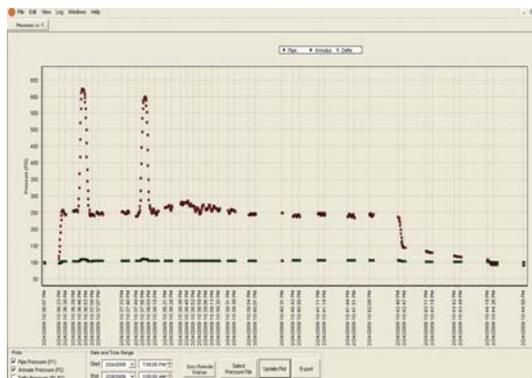




For better or worse, HDD drilling is becoming front page news. This increased publicity is also intersecting with increasing environmental scrutiny of infrastructure projects, particularly those relating to oil & gas. Doing all we can as an industry to mitigate environmental issues is critical, particularly high profile issues such as inadvertent returns ("IR"). It is not possible to completely eliminate the risk of IR events, but technology exists today to help mitigate it.

What tools are available?

Reliable and proven downhole tools exist that are able to monitor annular and drill pipe pressure in real time. Pressure tools are typically deployed as an addition to the wireline steering system for use when drilling the pilot hole but can be used as a standalone tool for reaming applications. The data from the pressure tool can then be fed to an EDR (electronic data recorder) system to record and share pressure data and other drilling parameters with project stakeholders in real time.



Pressure Chart

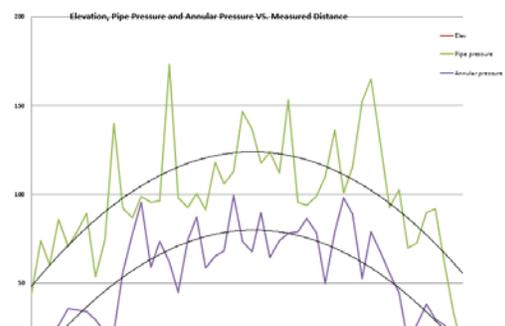
So why run pressure?

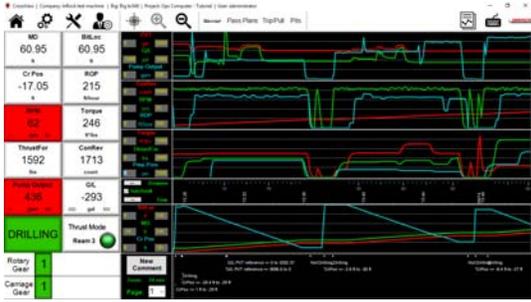
Monitoring pressure levels can be helpful to mitigate IR risk as a standalone measure. Monitoring annular pressure allows drillers, engineering firms and inspectors to recognize potentially dangerous trends and take precautionary actions such as cleaning the hole or adjusting the fluid program before an undesirable event occurs. It provides a record of pressure levels and other drilling parameters which can be used to demonstrate compliance with project specifications and better understand drilling operations. In addition, the cost of delivering this solution is low in absolute terms and practically irrelevant in the context of an IR.

Tooling only part of the equation

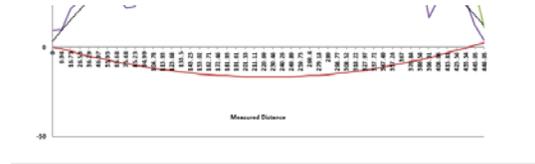
Leveraging pressure tools and EDRs to monitor pressure levels is obviously only part of the solution. HDD engineers and project owners need to perform a geotechnical analysis and integrate those results into a hydrofracture analysis to properly assess IR risk. These results need to then be incorporated into bore design and project/contractor drilling requirements.

However, the world of HDD is less than perfect and not all of this can always be completed perfectly on every project for a variety of reasons. In addition, the models used to predict IRs are still evolving as the industry learns more about actual causes of IRs on HDD projects and expands the overall data set.





EDR



Hydrofracture analysis

Despite the benefits of using this technology, the use of pressure tools and EDRs on HDD jobs is localized to a few areas of the world and a relatively small number of contractors. But in those areas and with those contractors, running these tools is now commonplace due to the realized benefits including fewer IRs and improved productivity. Engineering firms and project owners are in a unique position to drive the broader adoption of this technology. These two groups have the ability to require pressure tooling as well as the use of EDRs to facilitate the storing, sharing and analysis of the data. More widespread use of this technology will serve to reduce the risk of IRs, demonstrate precautions were taken to mitigate IRs and expand the HDD industry's understanding of the causes of IRs.

INROCK

INROCK has significant experience running pressure tools have operated them on hundreds of jobs through our guidance offering. INROCK has also trained customers to run pressure tools themselves. Also, INROCK has the only EDR that can interface directly with pressure tools to record and share this information in real time. Contact INROCK to learn more about these solutions.

1-877-2-INROCK or sales@inrock.com

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