

Worst case discharge



The purpose of this fact sheet is to provide an overview of available documentation to personnel involved in calculation of blow out rates.

During 2014, IOGP's Wells Expert Committee performed a gap analysis on the deep water wells Global Industry Response Group (GIRG) Report 463 to check which recommendations had been closed and which recommendations needed further work. The GIRG report contained a recommendation on worst case discharge:

- The 'worst case discharge flow design' should allow the well to support the flow for a sufficient time for it to be capped or during relief well operations. The 'SPE guide lines for calculations of worst case Discharge from Offshore Wells' is one methodology to be considered for calculating the worst case discharge flow rate.

A review was done in 2015 by the WEC International Standards Task Force and the following documentation on the subject was located:

- Technical Report on Calculation of Worst-Case Discharge – SPE WCD Summit New Orleans March 2014
- Norwegian Oil and Gas: Guidance on calculating blowout rates and duration for use in environmental risk analysis (rev. 17. January 2017)

In the following is a brief description of the scope and content for each document:

Technical Report on Calculation of Worst-Case Discharge (SPE-174705-TR) – SPE WCD Summit New Orleans March 2014 (Rev.1 September 2016)

This technical report on the calculation of the Worst-Case Discharge documents the findings of the 2014 WCD summit held in New Orleans, March 2014. It presents a standard practice document for calculating the WCD in the event of

a loss of control from a well during open hole drilling. The main sections of the report can be summarized as follows:

- Uncontrolled flow rate calculations
- Total discharge volume calculations
- Quality assurance of the calculations and an Uncertainty Analysis for all input factors

The US regulatory agency Bureau of Safety and Environment Enforcement (BSEE) requires the use of this document for planning Gulf of Mexico wells.

Norwegian Oil and Gas: Guidance on calculating blowout rates and duration for use in environmental risk analysis (rev. 17. January 2017)

The objective of the document is to standardise terminology, methods and documentation used in blow out simulations. The calculations are demanding and simplification for practical use is necessary.

The document describes the special concerns related to calculating blow out rates for environmental risk analysis. It describes principles for how to handle uncertainties in rate and duration when analysing blow out scenarios. It is intended for use by risk management experts assessing environmental risk and emergency preparedness procedures.

In addition, it contains guidance for technical experts collecting data on and/or performing simulations of blowout potential and subsequent kill operations. The report gives an overview of the data requirements and how these parameters affect the results for various flow scenarios. These calculations are an integral part of environmental risk assessments and well control contingency plans.