

Company Profile

PMC OilPro provides a variety of technical solutions designed to help the projects to achieve maximum value. We are a global company with office locations in France and Algeria. PMC OilPro has extensive experience in Engineering, Audit, inspection and monitoring of projects. We are expert in Safety Engineering throughout a broad spectrum of industries such as Oil & Gas onshore and offshore, Refinery, Petrochemical, Power Stations, Heavy Industries, Marine Terminals, Petroleum Tank farms, Dangerous product depots, Space industries, Steel Making industries, Railway companies, Food industries, Government & Municipality, law firms, Insurance companies and other consulting organizations.

PMC OilPro successfully identify, screen, and mobilize candidates who meet job requirements. Our staff has access to PMC OilPro online library. Our online Codes & Standards increase the productivity of our specialists while they are in our client offices.

PMC OilPro's Training Services offers a unique and unrivalled online and on the job training packages delivered by experienced and qualified trainers, providing diagnosis of problems and quality solutions.



PMC OilPro has the following operating divisions:

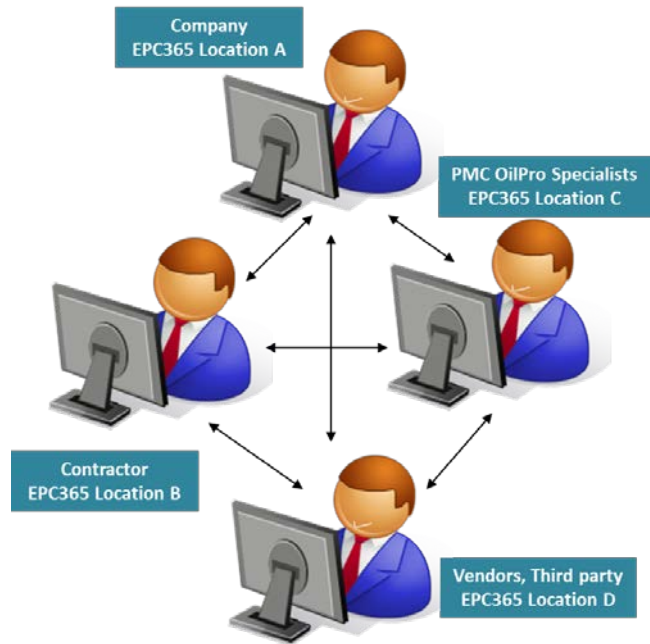
- Engineering, Audit, inspection and monitoring of projects.
- Safety Engineering
- Risk Based Engineering
- Safety Critical Element (SCE) Integrity monitoring
- Process Safety Management (PSM)
- Project Management by EPC365
- Training

For more information, please open our web site at: <http://www.epc365.com>

Engineering, Audit and monitoring

PMC OilPro performs engineering, audit, inspection and monitoring of the following activities but not limited to:

- Safety Engineering
- Risk Based Engineering
- Process Engineering
- Civil & Structural Engineering
- Piping Engineering & 3D model
- Pipeline Engineering
- Rotating Equipment engineering
- Static equipment engineering
- Packages Engineering
- Instrumentation, Automation & Process Control Engineering
- TELECOM Engineering
- HVAC Engineering
- Electrical Engineering
- commissioning Engineering
- Maintenance and inspection engineering



The main duty of the PMC OilPro Engineering Team, appointed for the Project, is to ensure that all the services and the design activities, part of the Scope of Work, are correctly implemented and in line with the contract requirements. Safety are the main scope of PMC OilPro engineering team activities. Design verification carried out jointly between Company, contractors, subcontractors and PMC OilPro. For discussion, please open our website at:

<http://www.epc365.com/engineering.html>

Safety Engineering

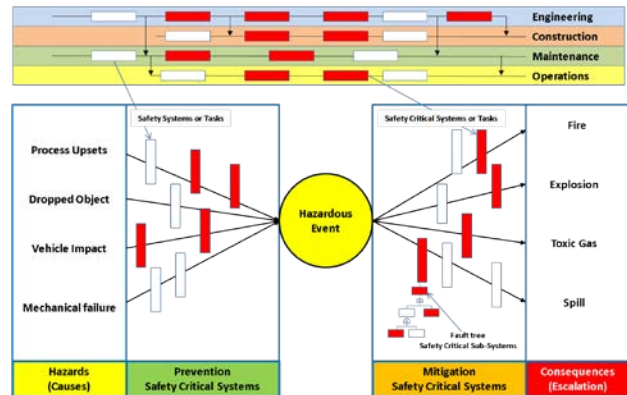
PMC OilPro prepares the safety & Fire Protection Plan for the design, construction and operation of the facilities.

This will be in accordance with specifications laid down in recognized International standards such as NFPA and Company standards. Our Safety engineering services will include but not be limited to the following:

- Issue of Safety Concept & Environmental Concept
 - Active & Passive Fire protection and Fire & Gas detection philosophy.
 - Layout drawings for firefighting systems
 - Layout drawings for fire & gas detection systems
 - P&ID for fire water and foam systems
 - Block Diagram for fire & gas detection systems
 - Cause and effect diagram of Fire & Gas detection systems
- Fireproofing zone maps
 - Hazardous equipment identification list
 - Data sheets for firefighting equipment
 - FW hydraulic calculation and surge analysis
 - Requests for Quotation packages for firefighting equipment
 - Noise Study
 - Participate in P&ID, Plot Plan and 3D model review

For discussion, please open our website at:

<http://www.epc365.com/safety-1.html>



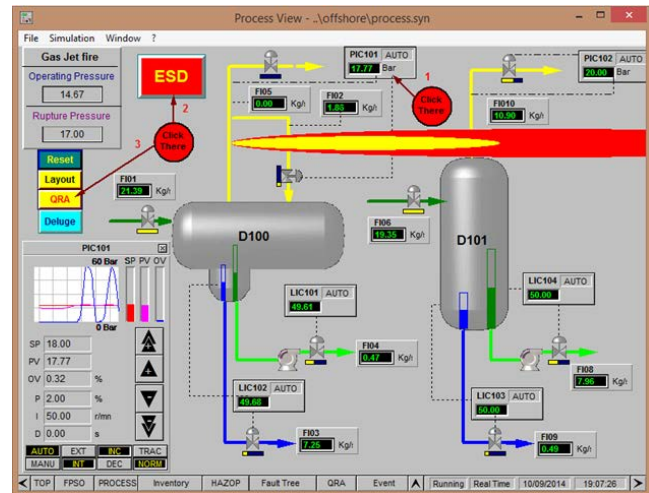
Risk Based Engineering

Hazard identification, evaluation and risk management is an integral part of the engineering activities and construction planning.

Risk Based Engineering include the HSE studies and reviews relevant to engineering such as but not limited to:

- HAZID
- HAZOP
- SIL
- PRA, DRA and QRA
- Risk Reduction Workshop
- Plant Layout Optimization
- ALARP demonstration
- Design HSE Case
- Safety Critical Element (SCE) Identification
- Performance Standards

For discussion, please open our website at:



The identification, evaluation and management process is regulated by specific procedures and may vary from project to project, depending on the type of plant, including location, applicable legislation, and the Company's requirements.

PMC OilPro prepares the risk based engineering Plan for the design, construction and operation of the facilities.

<http://www.epc365.com/risk.html>

SCE Performance Standards

PMC OilPro will issue the SCE Performance Standard for Safety Critical Elements (SCE) for Company review and approval. These are the key technical requirements to be met by SCEs in order to ensure they are effectively operable on demand, they perform as expected and they have some capacity to survive incidents.

Performance standards describe the goal of an SCE in its safety critical role and the performance requirements that SCEs must meet during design and operational life. Performance standards (PS) include all the controls that are needed to verify SCE integrity together with the minimum performance that should be maintained for each control point. Performance Standards should cover three main areas of control:

Functionality – What to control to ensure the equipment fulfills its functions.

Availability, reliability – At what frequency should it be controlled and maintained to meet performance/integrity minimum requirements.

Survivability – Does the equipment need to keep its functions during an incident and how to maintain this capacity.



SCE Identification

Identification of Safety Critical Elements (SCEs) will be derived from the major scenarios based on comprehensive assessments. SCE list will be utilized Bow-Tie analysis. The developed SCE list will be established by selecting individual SCEs involved in critical scenarios classified as "disastrous" or "catastrophic".

