

SCOPE OF WORK FOR SUPPLY OF THE FLARE TIP

PRE-QUALIFICATION PHASE

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Rev. No.	Date	Description	Prepared	Checked	Approved
Client Doc. No.:		PU-D-ROA10164226300-EX-GE-SOW-001-04-E	Phase EXECUTE		
Project Title:		KO DRUM V601 AND FLARE TIP REPLACEMENT PROJECT_EXECUTE PHASE	Page no.: 1 of 9		

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1.0 GENERAL

OMV PETROM is the Operator for a group of offshore assets in the Black Sea, off Constanta in Romania. The offshore facilities operated by PETROM consist of six satellite platforms (PFS3, PFS4, PFS6, PFS7, PFS8 and PFSU) feeding into a Central production facility (PFCP) comprising of PFCPA (Gas), PFCP-B (Oil), C1 (Utilities), C2 (Accommodation), PFS1 and PFS2.

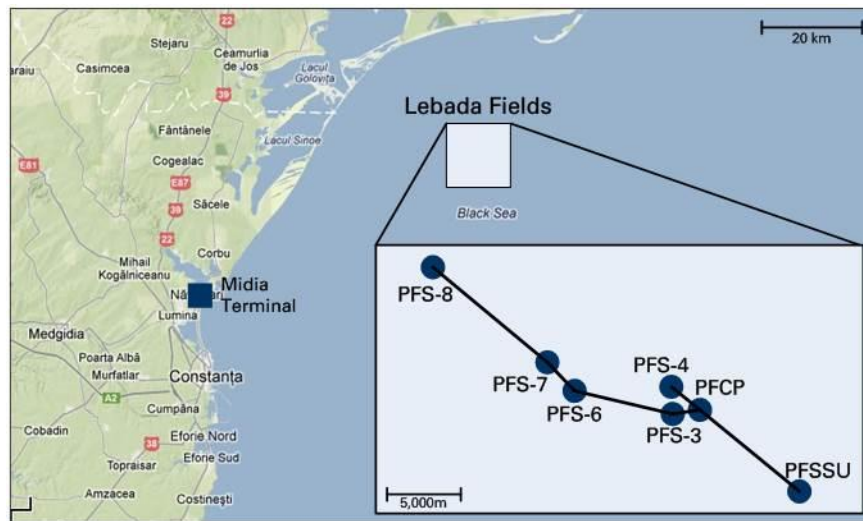


Figure 1: Asset X Platforms Location

On the Central Production Facility Platform PFCP (including bridge-linked PFS-1 and PFS2), the main separation process of oil (on PFCP-B), gas (on PFCP-A) and water is undertaken prior to export of hydrocarbons to the onshore Midia Terminal.

The flare system on PFCP gathers gas releases from platform equipment and routes the gases to two KO drums, V-500 and V601.

The flare stack for PFCP is located on a separate jacket at the end of a bridge attached to platform PFS1.

2.0 ABBREVIATIONS

AFC	Approved for Construction
API	American Petroleum Institute
ATEX	Explosive Atmosphere
CE	Conformity European
DDP	Direct Duty Paid
DCS	Distributed Control System
EC	European Commission
EEU	European Economic Union

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Share capital subscribed and paid:
 5,664,410,833.50 lei

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EPCCM	Engineering, Procurement, Construction and Commissioning Management services
FAT	Factory Acceptance Test
HAZOP	Hazard and Operability
HV	High Voltage
IDC	Inter Discipline Checking
IFC	Issued for Comment
ISO	International Organization for Standardization
NDE	Non-Destructive Evaluation
OMVP	OMV PETROM S.A.
PED	Pressure Equipment Directive
PFCP	Production Central Fixed Platform
WBS	Work Breakdown Structure

