



OFFSHORE ASSESSMENT SERVICES FOR MEXICO



Integral Consulting and Tetra Tech have expanded their successful teaming relationship and created the InTELA2 consortium to provide professional services in support of oil and gas exploration in Mexican waters of the southern Gulf of Mexico. We are committed to growing our presence in Mexico by building upon our unique expertise in oil and gas internationally to support our current and local clients in Mexico. Together we bring a wealth of experience and a strong presence in Mexico.

Our team combines strong experience conducting environmental, social, and health impact assessment screening and scoping studies for offshore environments, with extensive project experience in Mexico and the global presence and bench strength of a full-service engineering and science firm. Together, we have more than 40 years of experience working in infrastructure, oil and gas, industrial facilities, manufacturing, and international development projects in Mexico. Twenty staff members, including local staff, currently work in several Tetra Tech offices in Mexico City. The Enco Group, a key member of the consortium, has 35 years of experience in Mexico's infrastructure and energy sectors with more than 130 staff in three permanent office locations in Mexico City as well as four project offices. Its expertise lies in heavy infrastructure projects that require superb project logistics, the key to the success of any project. Another key team member, Agile Sustainability Management, specializes in social performance. With broad international experience and a 7-year presence in Mexico, it is deeply networked professionally and institutionally. It enjoys an insider's knowledge of the country—having worked in 30 of Mexico's 31 states. Consortium members have been or are currently involved in offshore exploration projects that were awarded for shallow water and deepwater blocks in September 2015 and December 2016.

As long-term leaders in technical and strategic consulting services for oil and gas clients in the Gulf of Mexico and throughout the world, the consortium provides specialized expertise needed for exploratory activities in the following areas:

- Project management
- Project design, planning, and permitting
- Environmental impact identification, screening and scoping reports, and environmental impact assessments
- Social impact assessments
- Environmental baseline surveys
- Site characterization management and scoping
- Environmental, geophysical, geotechnical, and metocean data analysis and modeling
- Shallow geohazards studies
- Operational monitoring and management.

Understanding Mexico's Program Needs and Revised Regulatory Framework

The consortium includes highly qualified subject matter experts and a support team that understand the Mexican regulatory environment and have professional relationships with key regulatory agencies. As part of Mexico's 2013 energy reform, Mexico allow private companies to participate in the bidding procedures for awarding exploration and extraction contracts for the first time. The National Hydrocarbons Commission became the regulating authority to organize and oversee tender procedures to award contracts for the exploration and extraction of hydrocarbons, and manage the contracts that are awarded. The newly formed agency ASEA is responsible for the supervision of health, safety, and environmental protection derived from hydrocarbon activities and is a governmental body of SEMARNAT, the Environmental and Natural Resources Ministry.



Once a private company is awarded an exploration contract, several studies must be conducted to meet Mexican regulatory requirements to obtain the necessary permits to begin exploration. These studies include the environmental baseline survey (LBA), the social impact assessment (EVIS), and the environmental impact assessment (MIA).

Within this new regulatory framework many industrial activities are now classed as permitted activities, while other activities may be able to obtain exemptions from the permitting regulations. The Environmental Permitting Regulations are administered and enforced by several agencies and any proposed site activity may require one of a number of environmental permits. We can assist, prepare, and submit all required documentation for permit applications and can ensure regular contact with ASEA and SENER for our clients to achieve progress with their environmental permitting applications.

Permits of environmental impact include:

- Established in Section V of the LGEEPA and its regulation on environmental impact assessment
- Waste management, established in the LGPGIR and its regulation
- Air emissions, established in the LGEEPA and its regulation
- Environmental hazard, established in the LGEEPA, Article 147
- Wastewater discharge, established in the LGEEPA.

In addition, the Hydrocarbon Law provides that hydrocarbon-related projects must carry out a social impact assessment to identify:

- Communities and villages located within an influence area of the project
- Consequences to the population that can derive from the project
- Mitigation measures
- Corresponding social management plans.

Project Experience

Once a private company is awarded an exploration contract, several studies are required to meet Mexican regulatory requirements to obtain the necessary permits to begin exploration. These studies include the environmental baseline survey, the social impact assessment, and the environmental impact assessment. The team has successfully conducted these types of projects in the Gulf of Mexico and around the world in both shallow and deepwater environments. Specific examples of our project experience are presented below.