PMC OilPro will produce and maintain the SCE Register in EPC365.

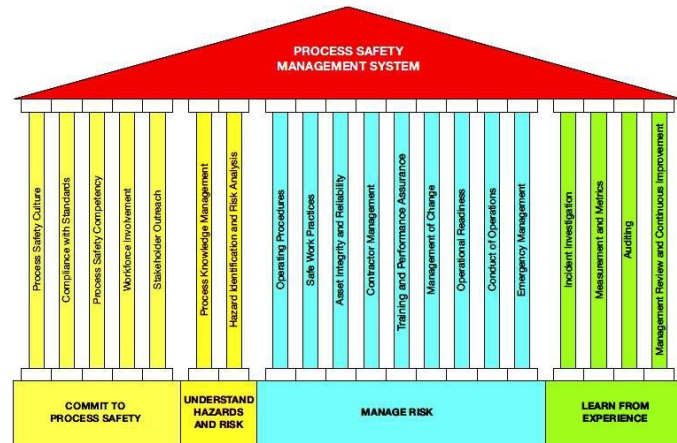
For discussion, please open our website at:

<http://www.epc365.com/sce-1.html>

Process Safety Management

PMC OilPro provide the following services:

- Process Safety Management (PSM) Development,
- PSM Implementation & Improvement
- PSM Auditing & Gap Identification
- PSM Training & Process Safety Culture
- Process Hazard Analysis (HAZOP, LOPA, HAZID, What-if, FMEA, BowTie, Fault Tree)
- Quantitative Risk Assessment (QRA), Consequence Modeling and Blast Effects
- Process Safety Information & Laboratory Testing
- Pre Start-Up Safety Reviews (PSSR)
- Permitting & Emergency Plans
- Major Hazards Safety Cases & Regulation Compliance



- Technical & Organizational Prevention Measures

PMC OilPro assists the projects in meeting their Process Safety Management challenges with a clear understanding of the requirements of sound Process Safety Management (PSM) program design and implementation, as well as global coverage and support to comply with local requirements.

For discussion, please open our website at:

<http://www.epc365.com/psm-1.html>

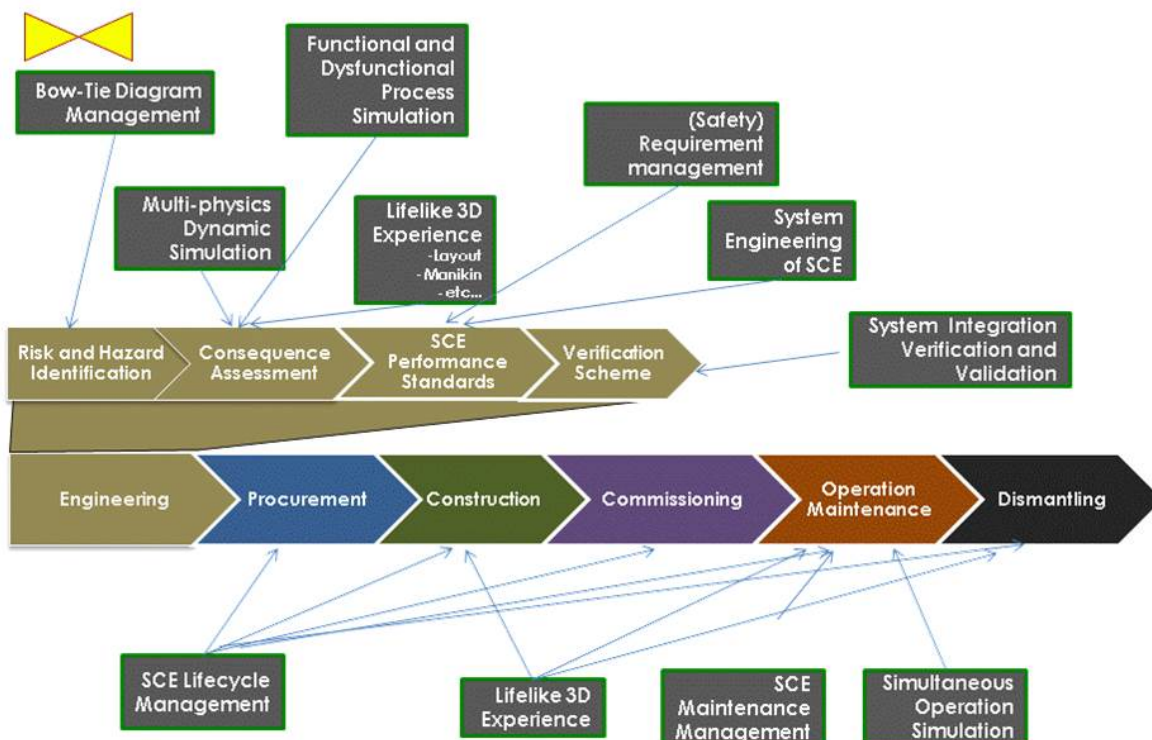
Project Management by EPC365

PMC OilPro assists the projects to manage the project by EPC365.

EPC365 workspaces are powered by Microsoft SharePoint. In EPC365 all projects are linked to Deliverables, Risk, Issues and Tasks. Discussions are also created for each discipline to make it easier to communicate and tie everything together.

EPC365 keeps the Company, Contractors, vendors and third party in touch, organize and manage schedules, share project documents through secure office365, access project databases, host web meetings and more. For more information, please open our web site at: <http://www.epc365.com/epc365.html>

Integrity Management by ADEPP monitor



Training

PMC OilPro is the approved trainer of ADEPP Academy academy. We offer a unique and unrevealed online, Customized and on the job training packages delivered by experienced and qualified trainers, providing diagnosis of problems and quality solutions.

Customized Training

Please open <http://www.adepp.com> to see the typical demo with dynamic simulations for operators training.

Training Workshops

Here below are our typical workshops:

- [C1: Fundamental of the Safety Engineering](#)
- [C2: Risk base Engineering](#)
- [C3- Process Safety Management](#)
- [C4- HSE Case for the Hazardous Projects](#)
- [C5-Fundamental of the Risk Assessment](#)
- [C6: Identification of Safety Criticals \(SCE\)](#)
- [C7: SCE Performance Standards](#)
- [C8: Fire, Explosion Risk Analysis \(FERA\)](#)
- [C9: Simultaneous Operation \(SIMOP\)](#)
- [C10: Implementation of HSE Management](#)
- [C11: HAZOP Methodology & Case Study](#)
- [C12: SIL Assessment](#)
- [C13: Bow-Tie Methodology for HAZID](#)
- [C14: Dynamic Simulation](#)
- [C15: Project HSE Review](#)



On the Job Training

PMC OILPRO trains the project staff by training workspace. For discussion, please open our website at:

<http://www.epc365.com/training-1.html>

E-Courses

Our typical E-Courses are as follows:

- Safety critical system identification
- Performance Standards

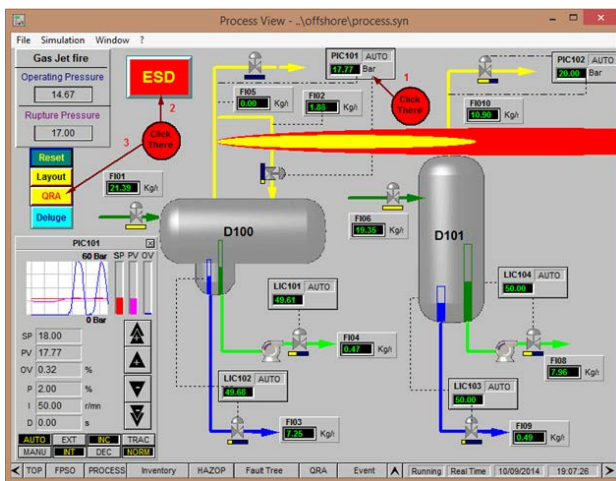
For discussions, open our E-courses in Yammer:

<https://www.yammer.com/adepp-training>

ADEPP Toolkit with monitor

PMC OilPro is the exclusive admin of ADEPP Toolkit with monitor. For more information, please open our web site at: <http://www.epc365.com/epc365.html>

