IPG 2023
INTERNATIONAL PIPELINE GEOTECHNICAL CONFERENCE
November 23rd - 24th
Bogotá Plaza Hotel. Bogotá D.C. - Colombia

Under the auspices of:
arpel
ASSOCIATION OF OIL, GAS AND RENEWABLE ENERGY COMPANIES OF LATIN AMERICA AND THE CARIBBEAN

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6TH INTERNATIONAL PIPELINE GEOTECHNICAL CONFERENCE IPG 2023

IPG2023-0042

# GEOHAZARD ASSESSMENT INCORPORATING LEGACY STUDIES - LESSONS LEARNED

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## ABSTRACT

Large-diameter transmission pipeline projects in remote locations with significant geotechnical issues in some cases take many years to develop and may involve different teams performing various studies at different project stages. In these circumstances, the evolution of understanding of pipeline route conditions can become disjointed or confused if there is a lack of continuity in project personnel, such as a change in engineering consultants, and gaps between various stages of project definition. For a project with a wealth of publicly available data and historical data from legacy studies, there are many considerations in leveraging the information in FEED-level geohazard assessment for a new project. These considerations include data reliability, scale and currency. Considerable effort is required to build confidence in data collected and analyzed by other parties, ideally including field checks of data accuracy, but review and verification of existing data is often overlooked in scoping of projects with limited budget and schedule. The party responsible for FEED-level geohazard assessment must therefore navigate through existing information from earlier project phases with a critical eye to ensure the progression in technical definition is understood, particularly where progressive databases and GIS datasets are developed, sometimes eliminating or correcting previous interpretations of geotechnical conditions such as geological fault locations and characteristics. Is the information sufficient and appropriate to the scope of work required? Are the uncertainties and limitations associated with the available information understood? Are there information gaps resulting from access or other issues? These are important questions to be asked before incorporating legacy information into geohazard assessments, especially if there are routing changes that may cross areas not previously investigated. A lack of identified geohazard features from legacy studies in a particular reroute area may indicate that the area was not previously reviewed for geohazards rather than it being free of geohazards. Once confidence in legacy data is sufficient, then limitations on how much additional interpretation is possible/defensible must be established. The use of reasonable conservatism to estimate slope stability and propose possible monitoring and mitigation options in identified geohazard areas is one approach, but must be explicitly described in associated reports to avoid creating over-confidence in results. Leveraging legacy data is easier if there is interaction between parties, or if there is continuity in the project team. This paper explores lessons learned from several large-diameter pipeline projects and provides a set of guidelines in using legacy project data in geohazard assessments.