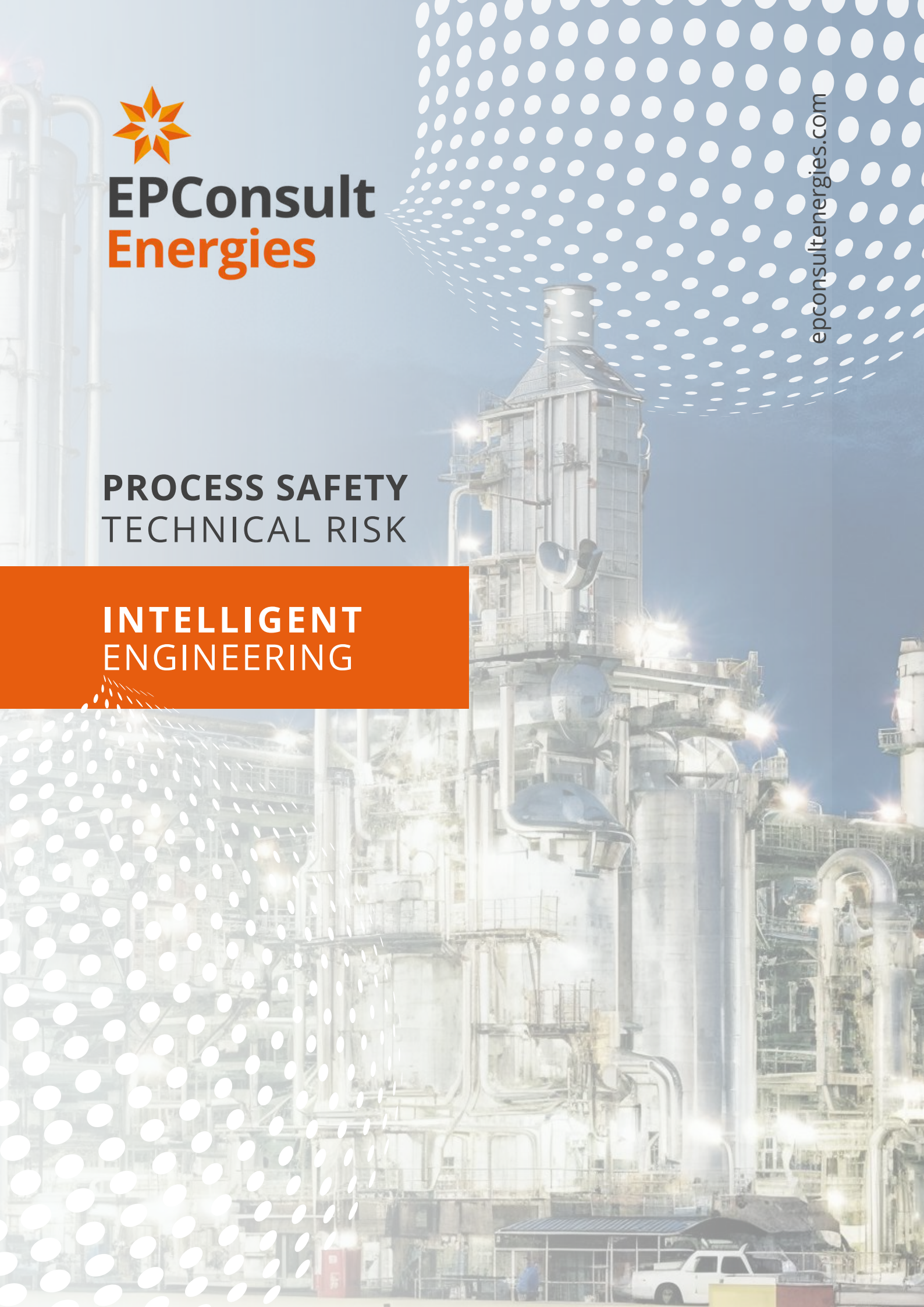
EPConsult Energies

epconsultenergies.com

PROCESS SAFETY
TECHNICAL RISK

INTELLIGENT
ENGINEERING



EPConsult Energies

EPConsult Energies (EP) is a UK-Danish technical energy consultancy that focuses on Safety, Risk, and Reliability.

