

Geohazards from the Oil & Gas Industry Perspective

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Geohazards from Oil and Gas industry perspective covers a wide topic from planning to operations, from Geoscience to Engineering. It spans from the water surface down to the hydrocarbon reservoir. One thing in common with other aspect of Geohazards is that it can be catastrophic if not being mitigated and handled properly. As safety is the utmost priority in Oil and Gas industry, Geohazards has become one of the important aspects that need to be addressed upfront in any cycle of Oil & Gas, whether it is Exploration, Development or Production. The history of hydrocarbon exploration and exploitation over more than a decade have seen many incidents took place as a result of various reasons. Incidents like Piper Alpha (1988) and Macondo Deepwater Horizon (2010), though are more related to man-made disaster has indirectly spurred the sensitivity towards safety standard. Not long after the Piper Alpha incident, Geohazards investigation survey has been made mandatory by the rig insurance underwriter prior to any well drilling activities. This is to avoid any untoward incidents resulting

from Geohazard issues such as **punch through, rapid penetration** of the rig leg, encountering **shallow gas pocket** that could result in **gas blowout, drill fluid losses** and etc. To enable adequate and sufficient information is acquired, Geohazards investigation is carried out by deploying a site survey vessel which tows multi sensor equipment which collects data within the water column, the surface (seafloor) as well as sub-surface information down to approximately 1.5km below the seabed. Among the findings are bathymetry map detailing the seafloor morphology, seabed images, sub-surface channel map and shallow gas map. These findings helps determining what type of Geohazards is present and what mitigation should be in place. The data collected is then populated into a GIS database for future reference and planning.

This presentation will introduce the industry practice in Oil & Gas industry and where Geohazards investigation reside in playing an active role towards the sustainability of the operations.