

Mercury Drill Stem Test



Accurate concentrations of mercury in reservoir fluids are important to facility and process design, especially offshore. Mercury Technology Services (MTS) provides guidance to clients on procedures to measure mercury concentrations in reservoir fluids during drill stem tests. MTS uses proprietary methods and technology to maximize information gleaned from conventional testing approaches thus providing added value and confidence.

Computational Modeling

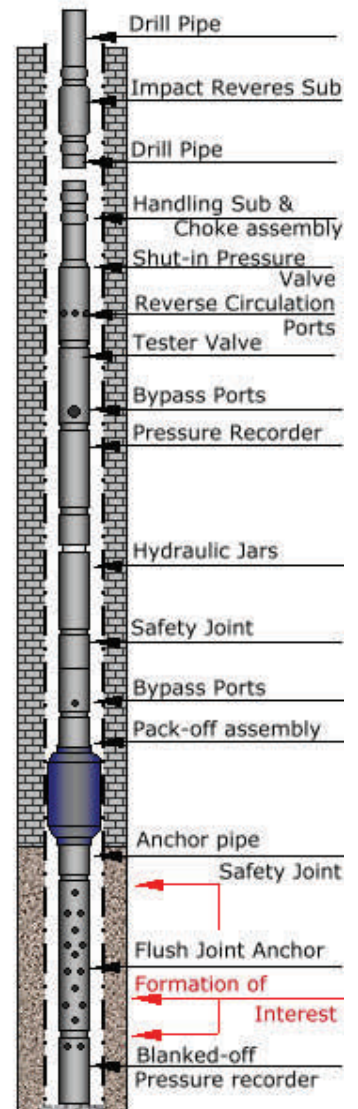
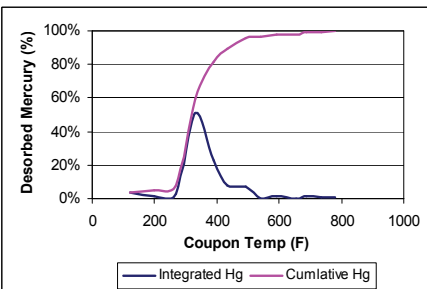
MTS has developed proprietary computational tools to quantify scavenging of mercury by steel tubulars and equipment. The amount of mercury absorbed into steel is a function of temperature, surface area, metallurgy, fluid composition and mercury fluid concentration. From the calculated amounts of mercury in steel, analytical measurements can be adjusted to reflect the actual amounts in the reservoir.

Mercury in Reservoir Fluids

The exact concentration of mercury in newly discovered reservoirs is often elusive. Measurements of mercury at the surface during flow tests or using bottomhole equipment do not reflect actual concentrations because the metallic surfaces that contact fluids scavenge mercury. This results in measured concentrations that are lower than those eventually achieved during actual production. To circumvent these inherent difficulties, special computational tools and measurement procedures have been developed by MTS.

Analytical Services

Low levels of detection for mercury in gas and oil are needed for accurate prediction of reservoir concentrations. MTS offers advice on measuring mercury in gas, oil and water streams to allow prediction of mercury reservoir levels. In addition, MTS can provide analytical methods for speciation of mercury in liquids to assist computational predictions. Advice consists of analytical methods, sampling procedures and detection instruments.



DST Mercury Analysis and Computational Approach

- Detailing tubular and ancillary equipment metallurgy.
- Calculation of surface areas.
- Construction of well temperature profile under flowing conditions.
- Recommend well flow scheme and measurement sequence.
- Calculation of scavenging rates and amounts.
- Specification of analytical procedures.
- Conduct speciation tests to correct background levels
- Review analytical data.

Mercury Species

Not all mercury species are scavenged by metallic surfaces. Measurements of mercury in liquid phase should consider species effects. Special sampling and analysis procedures are specified to allow correction of measured amounts for the concentration of the elemental species.



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