ADEPP Toolkit



ADEPP stands for :

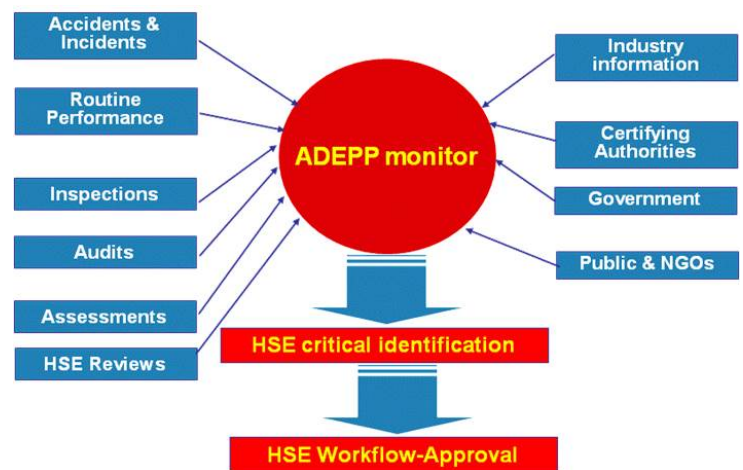
“Analysis & Dynamic Evaluation of Project Processes”.

ADEPP is designed to be customised for each project. ADEPP Toolkit provides a user friendly links to:

Design studies and Start-up and operational simulations and Training materials

Communication interface between the designers, operators, maintenance staff, third parties and the regulatory bodies.

ADEPP Monitor

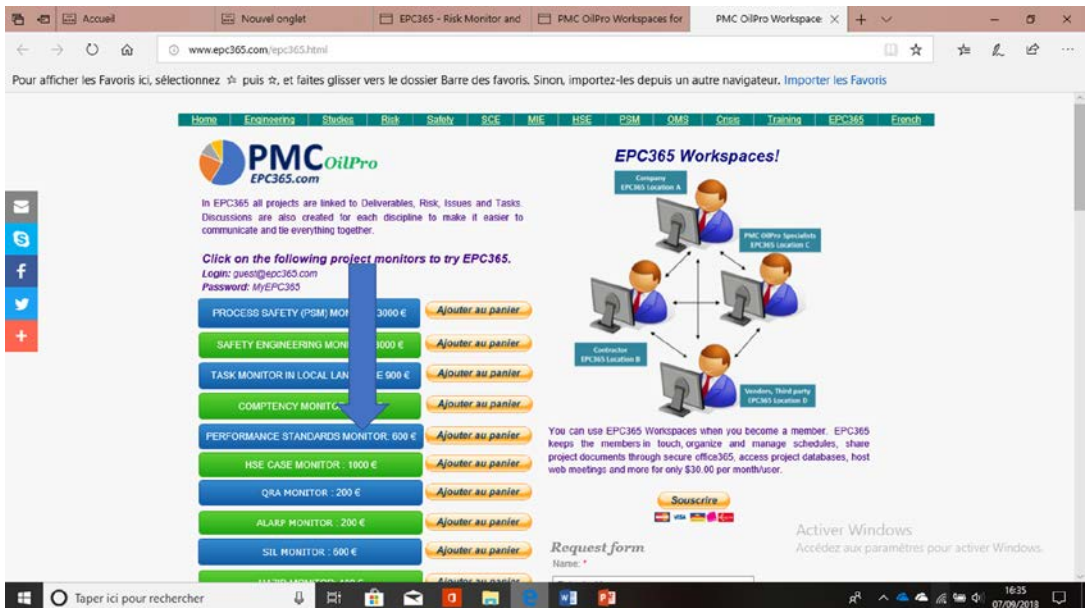
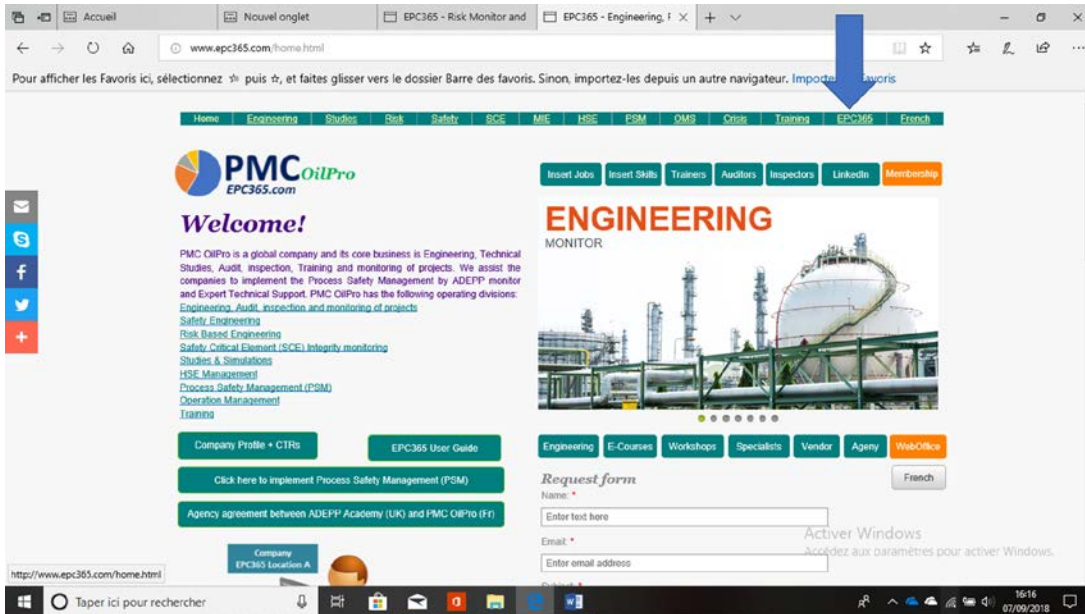


ADEPP monitor helps the projects to manage

the Critical Tasks for:

- Design and Construction
- Commissioning
- Maintenance and Operation
- Interface Management
- Simultaneous Operations (SIMOP)
- Modifications and Repair Activities
- Certifications

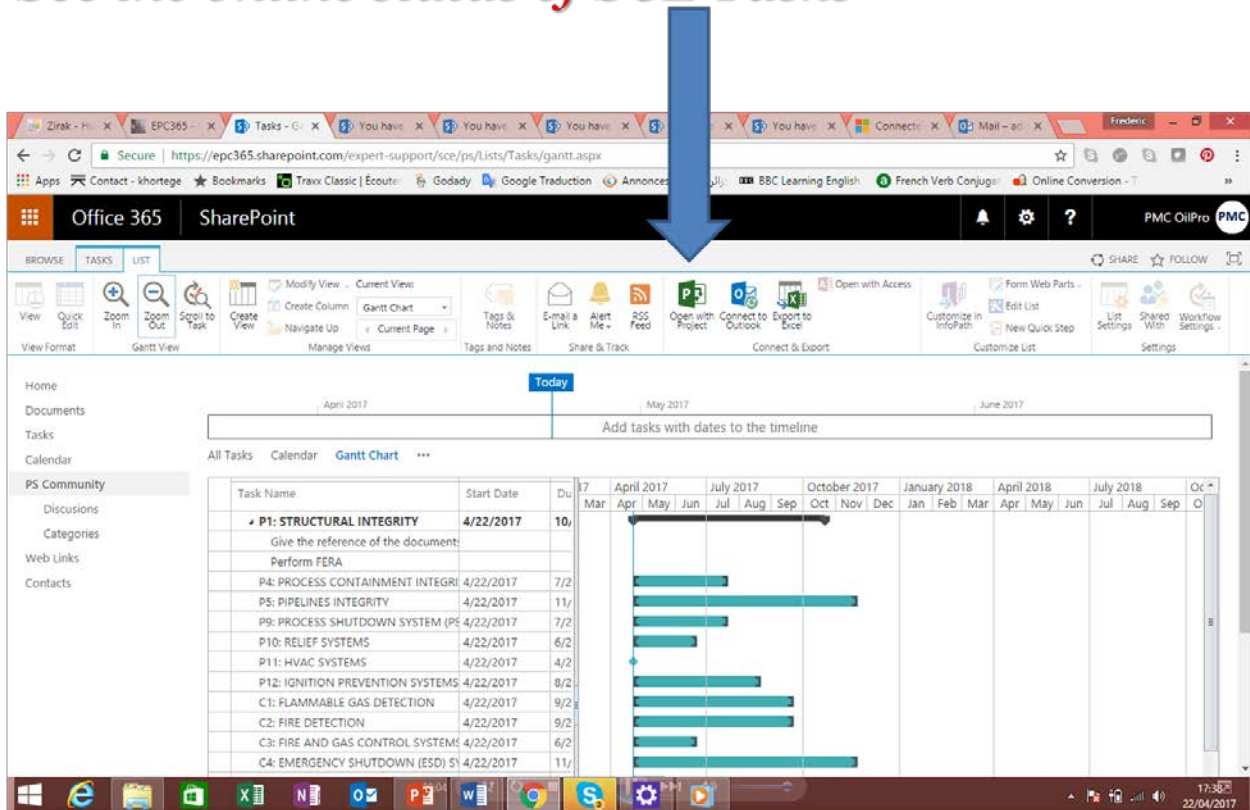
[Click on EPC365](http://www.epc365.com)