1 GULF OF MEXICO ENVIRONMENTAL IMPACT ASSESSMENT FOR OFFSHORE OIL AND GAS PRODUCTION

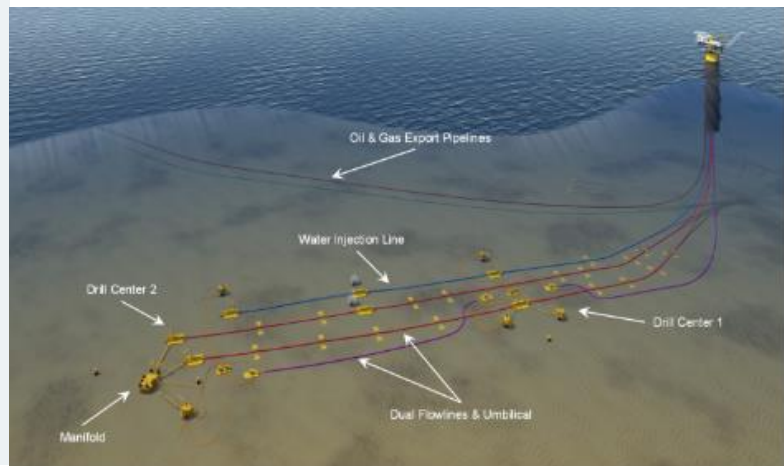
Hess Corporation

Project Highlights

- Prepared a Screening and Scoping Report
- Oversaw the impact assessment process to understand potential environmental and socioeconomic impacts
- Developed a strategy for mitigation measures

Team member LimOce managed the environmental impact identification workshop, preparation of a screening and scoping report, and an environmental and socioeconomic impact assessment for Hess Corporation for the Tubular Bells and Stampede Development Projects, located in deep water of the Gulf of Mexico Outer Continental Shelf.

LimOce conducted the impact assessment process, which provided an understanding of the potential impacts from project activities to the environmental and socioeconomic setting and the means to plan and implement associated mitigation measures. These documents were produced to meet clients' internal process requirements as well as meet regulatory requirements.



2 ONSHORE AND OFFSHORE IMPACT ASSESSMENTS FOR MEXICO

Multiple Corporations

Project Highlights

- Identified stakeholders and performed field mapping
- Conducted social impact assessment
- Identified opportunities and mitigation strategies



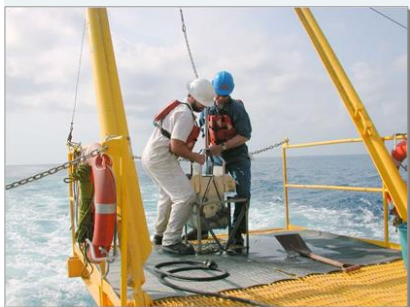
Area experts from team member Agile carried out desk and field research to identify affected communities and potential impacts in relation to existing and proposed energy projects in Mexico. Activities included stakeholder identification and mapping; diagnoses and forecasts in social, health, economic, and demographic terms; social impact and opportunities assessment; and mitigation planning in accordance with project needs. Agile's experience extends throughout the Gulf area. Projects include (1) the National Natural Gas Control Center of the Cárdenas sector, to identify social vulnerability and environmental damage as well as real and perceived socio-economic impacts among the population near infrastructure and in the broader Ciuchapa and Molocán area; (2) social impact assessment consultant for Trion—deepwater block in the Perdido Fold Belt, near the maritime border of Mexico and the U.S., and for Ichalkil Pocock—shallow water blocks in the southeast Gulf of Mexico; and (3) Chichapa Poniente-Molocan—an onshore block in the south of Veracruz.