We deliver technical consulting, business advisory services, and niche engineering studies for oil, gas, renewable energy companies, industry organisations, and government agencies.

- Deep technical engineering expertise
- Broad commercial experience
- Agile and collaborative
- Innovative culture
- Focus on adding value
- Strong core values
- Embrace lasting client relationships
- ISO 9001:2015 Quality Management System

INTELLIGENT ENERGI

renewableUK

GREEN POWER DENMARK

United Nations Global Compact

energy institute

DANISH-UK ASSOCIATION
TRADE · FRIENDSHIP · CULTURE

MEMBERSHIPS AND QUALIFICATIONS

Working for decades with various clients across the energy industry gives us a unique edge in solving problems and creating solutions for a wide range of challenges.

WORLDWIDE PROJECT EXPERIENCE

CURRENTLY ALSO WORKING WITH:

Ørsted · Danish Energy Agency · ENERGINET · uniper

PROVIDED SERVICES:

- Process Safety Management
- Inherent Safety in Design
- Crisis Management
- Emergency Response
- Process Safety Studies
- Consequence Modelling
- Quantitative Risk Assessment
- Loss Prevention

EUROPEAN ENERGY · enlight · NAVITAS PETROLEUM · INEOS · dulas · Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping

SWECO · Shell · MAERSK · ExxonMobil · NORTH STAR

TECHNIP ENERGIES · enQuest · eni · bp · equinor · UKRI Innovate UK

wood. · Scottish Enterprise · MODEC · SAIPEM · TotalEnergies

Process Hazard Assessment (PHA) Studies:

- Hazard Identification (HAZID)
- Environmental Hazard Identification (ENVID)
- Hazard and Operability Study (HAZOP)
- Layers of Protection Analysis (LOPA)

Process Safety Studies:

- Consequence Modeling (CFD)
- Bow-Tie Study
- Safety Critical Elements (SCE)
- Performance Standards Development
- Written Scheme for Verification (WSV)
- Safety Case Development
- Inherent Safer Design (ISD)
- Flare Dispersion and Radiation Modelling
- 3D Fire and Gas Detection Mapping

Risk Assessments :

- Quantitative Risk Assessment (QRA)
- Dropped Object Study (DOS)
- Temporary Refuge Impairment Study (TRIS)
- Fire and Explosion Risk Assessment (FERA)
- Escape Evacuation Rescue Assessment (EERA)
- Emergency System Survivability Analysis (ESSA)
- Control of Major Accident Hazards (COMAH)
- Shipping Risk Assessment
- Ship Collision Study
- As Low As Reasonably Practicable (ALARP) Demonstration

Functional Safety Studies:

- SIL Classification
- SIL Verification
- SRS Development
- SIL Validation

Loss Prevention:

- Fire-fighting system design and calculation
- Fire, Water & foam system
- Classification of Hazards and Hazardous areas
- Risk based Suppression and Detection System Concept

TECHNICAL SAFETY
RISK ASSESMENT

Other Safety Studies:

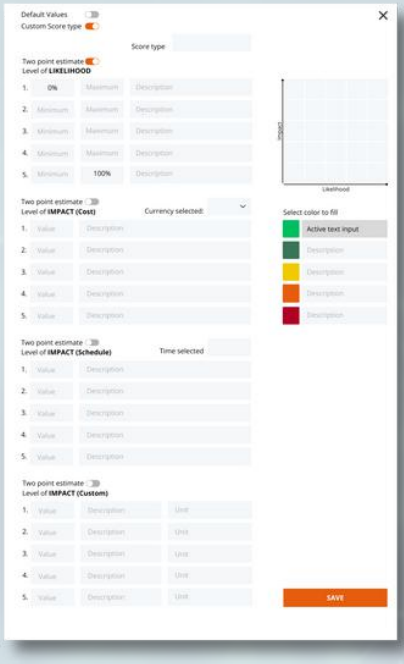
- Simultaneous Operations (SIMOPS)
- Safety and Operability (SAFOP)
- Constructability Review
- Human Factor and Ergonomics (HFE) study
- Noise Mapping Study
- Crisis Management and Emergency Response
- Reliability, Availability and Maintainability Modelling

