

OIL & GAS | Pipeline Geohazards Services



Over the past five years, the Pipeline and Hazardous Materials Safety Administration (PHMSA) has reported more than **180** pipeline failures due to external natural forces. Repair costs and environmental damage associated with these failures has averaged more than **\$51M** per year. These are significant failures impacting our critical infrastructure and the safe and essential transport of oil and gas across our country.

It is important for owners and stakeholders to proactively manage their geohazards risk and maintain pipeline integrity. PHMSA requires each owner to develop a Pipeline Integrity Management Plan (IMP) to safely manage the impact of geohazards such as landslides, karst features, abandoned mines, and faulting.

Terracon can help you understand the importance of geohazards and how they impact new construction as well as existing alignments. With offices nationwide, combined with more than 50 years of experience, Terracon knows local geologic conditions and has access to a significant amount of historical data through our proprietary GIS-based system.



Geohazard Management Programs

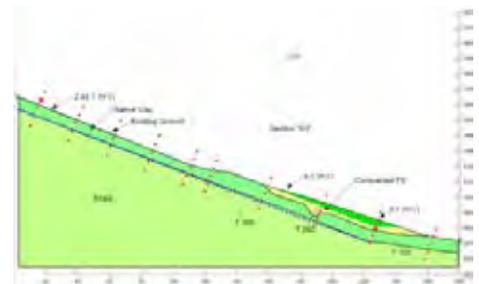
Whether your organization needs to incorporate plans to manage risk within your IMP or requires support to implement your existing IMP geohazard standards, Terracon has the professionals and experience to help you meet your goals.

- Identification of geohazards along your existing alignment, including:
 - Karst
 - Mining activities
 - Landslides
 - Faulting
- Development of GIS based assessment programs to help prioritize known geohazards.
- Field reconnaissance to confirm geohazards and collect site specific data.
- Development of mitigation plans for each prioritized geohazard.
- Landslide and deformation assessments.
- Design of erosion control measures
- Instrumentation and monitoring programs
- Scour protection and design

Routing and Alignment Characterization

We have the local experience and resources to support decisions on new pipeline route alignment selections.

- Geologic and geotechnical conditions
- Geohazard identification
- Landslide hazard modeling
- Scour potential and impact
- HDD design and HFIR analyses
- Bedrock characterization for ease of excavation
- Geophysical studies
- Field management and delineation of geologic conditions
- Seismic hazard assessments
- Fault delineation



WHY TERRACON?

Resourceful. Terracon assists clients with site evaluation for proposed developments prior to performing any field explorations, saving you time and money.

Responsive. Through our national network of offices, drilling and CPT fleets, geophysical capabilities, and accredited laboratories, Terracon can act quickly to develop a "SMART" exploration and testing program providing you the most cost-effective manner to compile and synthesize data.

Reliable. We deliver high-quality, expert soil and rock characterization using diverse exploration methods and software. This ensures the accurate and precise results you need to be successful.

"I am very impressed with the professional and technical expertise we are receiving from Terracon as well as the timely response to our needs."

-SENIOR PIPELINE INTEGRITY ENGINEER, CONFIDENTIAL CLIENT



CONDUCTING FIELD ASSESSMENT

Evaluating the effects of a landslide on existing pipeline.



REMEDIATION TO IMPACTED PIPELINE

Section of existing pipeline stressed by localized landslide.

Services available
in all **50** states



Offices Nationwide

To support our clients, we participate as members in the following safety-based reporting organizations:



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Environmental



Facilities



Geotechnical



Materials