Project monitor by EPC365

See the online status of SCE Tasks



Resume of Key Personnel

Frederic Salimi (Director of PMC OilPro)

Frederic has over twenty years of design and management of petrochemical, oil and gas industries both onshore and offshore. Experience includes Safety engineering, process safety management, Risk Base Design for EPC projects. Expertise also include Safety & Environment code and standard compliance, pipeline Risk Assessment, Critical system identification, performance standard requirements, SIL assessment, HAZOP studies, Qualitative and Quantitative Risk Assessment (QRA).

Frederic was the Lead Safety Engineer/Technical Safety Engineer of the following projects:

Company (Date)	Title of Frederic SALIMI - project
TOTAL E&P (February 2009 – March 2017)	Lead Safety Engineer-TIMIMOUN project in Algeria and OML 58 in Nigeria
AGIP-KCO (October 2005– February 2009)	Technical Safety Engineer for KASHAGAN DEVELOPMENT EXPERIMENTAL PROGRAM
Parsons E&C (March 2004– October 2005)	HSE Manager for BU HASSA FACILITIES DEVELOPMENT PROJECT- ABU DHABI
SOFREGAZ France (March 2003– March 2004)	-Corporate HSE Manager in Paris -Lead Safety Engineer for Rhourde Nouss gas separation and compression project in Algeria -Lead Safety Engineer for BOTAS TGPS PIPELINE PROJECT in Turkey
Parsons E&C Houston office (October 2002 - February 2003)	Lead Safety Engineer for HABSHAN RUWAIS LIQUID SULPHUR PIPELINE PROJECT – ABU DHABI
JOHN BROWN London Office (August 2001 - October 2002)	Principal Safety Engineer for SCP/BTC PIPELINE PROJECT– RUSSIA
KVAERNER Abu Dhabi (April 2001 to August 2001)	PMC HSEQ Engineer for EPCM ADMA-OPCO CONTRACTS FOR GAS INJECTION PROJECT
ADWEA Abu Dhabi (April 2000 - April 2001)	HSE Advisor for WATER & ELECTRICITY REGULATION & SUPERVISION BUREAU
MULTIPLAN Abu Dhabi (December 1998 - February 2000)	Area Manager Middle East for PMC OILPRO Toolkit - ABU DHABI (UAE)
Parsons E&C (May 1998 - October 1998)	HSE Manager for ADNOC- ODG Phase II - ABU DHABI (UAE)
KVAERNER H&G Offshore Ltd in Croydon-UK (Sep. 1995 - May 1998)	Principal Safety Engineer for TRITON FPSO PROJECT

Company (Date)	Title of Frederic SALIMI - project
	Principal Safety Engineer for PHILLIPS - JUDY JOANNE OFFSHORE DEVELOPMENT - GAS INJECTION PROJECT Principal Safety Engineer for EXXON ARKUTUNDAGI P.A.D PROJECT
AMEC Process and Energy-London (Nov. 1994 - July 1995)	Senior Safety Engineer for SHELL, PELICAN PROJECT
Multiplan R&F -Paris (Oct. 1993- Nov. 1994)	HSE Advisor for development of PMC OILPRO HSE TOOLKIT
TECHNIP-Paris (Feb. 1988 to Oct. 1993)	<ul style="list-style-type: none"> -Lead Safety Engineer for TOTAL QATAR NORTH FIELD PHASE II -Lead Safety Engineer for PETRONAS, MELAKA SECOND REFINERY AND MARINE FACILITIES -Lead Safety Engineer for SOFRESID, ABOOZAR, BAHREGANZAR, SOROOSH for IOOC Iran -Lead Safety Engineer for BIPC, BANDAR IMAM PETROCHEMICAL COMPLEX Iran -Lead Safety Engineer for ADMA, New 36" MAIN OIL LINE, UAE -Deputy Lead Safety Engineer for BANGCHAK, Plant N° 2 (Thailand) -Deputy Lead Safety Engineer for IOOC, NASR OFFSHORE PRODUCTION COMPLEX, Iran -Technical Safety Engineer for KELLOG, LNG PROJECT FOR NNPC, NIGERIA

Selected Previous Contracts

- **PMC Contract TOTAL E&P for TIMIMOUN project in Algeria and OML 58 in Nigeria:**

Review and comments of Contractor's HSE documents. Participate in 3D Model review, Participate in HAZOP studies, Participate in HAZID studies, review SIMOP procedures, resolve the Passive Fire protection issues, resolve the Fire & Gas issues, resolve the fire protection philosophy, participate in SIL review and advise about Risk based design based on QRA, SCEs,

- **PMC Contract AGIP KCO KASHAGAN DEVELOPMENT project in Kazakhstan**

Review and comments of Contractor's HSE documents. Participate in 3D Model review, Participate in HAZOP studies, Participate in HAZID studies, review SIMOP procedures, Develop technical authority program and project specifications.

- **PMC Contract: Parsons E&C(London/UK) for OGD Phase II project of ADNOC.**

Advice, participation and analysis of HSE impact assessment (HSEIA), project HSE Review (PHSER), Risk Assessment, HAZOP. Review and comments on safety engineering project studies such as, Fire and safety protection/detection systems, Emergency shutdown systems, cause and effect Diagrams and safety philosophy and Hazardous area classification drawings.

- **Engineering Contract: Kvaerner Oil & Gas (Croydon /UK) for TRITON FPSO.**

Definition of methodology for safety system design study according to IEC 1508, SSIV location studies, Definition of scope of work and co-ordination of Quantitative Risk Assessment (QRA). Determination of safety critical system and performance standards. Preparation of design safety case.

- **Engineering Contract: TECHNIP for QATAR NORTH FIELD PHASE II**

Issue of Safety concept according to API standard and TOTAL SPEC, Hazardous area classification drawing according to API 500 and IP codes, Fire & Gas specification and layout drawing, Fire water demand calculation. Issue of P&ID of fire water network, Design of fire fighting system, Cause and effect matrix according to API 14 C., Escape route and life saving, issue of Major hazard report.

COST, TIME, RESOURCES (Engineering)

CTR-Eng-1	HAZID study
Purpose	to systematically identify the potential safety and environmental hazards and the associated threats to safe operation of the Project which can potentially lead to major incidents either directly or through escalation of events based on life cycle operation of the project facilities. It is part of Technological Risk Assessment.
Documentation	Project Safety related documentation (general lay-out, process documentation, list of processed and stored substances).
Tools and method:	EPC365 HAZID monitor. The meeting will be organized and monitored by project Design HSE Manager, is called by the Project Engineering Manager and coordinated by the PMC OilPro HAZID Chairman, who is also responsible for issuing the final report indicating reviewed subjects, required prescriptions, responsibilities and timing. The Design HSE Manager is in charge to follow up the relevant action plans in order to warrant that Project development duly complies with them. The relevant actions will be inserted in dedicated Design EPC365 workspace to create HSE Action Track Register and be monitored by the Design HSE Team.
Team	PMC OilPro SIL facilitator; Lead Process Engineer; Project Engineer; Instrument Engineer; Lead Discipline Engineers on request; Owner representative; Licensor representatives.
Timing	It is to be performed at FEED and at the beginning of Detail Engineering. A further step may be conducted before starting construction activities.
Resources	1 PMC OilPro Senior + 1 PMC OilPro Junior Engineer
Cost Estimate	Senior PMC OilPro: €1000/day Junior PMC OilPro: €600/day Total lump sum price will be issued based on scope of work.