RISK
MANAGED ☑

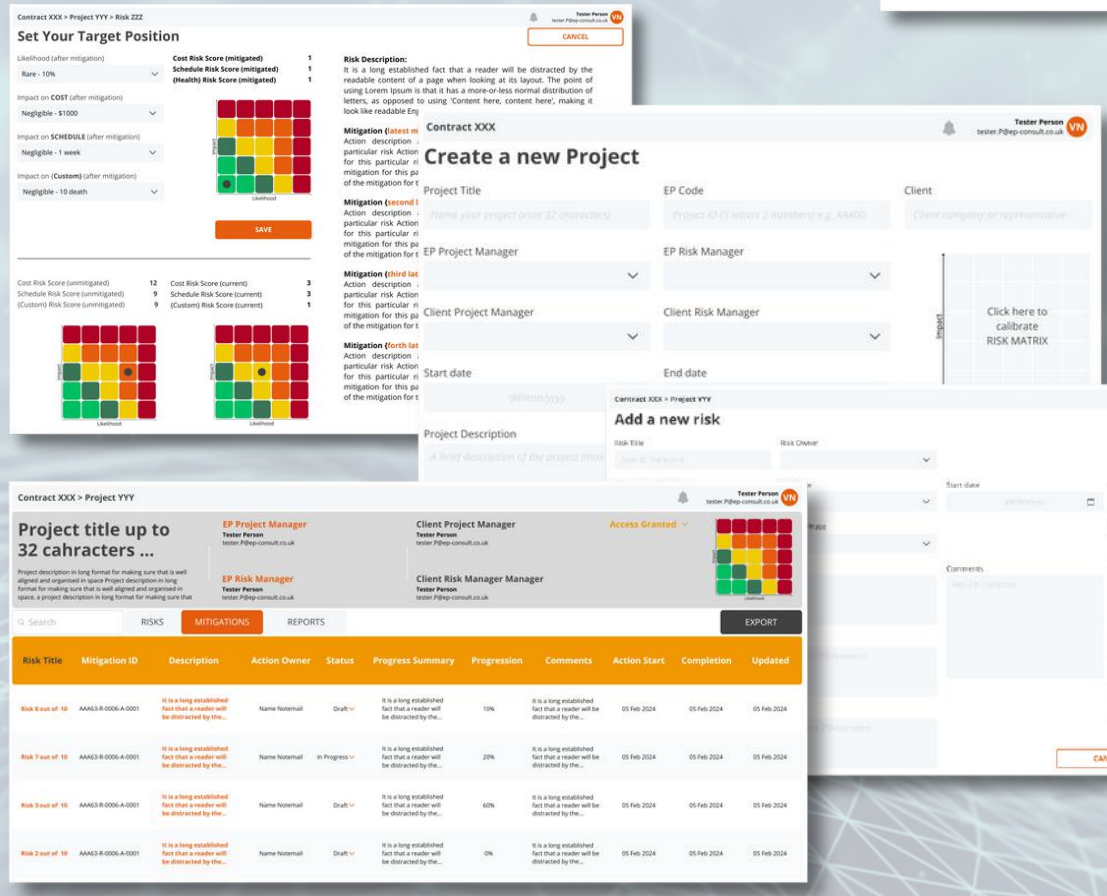
EPRisk

powered by EPConsultEnergies

EPRisk is an efficient risk management software developed by EP's risk experts for projects and organisations. It helps identify, assess, rank, mitigate, track, and report on risk exposure and risk status.



- Safe data handling
- Fast Reporting
- Developed by engineers for engineers
- Adjustable Risk Matrix
- Mitigation Progress Tracking



Our safety and risk assessment team focuses on finding the best solutions for clients by efficiently integrating the specialist areas of engineering, operations, risk, economics and delivery.

EXPERT TEAM

Saghar Nasehpour

Senior Process Safety Engineer

Process and Technical Safety Engineer with over 20 years of experience in oil, gas, petrochemical, and mining industries. Saghar specialises in consequence modelling, quantitative and qualitative risk assessments (QRA, HAZOP, HAZID, SIL), safety and firefighting system design, hazardous area classification, and environmental and noise studies. She has led major safety design and risk management work for projects including petrochemical complexes, methanol and polyethylene plants, refineries, and export pipelines across the Middle East, consistently ensuring compliance with international codes and standards.

