# IADC KREW - OGOR Sand Plug

## Quick Tips:

* Press F11 to make the simulation full screen
* Press ALT + TAB to switch between windows and view your data sheet
* Press ALT + CTRL to switch between tabs in the same browser

## Intro:

Sand formations, and their inherent characteristics, are affected by phenomena such as compression, tension, and cohesion, and as a result, can stimulate and generate sand production.

In drilling scenarios, due to compression, the formations may not withstand the new stress field and/or the cementation materials and can be affected by mud filtrate exposure (one petro).

Once in production, the formation’s nature will create the inevitable migration of sand, causing future problems in production: sand bridges, tubular and equipment erosion and other related problems. Active sand control methods as screen types (stand alone, expandable), graven and frack pack or chemical consolidations, will be required to prevent future events. However, the sand plug must be cleared with techniques that may vary depending on the well configuration and status. Perforating the sand plug, circulation techniques and other methods may take place (slb-halluiburton).

## Objective SAND PLUG 1 test scenario:

*The objective of this simulation scenario is to safely drill through the sand plug using the following well and history data.*

Well history:

The wellbore was tested gas in the bottom zone @ 13,196’. The bottom zone was temporarily isolated for future production with a CIBP (Cast-Iron Bridge Plug), and zones testing productivity continued in the well. The top zone tested Oil and was put in production. After a few months of production, the production starting to decline abnormally and suddenly stopped.

Due to logistics, the wellbore has been inactive for one year.

Three days ago, a workover unit has moved to the wellbore and pulled the completion tagging sand 9280’. Two days ago, the tools in the wellbore were run with the objective to drill the sand plug and put the top zone back online. The well supervisor had an emergency and had to leave the location and the student has been brought to the location to continue with the operation. The only handout for the student is the datasheet. Wellbore fluids and volumes are designed to control the pressure in the top producing zone.

Tasks:

Drill and penetrate sand plug.

1. Take SCR’s and Conduct a Kick Drill and get familiar with:
   1. Parameters to monitor
   2. Valves and manifold alignment
   3. Verify and perform BOP closing steps
   4. Identify an action plan
2. Drilling Parameters
3. RPM 200, Mud Pump #1 @ 80 SPM, use the Auto Driller for drilling
4. Recognize the parameter changes when there is a kick in the wellbore
   1. Tank gain
   2. Pressure variation
5. Secure the well
   1. Shut-in and record Pressure Readings
   2. Manifold in correct alignment
   3. Explain why we’ve taken a kick with the current fluid weight
   4. What are some indicators that the CIBP @12,500 might be leaking?
      1. Identify surface pressure
      2. Identify the need of a new kill fluid density

## Info:

The well configuration is a vertical well completed in an oil zone Sandstone @ 9291’ to 9913’ (Active). There is a sand plug @ 9280’. There is a workstring in the wellbore with heavy pipe and a bit @ 9267”. There is an abandoned gas zone @ 13,189’ isolated with a CIBP @ 12500’.



## Completing the Scenario

Once the Scenario has been completed, proceed to the Grading Tab which is located under the Well Control tab. Click on “Advance” to finalise the Scenario.

This will then show the Simulation as “Complete” in the main menu.

## Simulation Quiz:

During the simulation you need to take notes as there will be a quiz at the end. The questions asked after the simulation are:

1. Which of the following represent an immediately warning sing that sand plug has been over passed?
   1. Increase in Pump pressure.
   2. Drilling break.
   3. Hook load decrease.
   4. Mud viscosity decrease.
2. What should be done if you a pit gain is having place during sand plug drilling?
   1. Continue with drilling operations.
   2. Increase pump pressure to clean out sand.
   3. Stop operations and check for an influx.
   4. Reciprocate the string.

Collect the following data:

* Which was the first indicator a problem was occurring in the well?
* Which was the steps taken to secure the drill string?
* Which was the steps to secure the well?
* Which was the Shut-in pressures at surface?
* Which was the pit gain volume?