *West Atlas* drilling platform and the well will take place for approximately 24 hours to ensure no fluid is lost in the relief well.

The *West Atlas* platform will be re-boarded and a slickline plug will be run into the well. This plug is about 90cm long overall and is lined with a 10-15cm long rubber element that provides a seal and metal slips that anchor the plug in place in the well. This process will take up to four days

Slickline plugs are capable of holding about 7500psi pressure below them.