Anthony Tonna

Senior Safety Engineer

Chartered Chemical Engineer and Functional Safety Expert with over 30 years of experience in oil, gas, and petrochemical projects worldwide. Anthony has led more than 500 HSE studies, specialising in HAZID, HAZOP, SIL, Bow-Tie and risk management across upstream, midstream and downstream sectors. With extensive assignments for Shell, ExxonMobil, ADNOC, ARAMCO, and Qatar Petroleum, he brings deep expertise in process safety, consequence modelling, and performance standards development, alongside his role as a certified trainer in HSE and risk management.

Cesar Augusto

Reliability and Safety Engineer

A senior reliability and safety engineer with extensive expertise in risk management, RAM studies, and process safety assessments for refineries and pipelines. Cesar has successfully implemented advanced frameworks like HAZOP, QRA, LOPA, and Bowtie Analysis, enhancing asset integrity and operational safety. With significant contributions to Ecopetrol and its subsidiaries, Cesar ensures compliance with international standards (ISO 45001, API 754) and fosters a strong safety culture. As a professor at Universidad del Valle, he equips future engineers with practical knowledge in process safety, reliability, and inspection techniques.

Martin H. Larsen

Managing Director EPConsult Energies

A leading international O&G and Renewables technical consultant and Managing Director of EPConsult Energies, with over 25 years of projects and consultancy experience.

Previously working for Shell, Saipem and Bureau Veritas and with significant experience in structural and marine engineering, conceptual engineering, asset integrity and performance, availability modelling, HSE and risk management. Lead Consultant on a range of studies for Energinet, European Energy, Ineos, TotalEnergies, Exxon, Shell, ADNOC, Aramco and KJO amongst others.

Peter Daniel

Engineering Manager Process Safety Team Leader

Process and chemical engineer with a 25-year track record in engineering design, project delivery, and site operations. Peter has led major process safety and risk studies worldwide, including HAZID, HAZOP, Bow-Tie, QRA, Fire Risk Assessments, and Emergency Response Plans for clients such as Pluspetrol, Shell, BP, Aramco, ENPPI, ADNOC, and WOOD. He has delivered Safety Case compilations, fire and gas system gap analyses, and consequence modelling for complex facilities ranging from FPSOs and refineries to gas processing plants and marine terminals. Previously with Shell International Exploration and Production B.V., Peter combines deep operational experience with strong expertise in risk assessment and process safety leadership.

Joanne McCallum

Principal Consultant – Technical Safety

Chartered Chemical Engineer and Fellow of the IChemE with over 25 years of experience in technical safety across FEED and EPC projects in oil, gas, refining, petrochemicals and alternative fuels. Joanne specialises in safety philosophies, risk assessments, HAZID, HAZOP, SIL/LOPA and human factors engineering, with extensive leadership in safety reviews and multi-discipline project teams. She has served as Lead Technical Safety Engineer on major international projects for clients including QatarEnergy, SABIC, Saudi Aramco, ADNOC, INEOS and Air Products.

Maria Castro

Safety and Risk Engineer

Chemical engineer with over 15 years of experience in safety, risk and process engineering across oil, gas, and petrochemical projects. Maria has led and supported QRA, HAZOP, Bowtie, RAM and emergency response studies for major energy clients, including Ecopetrol and Pluspetrol. She has delivered technical risk documentation, barrier management training, and safety compliance strategies aligned with Peruvian and Colombian regulations. Her recent work includes RAM modelling for Technip Energies and regulatory safety documentation for gas infrastructure in Peru. Maria brings structured technical insight and a strong track record in safety systems implementation, operational risk, and project delivery.