CTR-Eng-2	HAZOP Study
Purpose	To provide an understanding of causes and consequences of deviations from expected behavior and facilitate decision making on actions needed to eliminate or reduce the risks. 1st Session HAZOP Study is dedicated to analysis of main process P&ID's.
Documentation	P&IDs after P&ID Review; instrumentation and equipment data sheets, interlock description, plot plan drawings, etc.)
Tools and method:	<p>EPC365 HAZOP monitor, Team: HAZOP Chairman (Third Party); HAZOP Secretary; Lead Process Engineer or their deputies; Project Engineer; Lead Discipline Engineers on request; Company's representatives; Licensor representatives. A dedicated procedure "Procedure for HAZOP" will be developed for the project. The HAZOP meeting will be organized and monitored by Design HSE Manager, is called by the Project Engineering Manager and coordinated by the PMC OilPro HAZOP Chairman, who is also responsible for issuing the final HAZOP report, that includes: the executive summary, methodology description, team composition, list of the analyzed P&ID's, working worksheets, required actions, responsibilities and timing; the Design HSE Manager is in charge to follow up the relevant action plans in order to warrant that Project development duly complies with them. The relevant actions will be inserted in dedicated Design HSE Action Track Registers and be monitored by EPC365 and the Design HSE Team.</p> <p>Any changes to the P&ID's or other documents after they have been subjected to a HAZOP, including those made during construction, shall be controlled by Management of Design HSE Changes</p>
Team	PMC OilPro SIL facilitator; Lead Process Engineer; Project Engineer; Instrument Engineer; Lead Discipline Engineers on request; Owner representative; Licensor representatives.
Timing	It is to be performed at FEED and at the beginning of Detail Engineering. Package HAZOP will be performed at detail design.
Resources	1 PMC OilPro Senior + 1 PMC OilPro Junior Engineer
Cost Estimate	Senior PMC OilPro: €1000/day Junior PMC OilPro: €600/day Total lump sum price will be issued based on scope of work.

CTR-Eng-3	SIL Assessment Study
Purpose	To classify the safety instrumented systems in order to obtain the risk reduction needed to get target defined as Tolerable risk; to guide to safe, cost effective and consistent design and implementation for Safety Instrumented Systems.
Documentation	P&IDs after P&ID Review; I instrumentation and equipment data sheets, interlock description, plot plan drawings, etc.
Tools and method:	EPC365 SIL monitor, A dedicated SIL assessment procedure will be developed for the project.
Team	PMC OilPro SIL facilitator; Lead Process Engineer; Project Engineer; Instrument Engineer; Lead Discipline Engineers on request; Owner representative; Licensor representatives.
Timing	It is to be performed in dedicated sessions just after HAZOP Study.
Resources	1 PMC OilPro Senior + 1 PMC OilPro Junior Engineer
Cost Estimate	Senior PMC OilPro: €1000/day Junior PMC OilPro: €600/day Total lump sum price will be issued based on scope of work.

CTR-Study-4	Safety Distance Studies
Purpose	To define the extent of Fire Zones, Restricted and Impacted Areas as Company referential and Applicable Code & Standards.
Documentation	P&ID and PFD drawings; plot plan and layouts; project Documentation
Tools and method:	The study will be performed by PMC OilPro expert and by third party software packages such as PHAST.
Team	The activity is coordinated by the project Design HSE Manager and PMC OilPro Specialists.
Timing	To be performed at FEED and the beginning of detail design. .
Resources	1 PMC OilPro Senior + 1 PMC OilPro Junior Engineer
Cost Estimate	Senior PMC OilPro: €1000/day Junior PMC OilPro: €600/day Total lump sum price will be issued based on scope of work.

CTR-Eng-5	Technological Risk Assessment
Purpose	To assess technological risks, associated with flammable, toxic, or explosive substances handled or processed in the project facilities that may impact individuals and public, the environment, integrity of the installations and associated production.
Documentation	PFD, P&ID drawings; Cause & effect, Safety related project documentations including general lay-out, process documentation, list of processed and stored substances etc.
Tools and method:	EPC365 TRA monitor, PHAST, CFD modelling, etc
Team	Project Design HSE team and PMC OilPro specialists
Timing	To be performed at FEED and during Detail design
Resources	3 PMC OILPRO Senior + 2 PMC OILPRO Junior Engineer
Cost Estimate (to be revised)	Senior PMC OilPro: €1000/day Junior PMC OilPro: €600/day Total lump sum price will be issued based on scope of work.

The Technological Risk Assessment includes HAZID Study, PRA study, DRA Study and QRA Study escribed below

CTR-Eng-6	Preliminary Risk Assessment (PRA) Study
Purpose	Objective of the preliminary risk assessment is to conservatively establish scenarios to be studied in detailed risk analysis. The risks associated with scenario hazard outcomes to human, environment and assets are screened with respect to damage frequency and severity categories using the COMPANY risk screening matrix to establish the list of scenarios to be studied in detail.
Documentation	P&ID drawings; project Documentation including general lay-out, process and safety documentation.
Tools and method:	Tools and method: A dedicated procedure developed according to project specifications. The preliminary risk assessment shall include the following steps: <ul style="list-style-type: none"> • Scenario development • Frequency of central critical events • Consequence of scenario hazard outcome • Frequencies of hazard outcome • Severity level of damage (human, environment and asset) • Reporting • PRA validation workshop.
Team	Project Design HSE team and PMC OilPro specialists with the

CTR-Eng-6	Preliminary Risk Assessment (PRA) Study
	contribution of Design Discipline Lead Engineers and Technical Specialists as required, Commissioning & Maintenance Coordinator. The activity is coordinated by the project Design HSE manager who is in charge to follow up the relevant action plans in order to warrant that Project development duly complies with them. The relevant actions will be inserted in dedicated Design HSE Action Track Register and be monitored by the Design HSE Team by EPC365.
Timing	To be performed at FEED and during Detail design
Resources	1 PMC OILPRO Senior + 2 PMC OILPRO Junior Engineer
Cost Estimate	Senior PMC OilPro: €1000/day Junior PMC OilPro: €600/day Total lump sum price will be issued based on scope of work.

CTR-Eng-7	Detailed Risk Assessment (DRA) Study
Purpose	The objective is to reconfirm the risk associated with major scenarios identified in a preliminary risk assessment by including the following: <ul style="list-style-type: none"> • Quantify frequency of central critical event and all hazard outcomes by modelling the available safety barriers • Estimate probabilistic damage by including the damage severity level and damage frequency associated a hazard outcome • Present the scenario risk results on the COMPANY risk matrix in terms of damage severity category with associated damage frequency of the hazard outcome, separately for human, environment and asset damage categories • Identify scenarios within Level 1 and Level 2 regions of the COMPANY risk matrix. Report the findings • Review Level 1 and Level 2 scenarios in a Risk Reduction Workshop for identifying potential risk reduction measures • Re-evaluate the scenarios associated with identified risk reduction measures for assisting ALARP demonstration. Report the findings • Demonstrate for each major scenario, the risk is managed with the help of bow-tie representation to ensure that at least one safety barrier is present on each branch of the bow-tie, on prevention and on control and mitigation sides.
Documentation	PRA, P&ID drawings; project Documentation including general lay-out, process and safety documentation.