3 ENVIRONMENTAL SURVEYING AND ENVIRONMENTAL IMPACT ASSESSMENT FOR OFFSHORE OIL AND GAS PRODUCTION IN THE GULF OF THAILAND

Chevron Thailand Exploration and Production

Project Highlights

- International marine survey team in place since 1998
- Conducted offshore surveys 24 hours per day for durations of 20 to 30 days
- Conducted baseline studies, prepared environmental impact assessment documents, and conducted post-production monitoring
- Evaluated ecosystem services and ecological effects



The Tetra Tech marine survey team has successfully conducted offshore surveys in the Gulf of Thailand to support Chevron's exploration and production activities since 1998. The Chevron concession areas cover more than 300 km throughout the Gulf of Thailand and are located at least 50 km from the nearest shoreline. The survey efforts include the collection of seawater, sediment, plankton, benthic community, drill cuttings, benthic tissue, and fish tissue samples at preselected stations around central processing platforms, wellhead platforms, floating storage and offloading tankers, exploration drilling locations, proposed platform locations, pipelines segments, and subsea structures. Special sampling requirements can include sediment profile imaging and vibracore sampling.

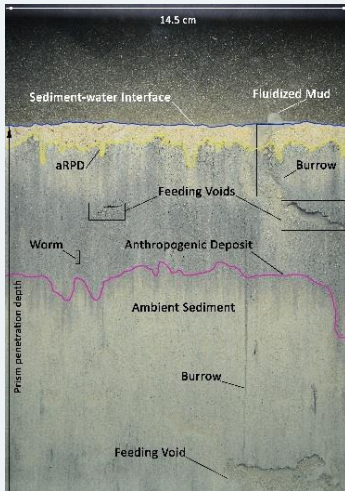
In addition to conducting the baseline surveys, Tetra Tech prepared a series of environmental impact assessments, teaming with public health and socioeconomic specialists to prepare reports to meet Thai regulatory approvals. Combined, the petroleum production projects covered by the environmental assessments comprised more than a planned 150 wellhead platforms, four new central processing platforms, and the installation of two floating storage and offloading tankers. Tetra Tech also produced documents to meet clients' internal process requirements such as the Environmental, Social and Health Impact Assessment (ESHIA). Integral Consulting subsequently used these assessments to evaluate ecosystem services and ecological effects of exploration and production.

4 ENVIRONMENTAL BASELINE SURVEYS FOR SOUTHERN DEEPWATER GULF OF MEXICO

BHP Billiton, TOTAL, Mexican Institute of Petroleum, Consultancy in Industrial Safety and Environmental Protection S.A.

Project Highlights

- Conducted SPI/PV camera surveys as part of environmental baseline surveys
- Advised on environmental impact assessments
- Performed oil spill modeling



Consortium members have conducted numerous baseline surveys, impact assessments, and oil spill assessment activities in the Gulf of Mexico in U.S. and Mexican waters. Several team members were or are currently involved in offshore exploration projects that have been awarded in the ongoing auctions. Integral has conducted state-of-the-art surveys with the sediment profile imaging and plan view (SPI/PV) camera at several lease blocks as part of LBAs being conducted by BHP Billiton and Total and a SPI/PV survey of a pipeline route offshore of Tabasco, Mexico, for the Mexican Institute of Petroleum. LimOce advised and provided reviews for the EIA being generated for blocks in Block 2 Perdido Fold Belt. Tetra Tech conducted oil spill modeling for hypothetical crude oil spills as a result of a well blowout and provided technical support to the Consultancy in Industrial Safety and Environmental Protection S.A.

5 EFFECTS OF SUBSEA PROCESSING ON DEEPWATER ENVIRONMENTS IN THE GULF OF MEXICO

Bureau of Ocean Energy Management

Project Highlights

- Assembled technical experts from the oil and gas industry to engage with regulatory agencies and academic institutions in the review and analysis of existing data and model simulations
- Characterized the geological, physical, and biological conditions of the deepwater environment

Tetra Tech assembled a highly qualified team of marine ecologists, toxicologists, and petroleum engineers to evaluate the potential environmental impacts from subsea processing. The goal of this project was to provide the Bureau of Ocean Energy Management with an evaluation of the potential environmental effects of subsea processing technologies based on available literature and current understanding that can be used to assess the applicability of these technologies to the Gulf of Mexico. Subsea processing incorporates new applications of existing and new technologies in deepwater environments. At the time of the analysis, some of the technologies, such as seabed multiphase pumping, had risen to the status of proven technologies. Other technologies, including aspects of subsea separation, were still in the early stages of development and have not been implemented widely.