Energinet - Baltic Pipe Project
The involvement of EP in this international Gas Infrastructure Project transmitting gas from Norway, via Denmark and into Poland included:

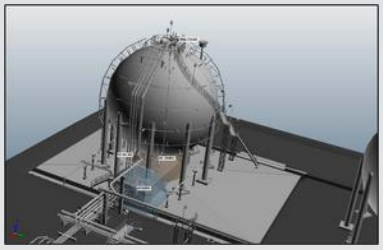
- Handover planning and handover checklists planning
- Commissioning planning and commissioning procedure
- Readiness Reviews for Commissioning and Handover
- Design Basis for Gas Compression Plant
- HAZID and HAZOP Reviews for gas compression upgrade,
- QRA Gap Analysis Study
- RAM analysis review
- SIMOPS review for gas plant tie-in scope
- Pipeline construction management
- Gas plant operations and maintenance manual

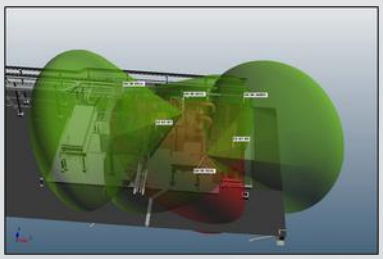
Total Energies|Saipem - HAZID and HAZOP for Lapa SW
The LAPA field, located in the central Santos pre-salt basin offshore Brazil, lies about 300 km off São Paulo in block BMS 09A, with water depths around 2140 meters. The Cidade de Caraguatatuba FPSO, anchoring northeast of the field, will be linked to two additional WAGI and two replacement production wells to complete LAPA NE development.

The southwest area, targeting further development via a tieback to the same FPSO, includes a new production well with an existing XT and a new water injection well, with potential for another in the future. This setup incorporates new subsea production, umbilicals, risers and flowlines (SURF) installations.
EP conducted HAZID and HAZOP sessions with participants from:
• France (Paris/SQY)
• London (UK)
• Brazil (Rio/Curitiba)
• US (Mobile Alabama)

Pluspetrol - Security Risk and F&G Gap Analysis

EP conducted several essential studies for Pluspetrol at their Malvinas Heliport and Pisco NGL Fractionation Plant in Peru, enhancing safety and risk management.





Security Risk Study:

- Objective: Ensure protection and regulatory compliance.
- Scope: Identified Major Accident Hazards (MAH), performed Safety Risk Analysis, and used PHAST 8.9 for consequence estimation of various incidents.

F&G Gap Analysis:

- Objective: Optimise fire and gas detection at Pisco Plant and Marine Berth facilities.
- Scope: Assessed and recommended detector placements using Detect3D mapping software, providing a new detection layout with comprehensive 3D site walkthroughs, completed on budget.

Orsted - Risk Assessment and Development Consent Order

The Hornsea Project, Four Offshore Wind Farm project, is the world's largest offshore wind farm project. It comprises 180 wind turbines, along with a complex network of cables, platforms and converters.

To support the Development Consent Order (DCO) process, EP prepared an Offshore Installations Interface report to estimate and assess the interface risks between the Hornsea Project Four and the nearby oil and gas installations, infrastructure and shipping activities.
The scope also included an information-tracking service to monitor field operational changes.

Methodology

Using the UK North Sea regulatory regime combined with solid risk management practices,
EP developed a methodology that bridges the offshore wind environmental focus with oil and gas assets, safety and commercial risks, including navigational risk.

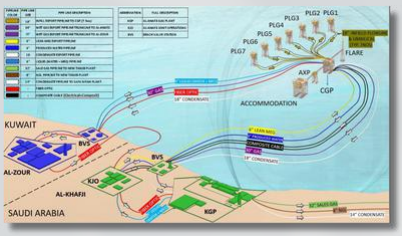
Shell-BP (PhPc | ENPPI) – Process Safety and Loss Prevention Studies

EP's team conducted comprehensive process safety and loss prevention studies for the Harmattan Deep Development Project during the FEED stage.
Scope of Work: The studies included:

- ALARP (As Low As Reasonably Practicable)
- ESSA (Environmental and Social Sustainability Assessment)
- SCE & Bowties (Safety Critical Elements)
- SAFOP (Safety and Operability)
- Dropped Objects Impact Assessment
- ISD (Inherently Safer Design)
- HFE (Human Factors Engineering)
- OHRA (Occupational Health Risk Assessment)
-

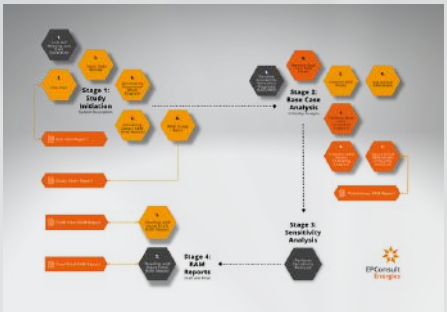
Results: EP's thorough approach ensured the identification, assessment, and mitigation of process safety risks, contributing to the safety and operational integrity of the Harmattan Deep Development Project.