CTR-Eng-7	Detailed Risk Assessment (DRA) Study
Tools and method:	<p>A dedicated procedure developed according to project specification "Technological Risk Assessment Methodology". The detailed risk assessment shall include the following steps: The following main tasks shall be performed as part of the detailed risk analysis of major scenarios:</p> <ul style="list-style-type: none"> • Review of scenarios • Perform frequency analysis • Perform consequence analysis • Review of escalation potential • Perform impact analysis (vulnerability to human, environment and asset) • Perform sensitivity studies • Present results and document the calculations and assumptions • Issue internally validated documents to COMPANY for comments • Incorporate COMPANY comments and reissue for the risk reduction workshop • Identify potential mitigation measures for Level 1 and Level 2 scenarios during the risk reduction workshop (Section 12.3) • Update of risk analysis to estimate the risk benefits associated with potential risk reductions measures • Issue internally validated report to COMPANY for comments • Incorporate COMPANY comments and reissue as final report.
Team	<p>Project Design HSE team and PMC OilPro specialists with the contribution of Design Discipline Lead Engineers and Technical Specialists as required, Commissioning & Maintenance Coordinator. The activity is coordinated by the project Design HSE manager who is in charge to follow up the relevant action plans in order to warrant that Project development duly complies with them. The relevant actions will be inserted in dedicated Design HSE Action Track Register and be monitored by the Design HSE Team by EPC365.</p>
Timing	To be performed after PRA study is completed.
Resources	3 PMC OilPro Senior + 2 PMC OilPro Junior Engineer
Cost Estimate	<p>Senior PMC OilPro: €1000/day Junior PMC OilPro: €600/day Total lump sum price will be issued based on scope of work.</p>

CTR-Eng-8	QRA Study
Purpose	to assess the risk to the workforce both within the site and beyond the fence line to members of the public. To confirm that appropriate controls have been identified and implemented to reduce the risks to acceptable levels/ALARP. To define both qualitatively and, where appropriate, quantitatively, the design features, the emergency systems, the protective and mitigation systems and equipment which can provide the most benefit in terms of risk reduction. It is part of Technological Risk Assessment.
Documentation	PFD, P&ID drawings; project Documentation including general lay-out, process and safety documentation.
Tools and method:	<p>A dedicated procedure developed according to project specification "Technological Risk Assessment Methodology". The Quantitative assessment shall include the following steps: The following main tasks shall be performed as part of the QRA studies:</p> <ul style="list-style-type: none"> • Review of scenarios • Perform frequency analysis • Perform consequence analysis • Review of escalation potential • Perform impact analysis (vulnerability to human) • Perform sensitivity studies • Present results and document the calculations and assumptions • Issue internally validated documents to COMPANY for comments • Incorporate COMPANY comments and reissue for the risk reduction workshop • Update of risk analysis to estimate the risk benefits associated with potential risk reductions measures • Issue internally validated report to COMPANY for comments • Incorporate COMPANY comments and reissue as final report.

CTR-Eng-9	Risk Reduction Workshop
Purpose	<p>The Risk Reduction Workshop (RRW) shall review the following aspects:</p> <ul style="list-style-type: none"> • Review the validated risk analysis results and associated uncertainties • Review the prevention and mitigation measures associated with major scenarios (scenarios on Level 1 or Level 2 of the risk matrix) • Review the validated QRA results and associated uncertainties • Identify potential risk reduction measures for consideration • Identify Safety Critical Measures associated with major scenarios based on their effect in the risk management of major scenarios. • Perform and validate Plant Layout Optimization taking into consideration the recommendations of DRA and detailed QRA
Documentation	PRA, DRA and QRA, PFDs, P&IDs drawings; project Documentation including general lay-out, process and safety documentation.
Tools and method:	A dedicated procedure will be developed according to project specification "Technological Risk Assessment Methodology"
Team	Project Design HSE team and PMC OilPro specialists with the contribution of Design Discipline Lead Engineers and Technical Specialists as required, Commissioning & Maintenance Coordinator. Action Track Register and be monitored by the Design HSE Team by EPC365.
Timing	To be performed after PRA, DRA &QRA study is completed
Resources	1PMC OilPro Senior + 1 PMC OilPro Junior Engineer
Cost Estimate	Senior PMC OilPro: €1000/day Junior PMC OilPro: €600/day Total lump sum price will be issued based on scope of work.

CTR-Eng-10	Identification of Safety Critical Elements and development of Performance Standards
Purpose	<p>to identify the Safety Critical Elements (SCE) and develop the related Performance Standards. SCE are any element whose failure will either cause or contribute to a major accident, the purpose of which is to prevent or limit the effect of a major accident.</p> <p>Performance standards describe the goal of an SCE in its safety critical role and the performance requirements/thresholds (acceptance criteria) the SCE must meet during design and operational life.</p> <p>Performance Standards should cover at least three main areas of control:</p> <ol style="list-style-type: none"> 1. Functionality – What to control to ensure the equipment fulfils its functions 2. Availability, reliability – At what frequency should it be controlled and maintained to meet performance/integrity minimum requirements 3. Survivability – Does the equipment need to keep its functions during an incident and how to maintain this capacity derived from the major scenarios that have been analyzed during the Detailed Risk Assessment
Documentation	PRA, DRA and QRA, PFDs, P&IDs drawings; project disciplines Documentation including general lay-out, process and safety documentation.
Tools and method:	A dedicated procedure developed according to project specification.
Team	Project Design HSE team and PMC OilPro specialists with the contribution of Design Discipline Lead Engineers and Technical Specialists as required, Commissioning & Maintenance Coordinator. Action Track Register and be monitored by the Design HSE Team by EPC365.
Timing	Identification of SCE will be performed during DRA. Performance standards development will be performed after identification of Safety Critical Elements (SCE).
Resources	3PMC OilPro Senior + 2 PMC OilPro Junior Engineer
Cost Estimate	<p>Senior PMC OilPro: €1000/day</p> <p>Junior PMC OilPro: €600/day</p> <p>Total lump sum price will be issued based on scope of work.</p>



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CTR-Eng-11	RAM Study
Purpose	To assess the overall Availability of the Timimoun process facilities.
Documentation	PFDs, P&IDs drawings after HAZOP/SIL Analysis; PFDs, project documentation including general lay-out, process documentation, etc.
Tools and method:	A dedicated procedure will be developed with basis of assumptions according to project specification. The study will be performed with a dedicated software, for the assessment of the availability, reliability, productivity and maintainability characteristics of complex systems, and based on two consecutive steps: the process FMEA and the development of the availability model.
Team	Project Design HSE team and PMC OilPro specialists with the contribution of Design Discipline Lead Engineers and Technical Specialists as required, Lead Commissioning & Maintenance engineers. Action Track Register and be monitored by the Design HSE Team by EPC365.
Timing	To be performed after PRA, DRA &QRA study is completed
Resources	1PMC OilPro Senior + 3 PMC OilPro Junior Engineer
Cost Estimate	Senior PMC OilPro: €1000/day Junior PMC OilPro: €600/day Total lump sum price will be issued based on scope of work.



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CTR-ICT-12	Online HSE Action Track Register by EPC365																																	
Purpose:	To manage record-keeping of any critical system and activities related recommendations/action items, as identified in the project and as consequence of items generated by the studies, reviews, site observations, minutes of meeting and others; to ensure that all critical actions are adequately followed up and satisfactorily closed out.																																	
Documentation:	HAZID, HAZOP, PRA, DRA, QRA, RRW, process safety related actions, Audit and inspections recommendations, etc.																																	
Tools	EPC365 monitor																																	
Timing:	One month																																	
Resources	1 PMC OilPro Senior + 1 Junior PMC OilPro Engineer																																	
Cost Estimate (to be revised base on SOW)	<p>EPC365 databases for online action tracking:</p> <table border="0"> <tr><td>PERFORMANCE STANDARDS MONITOR</td><td>€600</td></tr> <tr><td>HSE CASE MONITOR</td><td>€1000</td></tr> <tr><td>QRA MONITOR</td><td>€200</td></tr> <tr><td>ALARP MONITOR</td><td>€200</td></tr> <tr><td>SIL MONITOR</td><td>€600</td></tr> <tr><td>HAZID MONITOR</td><td>€100</td></tr> <tr><td>HAZOP MONITOR</td><td>€200</td></tr> <tr><td>BOW-TIE MONITOR</td><td>€200</td></tr> <tr><td>HSE AUDIT MONITOR</td><td>€200</td></tr> <tr><td>HSE MANAGEMENT SYSTEM MONITOR</td><td>€200</td></tr> <tr><td>P & ID REVIEW MONITOR</td><td>€400</td></tr> <tr><td>ACCIDENT INVESTIGATION MONITOR</td><td>€600</td></tr> <tr><td>HSE PLAN MONITOR</td><td>€50</td></tr> <tr><td>PTW MONITOR</td><td>€50</td></tr> <tr><td>JHA MONITOR</td><td>€50</td></tr> <tr><td>INTERFACE MONITOR</td><td>€50</td></tr> </table> <p>EPC365 keeps Company, Contractors, vendors and third party in touch, organize and manage schedules, share project documents through secure office365, access project databases, host web meetings and more for €30 per month/user.</p> <p>EPC365 can be customized for any project. PMC OilPro expert daily rate is 1200 Euro/day. Cost of customization will be given based on Scope of work.</p>	PERFORMANCE STANDARDS MONITOR	€600	HSE CASE MONITOR	€1000	QRA MONITOR	€200	ALARP MONITOR	€200	SIL MONITOR	€600	HAZID MONITOR	€100	HAZOP MONITOR	€200	BOW-TIE MONITOR	€200	HSE AUDIT MONITOR	€200	HSE MANAGEMENT SYSTEM MONITOR	€200	P & ID REVIEW MONITOR	€400	ACCIDENT INVESTIGATION MONITOR	€600	HSE PLAN MONITOR	€50	PTW MONITOR	€50	JHA MONITOR	€50	INTERFACE MONITOR	€50	
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INTERFACE MONITOR	€50																																	

