

## Confidence in Data Recorded with Land Seismic Recorders

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### ABSTRACT

With increasing requirements for denser geometries and higher productivities, the way in which seismic acquisition Quality Control (QC) is performed is evolving towards statistical approaches, regardless of the type of land recorder used. It remains important, however, for most O&G operators to have access to a minimum of QC within a reasonable amount of time in order to check the equipment condition and monitor the field noise. While only cabled recorders were available until the early 00's, there are now a full range of recorder technologies available, each of them having different QC capability and thus implying different operational strategies: \* Cables recorders continue to improve and be used on a large scale, and are the current standard for Middle-East mega-crews; \* Wireless blind systems have no means of providing any QC during operation, thus offering operational efficiency but at the cost of an increased risk to the quality of the data recorded; \* Wireless real-time QC systems are able to automatically transmit equipment QC and field noise with a reasonably short latency. Seismic data real-time transmission still has limited outlets, perhaps due to prior field preparation, equipment cost and limited autonomy that still outweigh the operational benefits for most types of programmes; \* Wireless QC Capable systems make the equipment QC data available during acquisition, with some delay and field effort; \* Cross-technology recorders can, on a single spread, combine channels from different recorder technologies. The purpose of this paper is to present in details firstly the QC capability of each family of acquisition systems, in particular in terms of information available, and secondly the practical solutions developed by users to optimize their confidence in the seismic data recorded. The extensive use of QC capable recorders has indeed opened the way to a wide range of solutions for QC collection, from dedicated teams adapted to local constraints to the use of drones which continues to progress due to ever improving technologies and more flexible regulations. The regular introduction of new technologies makes this approach ever easier, while the industry is progressively getting closer to the solution seen by many as ideal: wireless acquisition systems offering real-time transmission of both seismic data and QC, with low-power field equipment and no additional infrastructure or field preparation, thus enabling low-cost and secured acquisition.