

## KickAlarm Improves Drilling Efficiency and Safety through Early Kick Detection Using Advanced Flow Monitoring



### Client



Groupement Reggane (GRN)  
Onshore, Algeria

### Challenge

The operator identified both losses and gains as potential risks in its development drilling campaign.

### Solution

Early Kick detection using flow paddles and total active system have offered inconsistent results to quickly deal with sudden fluid influxes and losses, often missing critical signs of fluid level changes.

Provide GEOLOG's KickAlarm Service, incorporating a high resolution electromagnetic flow meter, proprietary software and specially trained personnel.

### Results

Personnel from the GRN drilling team and GEOLOG KickAlarm service were able to identify and respond quickly to a fluid influx. An influx of 189 l/min was identified and the driller was able to shut in the well within two minutes of the gain. The quick reaction by both the GRN drilling team and GEOLOG crew mitigated any risks as per the pre-job risk assessment plan.

### Value

The gain of 0.63m3 was not identified by a conventional flow paddle device. Early detection of the gain allowed the client to control the influx at an early stage, preventing severe non-productive time from occurring and ensured a safe working environment. By identifying risks early and treating them, drilling efficiency was improved.

### Services used



### Being prepared for unexpected fluid influx and losses

As part of the risk assessment in drilling development wells the operator identified the risk of fluid losses and gains. One of the control measures put in place was an effective early kick and loss detection service, to help identify an event early enough to allow action to be taken while minimizing wellbore damage.

### KickAlarm service used to address concerns in risk assessment

KickAlarm was able to provide a comprehensive monitoring of mud flows to help identify and quantify fluid changes. In this case an electromagnetic flow meter offering high resolution monitoring was installed in a by-pass flow line. During one of the drilling phases a fluid kick was detected with the electromagnetic flow meter device, yet the flow paddle did not detect any mud flow changes. As a result the fluid influx was identified and contained within two minutes.

Relying on just a flow paddle measurement for early kick detection would have resulted in a more severe incursion by the time it had been identified. Causing additional non-productive time to resolve the issue. KickAlarm potentially saved hours, if not a day of rig time and more importantly provided a safe working environment during drilling operations.

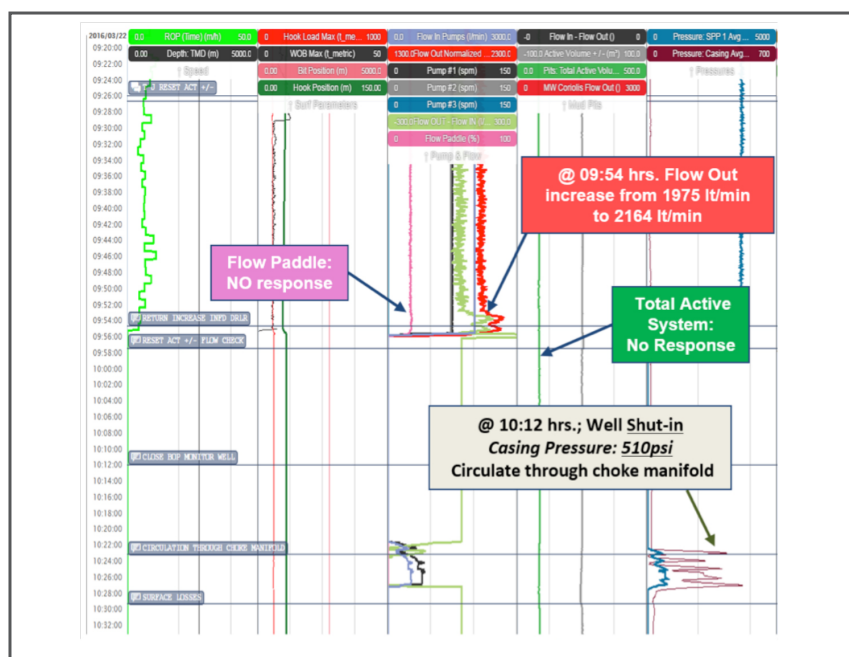


Figure 1. A fluid influx was quickly identified with an electromagnetic flow meter (red curve, center track). Standard measurements for identifying kicks from Flow Paddle and Total Active System monitoring were unable to identify nor quantify the fluid influx.