COST, TIME, RESOURCES (Training)

CTR-C1: HSE Case for the Hazardous Projects

Lecturer:	Frederic SALIMI
Course Duration:	2 days
Target Trainee:	This program is well suited to Process Safety Engineers, Plant managers, Safety supervisors, Process Engineers, Safety Engineers and discipline Engineers.
Description:	<p>The objective of this course is to give a practical develop HSE case for hazardous project. Attendance of consequence analysis course is recommended. The following subjects will be discussed:</p> <ul style="list-style-type: none"> • Methodology of QRA, • Failure Case definition, • Consequence assessment and Frequency analysis, • Risk calculation and ALARP demonstration, • Identification of Safety Critical Systems, • Application of EPC365 for traceability and audibility of Safety Critical Elements.
Environment:	EPC365, PowerPoint Presentation with handouts User group discussions
On the job training:	3 months with EPC365 HSE Case monitor
Cost:	1000 €/Person

CTR C2: Identification of Safety Critical Elements

Lecturer:	Frederic Salimi
Course Duration:	2 days
Target Trainee:	This program is well suited to Process Safety Engineers, Plant managers, Safety supervisors, Process Engineers, Safety Engineers and discipline Engineers.
Description:	<p>The objective of this course is to give a practical understanding of the methodologies that may be used to identify Safety Critical Systems, Subsystem and Elements. Attendance of consequence analysis course is recommended. The following subjects will be discussed:</p> <p>Major Accident Hazard; definition, examples, compliance with regulations such as COMAH and PFEER.</p> <p>Qualitative method for determination of the SCEs including:</p> <ul style="list-style-type: none"> - Brainstorming session methodology and example - Safety Criticality Criteria - Required supporting documents and evidences - Action tracking, follow up - EPC365 application to ensure to traceability & audibility
Environment:	EPC365, PowerPoint Presentation with handouts User group discussions
On the job training:	3 months with EPC365 SCE monitor
Cost:	1000 €/Person

CTR-C3: Development of the Performance Standards

Lecturer:	Frederic Salimi
Course Duration:	2 days
Target Trainee:	This program is well suited to Process Safety Engineers, Plant managers, Safety supervisors, Process Engineers, Safety Engineers and discipline Engineers.
Description:	<p>The objective of this course is to give a practical understanding of the methodologies that may be used to develop performance standards for Safety Critical Systems, Subsystem and Elements. Attendance of safety Critical Elements identification course is recommended.</p> <p>The following subjects will be discussed:</p> <ul style="list-style-type: none"> • Methodology of identification of Safety Critical Elements (SCE), • Compliance with regulation such as COMAH and PFEER, • Scope and boundaries of Performance Standard • Definition of functionality for SCEs, • Definition of Reliability/ availability for SCEs, • Definition of Survivability, • Definition of SCEs interactions, • Assurance & Verification Scheme.
Environment:	EPC365, PowerPoint Presentation with handouts User group discussions
On the job training:	3 months with EPC365 PS monitor
Cost:	1000 €/Person

CTR-C4: Consequence Modelling for Fire, Explosion and Toxic Releases.

Lecturer:	Frederic Salimi
Course Duration:	2 days
Target Trainee:	This program is well suited to Process and/or Safety Engineers.
Description:	<p>The objective of this course is to understand how the consequence modelling of Fire, Explosion and Toxic release is used in the design of the safety and process safety systems. The following subjects will be discussed:</p> <ul style="list-style-type: none"> • Fundamental of Fire, Explosion and Toxic Release consequence modelling, • Governing Scenarios; Consequence Analysis Criteria, • Gas dispersion & Hazardous Area Classification, • Fire Zones, Basis to determine the restricted Areas, • Basis to determine the passive fire protection zones, • Basis to determine the active fire protection zones, • Blast Zones, Basis to determine the blast protection zones, • Thermal & Blast effect on Equipment and People • Safety Barrier Management; optimization between the preventive and mitigation measures.
Environment:	EPC365, PowerPoint presentation with handouts User group discussions
On the job training:	3 months with EPC365 monitor
Cost:	1000 €/Person

CTR-C5: Fundamental of the Risk Assessment & Case Study

Lecturer:	Frederic Salimi
Course Duration:	2 days
Target Trainee:	Plant managers, Safety supervisors, Process Engineers, Safety engineers and engineers.
Description:	<p>The objective of this course is to give a practical understanding of the methodologies that may be used to identify, quantify and evaluate the risks of their operations involving hazardous materials and processes.</p> <p>Attendance of HAZOP course is recommended. The following subjects will be discussed: The following subjects will be discussed:</p> <ul style="list-style-type: none"> • Why QRA? Methodology of QRA • Failure Case definition • Consequence assessment • Frequency analysis • Risk calculation • Risk analysis & ALARP justification • Risk Based design
Environment:	EPC365 Risk monitor, PowerPoint presentation with handouts User group discussions
On the job training:	3 months with EPC365 Risk monitor
Cost:	1000 €/Person

CTR-C6: Simultaneous Operation (SIMOP)

Lecturer:	Frederic Salimi
Course Duration:	2 days
Target Trainee:	Plant managers, Safety supervisors, Process Engineers, Safety engineers and engineers.
Description:	<p>The objective of this course is to give a practical understanding of the methodologies that may be used to identify, quantify, and evaluate the risks of SIMOP.</p> <p>The following subjects will be discussed:</p> <ul style="list-style-type: none"> • SIMOP Methodology • Consequence assessment • Frequency analysis • Risk calculation • Risk analysis • SIMOP work permit • SIMOP records and action tracking by EPC365
Environment:	EPC365 SIMOP monitor, PowerPoint presentation with handouts User group discussions
On the job training:	3 months with EPC365 SIMOP monitor
Cost :	1000 €/Person

CTR- C7: Implementation of HSE Management System

Lecturer:	Frederic Salimi
Course Duration:	2 days
Target Trainee:	This program is well suited to all functions and levels of management, engineers and Health, Safety and Environmental professionals who participated in HSE Management program.
Description:	<p>Through several practical examples of HSE Management system, you will learn about the practical techniques for planning, implementing and monitoring effective HSE management system. This includes:</p> <ul style="list-style-type: none"> How to identify and assess risks on a day-to-day basis. How to identify system elements and activities that are effective for managing risk and controlling loss, and which provide a basis for continuous improvement. How to apply professional management principles and techniques to design, develop and implement comprehensive safety systems, How to monitor and manage change within the organisation's safety culture. Upon successful completion of this course, participants will understand and be able to demonstrate: HSE Policy, HSEMS Structure, Hierarchy of documents, Responsibilities, Elements and Expectations of HSEMS, Development and managing teams.
Environment:	EPC365 HSEMS monitor, PowerPoint presentation with handouts User group discussions
On the job training:	3 months with EPC365 HSEMS monitor
Cost:	1000 €/Person