ARAMCO's Dorra Field Development Project
Reliability and Availability Study
The Dorra field provides state-of-the-art production and processing facilities. The objective is to produce 1 billion Standard Cubic Feet per Day (SCFD) of gas and 84 MBCD of condensate in a safe, reliable, technically sound, economical, and commercially effective manner.
Technip Energies has been awarded the FEED Services for this program, including a Reliability, Maintainability, and Availability (RAM) Study.
Technip has engaged EP to perform this RAM study.



Key Objectives:

- Develop the Dorra field to achieve production targets of 1 billion SCFD of gas and 84 MBCD of condensate.
- Ensure development is safe, reliable, technically sound, economical, and commercially effective.
- EP to perform the RAM study and provide detailed technical documentation.
- Collaborate with Technip Energies to implement the study's findings and recommendations.



EPConsult Energies is conducting a comprehensive Reliability, Availability, and Maintainability (RAM) study for the Beaver Lake Renewable Energy (BLRE) project, a new biomass-to-methanol facility. The plant will convert 2.3 million metric tons of biomass annually into 553,000 tons of methanol, while capturing and sequestering 1 million tons of CO_2. The facility integrates licensed and unlicensed technologies and is a significant step forward in low-carbon fuel production in North America.

Scope of Work:

- Development of a RAM model using DNV MAROS™ for full facility performance simulation
- Evaluation of design configurations and redundancy to optimise lifecycle production availability
- Identification of availability bottlenecks and improvement opportunities.
- Assessment of maintenance strategy and outage planning,
- Recommendation of capital and strategic spares to reduce downtime,
- Quantitative assessment of production availability to support financial modelling

Commissioned by the Welsh Government, EP conducted a comprehensive safety review for a small-scale hydrogen generation facility in Wales. This project focused on meeting regulatory safety requirements and ensuring operational security in remote settings.

Scope of Work:

- Defined Risk Acceptance Criteria for acceptable safety levels.
- Conducted Hazard Identification (HAZID/MAH) and Fire & Explosion Modelling (including CFD).
- Performed Layout Assessment and Preliminary Risk Assessment.
- Demonstrated ALARP compliance.
- Developed Escape, Evacuation, and Rescue Plans.
- Established an Emergency Response Plan.
- Delivered a Concept Safety Assessment Report outlining findings and recommendations.

DEVELOPMENT PLANNING

- Field Development
- Feasibility Studies
- Conceptual Design
- Schedule,Cost Economics
- Value Engineering
- Opportunity Framing

HSE & RISK ASSESSMENT

- HSSES Seven/Seven
- Safety Case Development
- Hazard Identification Studies
- Quantitative Risk Assessments
- Emergency Reports
- Environmental and Social Assessments & Permitting

ASSET INTEGRITY & PERFORMANCE

- OPEX Optimisation
- Asset Life Management Plan
- Integrity and Performance
- Life Extension Studies
- Abandonment & Decommissioning

BUSINESS ADVISORY

- Acquisition and Divestment
- Exploration and Appraisal
- Non Operated Ventures
- Lenders Decision Support
- Technical Due Diligence
- Expert Witness

WIDE RANGE OF SERVICES

Our top-tier analytical expertise aids clients in optimising development concepts, preventing crises, ensuring compliance and enhancing profitability.

OPPORTUNITY MANAGEMENT

- Business Risk & Opportunity
- Project Risk & Opportunity
- Risk Management Systems
- Crisis Management
- Enterprise Risk Management

PROJECT DELIVERY

- Project Management
- Quality Management
- Project Controls
- Project Auditing
- Delivery Management System

AVAILABILITY & RELIABILITY

- Failure Modes & Critical Analysis
- Fault Tree Analysis
- Reliability, Availability & Maintainability
- Risk Based Inspection
- Reliability Centered Maintenance

EPConsult Energies

To discuss your requirements
please contact our specialists.

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