CTR-C8: HAZOP Methodology & Case Study

Lecturer:	Dr Fabienne Salimi
Course Duration:	2 days
Target Trainee:	Plant managers, Safety supervisors, Process Engineers, Instrument engineers, Safety engineers and discipline engineers.
Description:	<p>The objective of this course is to train the HAZOP chairmen and attendees to think and assess in a systematic manner the hazards associated to the operation. The following subjects will be covered:</p> <ul style="list-style-type: none"> • How to apply the API 14C for those process hazard with potential of the Major Accident, How to apply IEC61511 to assess the hazards associated to failure on demand and spurious trips, How to apply dynamic simulation to assess the consequence of the: • process deviation, <ul style="list-style-type: none"> * failure on demand and spurious function of the safety system, * alarm function and operator intervention, * F&G scenarios • How to record the worksheets efficiently to cover all phases, How to apply Acrobat writer to document HAZOP in a user-friendly manner, How to apply ADEPP monitor for action tracking & follow up.
Environment:	EPC365 HAZOP monitor, PowerPoint presentation with handouts User group discussions
On the job training:	3 months with EPC365 HAZOP monitor
Cost:	3000 €/Person

CTR-C9: SIL Assessment Methodology & Case Study

Lecturer:	Dr Fabienne Salimi
Course Duration:	2 days
Target Trainee:	Plant managers, Safety supervisors, Process Engineers, Instrument engineers, Safety engineers and discipline engineers.
Description:	<p>The objective of this course is to train the SIL chairmen and attendees to think and assess in a systematic manner the required SIL assessment and verification. The following subjects will be covered:</p> <ul style="list-style-type: none"> • Basic definitions; tolerable risk, probability of failure on demand, layer protection, safety integrity, etc. • Qualitative SIL assessment with which using the risk graphs and calibration tables during the brainstorming sessions the required SIL is assigned to the safety systems. • Quantitative SIL assessment using combination of Event tree and Fault tree analysis. • SIL verification; practical options to achieve the required SIL • Case studies; Overpressure protection, HIPPS, F&G ESD • Applications of ADEPP monitor for an online action tracking and follow up.
Environment:	EPC365 SIL monitor, PowerPoint presentation with handouts User group discussions
On the job training:	3 months with EPC365 SIL monitor
Cost:	3000 €/Person

CTR-C10: Application of the Bow-Tie Methodology in HAZID

Lecturer:	Dr Fabienne Salimi
Course Duration:	2 days
Target Trainee:	Plant managers, Safety supervisors, Process Engineers, Instrument engineers, Safety engineers and discipline engineers.
Description:	<p>Objective of this course is to train the attendees to identify the hazards, threats, incident and accident consequences, preventive and mitigation with a systematic manner. Attendance of consequence analysis course is recommended.</p> <p>The following subjects will be covered:</p> <ul style="list-style-type: none"> • Basic definitions; including risk, incident, accident, consequence, frequency, preventive and mitigation measures, • Introduction to ISO 17776 checklist as the hazard identification guideline, • HAZID brainstorming sessions with Qualitative Bow-Tie; method, key words, and worksheets, • Risk ranking and screening, • Action tracking and follow up with PMC OILPRO monitor, • Introduction to Quantitative Bow-Tie for ALARP demonstration, Case study for a F&E scenario.
Environment:	EPC365, ADEPP HSE-Toolkit, PMC OILPRO monitor, Power-Point-presentation with handouts User group discussions
On the job training:	3 months with EPC365 monitor
Cost:	2500 €/Person

CTR-C11: Risk Based Design & Integrity Assurance

Lecturer:	Frederic Salimi
Course Duration:	2 days
Target Trainee:	This program is well suited to Process safety Engineers, Plant managers, Safety supervisors, Process Engineers, Safety Engineers and discipline Engineers.
Description:	<p>The objective of this course is to understand how the risk studies are used in design.</p> <p>The following subjects will be discussed:</p> <ul style="list-style-type: none"> • Hazard identification & definition of the credible scenarios • Consequence assessment and Frequency analysis • Risk calculation and Risk evaluation and ranking • Safety barrier management • Determination of the Safety Critical Elements (SCE) • Performance Standards for the Design of safety Critical Elements and Integrity assurance by EPC35 integrity monitor • SCE integrity Tasks
Environment:	EPC365, ADEPP HSE-Toolkit, Power-Point-presentation with handouts User group discussions
On the job training:	3 months with EPC365 monitor
Cost :	1000 €/Person

CTR-C12: Project HSE Review

Lecturer:	Frederic SALIMI
Course Duration:	2 days
Target Trainee:	Plant managers, Safety supervisors, Process Engineers, Instrument engineers, Safety engineers and discipline engineers.
Description:	<p>The objective of this course is to understand audit and verification methods and tools to ensure the compliance and consistency with contract, regulations, code & standards, project philosophies and studies. The following subjects will be discussed:</p> <ul style="list-style-type: none"> • Customized checklists from the applicable code, standards and guidelines such as API 14J, API 14C, ISO 13702, • Audit and project compliance • Safety Concern Register • Applications of PMC OILPRO monitor for a traceable, auditable online action tracking follow up and hand-over.
Environment:	EPC365 monitor, ADEPP HSE-Toolkit, PowerPoint presentation with handouts User group discussions
On the job training:	3 months with EPC365 PHSER monitor
Cost:	1000 €/Person

CTR-C13: Process Safety

Lecturer:	Dr. Fabienne Salimi
Course Duration:	3 days
Target Trainee:	Plant managers, Safety supervisors, Process Engineers, Instrument engineers, Safety engineers and discipline engineers.
Description:	<p>The objective of this course is to understand the process hazards and process safety barriers.</p> <p>The following subjects will be discussed:</p> <ul style="list-style-type: none"> • How to find the information about the Hazardous material; CAMEO a useful tool for the Material Safety Data Sheet (MSDS) • How to choose the best process hazard identification method; HAZOP, FMCEA, What if? • Inherently safe design and Layer protection and SIL assessment concept, • Primary & Secondary protection for the Major accident scenarios; application of API 14C and SAFE chart • Typical PSD and ESD cause & effect • Pressure Relief & Blowdown requirements; API 521 and IP Guidelines for Jet fire scenarios • Process Safeguarding Memorandum and Case studies
Environment:	EPC365, ADEPP HSE-Toolkit, PowerPoint presentation with handouts User group discussions
On the job training:	3 months with EPC365 monitor
Cost :	3000 €/Person

CTR-C14: Dynamic Simulation in Process Safety Design

Lecturer:	Dr. Fabienne Salimi
Course Duration:	2 days
Target Trainee:	Plant managers, Safety supervisors, Process Engineers, Instrument engineers, Safety engineers and discipline engineers.
Description:	<p>The objective of this course is to understand the how dynamic simulation helps to identify the process hazards, measure the extent and duration of the consequences and the effect and efficiency of the safety barriers. With dynamic simulation could be optimized with greater accuracy. This saves a significant effort, time and cost for the project.</p> <p>The following subjects will be discussed:</p> <ul style="list-style-type: none"> • What is dynamic simulation? • Application of dynamic simulation in: <ul style="list-style-type: none"> * Alarm Management * Fire & Explosion Study • When dynamic simulation should be used? • Dynamic simulation tools • Workshop & Case studies
Environment:	EPC365, ADEPP HSE-Toolkit, PowerPoint presentation with handouts User group discussions
On the job training:	3 months with EPC365 monitor
Cost:	3500 €/Person

CTR-C15: Customized Training

The technical training will be organized in modules.

The following are the typical customized training for an onshore gas plant

Subject	Duration
Kick-off Meeting	1 day
Mobilization	10 days
Training Material Preparation	100 days
A Module - General Classroom Training	
A 1 General Overview Training	13 days
A2 Safety Concept	13 days
A3 - Work Permit Procedure	7 days
B Module - Specialized Training by ADEPP Academy	
B 1 - Reception & Separation	4 days
B 2 - Dehydration	5 days
B 3 - TEG Regeneration	5 days
B 4 - Condensate Storage & Loading	5 days
B 5- LP & HP Flares	3 days
B 6 - CO2 Vent System	3 days
B 7 - Closed & Open Drain System	3 days
B 8 - Fire Water System	4 days
B 9 - Process Water Treatment	3 days
B 10 - Sewage Treatment	2 days
B 11 - Fixed Lifting Equipment	3 days
B 12 - Fire Fighting Truck	5 days

Cost: €1000/day