3.0 DEFINITIONS

- **APPLICABLE LAWS:** means all laws, treaties, regulations, standards, decrees, rules, decisions, judgements, orders, injunctions, authorizations, directives, permits, licenses or authorizations applicable to the performance of the WORKS and the completed FACILITIES and issued by or adopted by any Governmental Authority having jurisdiction over the matter in question and which are in effect at the time in question;
- **COMMISSIONING:** means testing and adjustment of each identified subsystem of the FACILITIES and will include operational testing under real operating conditions to ensure that PROJECT meets all applicable Rules, Regulations, Codes and Standards, fulfils all requirements by CONTRACT and Ready for Start-up Certificate has been approved by COMPANY;
- **COMPANY:** means OMV PETROM S.A.;
- **CONTRACTOR:** Independent entity that agrees to furnish certain number or quantity of goods, material, equipment, personnel, and/or services that meet or exceed stated requirements or specifications, at a mutually agreed upon price and within a specified timeframe to another independent entity called COMPANY or project owner.
- **CONTRACT SCHEDULE:** means the schedule for delivery of the WORKS by the CONTRACTOR as specified by the COMPANY;
- **EPCCM CONTRACTOR:** means AMEC-CP92 JV;
- **EXECUTE PHASE:** third phase of the project life cycle. In this phase, the physical project deliverables/activities are built and presented to your customer for signoff.
- **FACILITIES:** means all the surface facilities associated (existing, new and modified) on offshore platforms;
- **GOVERNMENTAL AUTHORITY:** means any government whether federal, state or municipal, or any ministry, department, court, commission, board, branch, agency, institution or similar authority of any such government and includes, for the avoidance of doubt, the authorities of ROMANIA and EUROPEAN UNION;
- **PROJECT:** means the “KO Drum PFCP-A-43-V-001(V601) and Flare Tip replacement”;

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- **PRE-COMMISSIONING:** means checking, verification testing, adjustments, calibration, etc. of each identified subsystem of the FACILITIES without introducing hydrocarbons into the FACILITIES. Each identified subsystem of the FACILITIES shall be brought to the stage of Ready for Commissioning when Pre-Commissioning is completed, and Ready for Commissioning Certificate has been approved by COMPANY;
- **SCOPE OF WORK (or SoW):** means all WORKS to be executed and completed by the CONTRACTOR under the CONTRACT;
- **SITE** means any COMPANY locations where the project SoW shall be constructed and to which materials are to be delivered and any other places as may be specified in the CONTRACT as forming part of the SITE.
- **SUBCONTRACTOR(s):** includes vendors and means any person or persons, firm, partnership, corporation or combination thereof (not being an employee of CONTRACTOR), to whom any part of the WORKS has been subcontracted by CONTRACTOR;
- **THIRD PARTY:** means any organization, authority and/ or person or persons other than COMPANY and CONTRACTOR;
- **WORKS:** means the detailed engineering, procurement and supply, transportation and fabrication as described in the contents of this document.

4.0 APPLICABLE LAWS, STANDARDS AND NORMS

Laws, codes and standards which apply for the Project are provided in referenced project documents and in the following List provided by OMV Petrom in document number PU-D-ROA10114226004-EX-GE-LST-001-01-E - OMV Upstream Engineering Standards June 2018.

Key documents from PU-D-ROA10114226004-EX-GE-LST-001-01-E are noted below, but CONTRACTOR is to check compliance with all relevant documentation contained within:

API 521	Pressure-relieving and Depressuring Systems
API RP 521	Guide for Pressure-relieving and Depressuring Systems
API 537	Flare Details for Petroleum, Petrochemical and Natural Gas Industries
ASME B16.5	Steel Pipe Flanges and Flange Fittings
ASME B31.3	Process Piping
OSHA 1910.119	Process Safety Management of Highly Hazardous Chemicals
EP FA MP 02 TS	Technical Specification for Piping Material Classes
EP FA MP 01 PH	Philosophy for colour code according to flow medium
EP FA MP 01 RP	Material Selection Guide
HSEQ-RO-06-03-01	Permit to Work System
RO-EP-QA-GDL-008-00-E QA	Factory Acceptance Test

Other specifications applied include those associated with fabrication (welding, NDE, and materials).

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5.0 REFERENCE DOCUMENTS

PE-D-A10164226300_01-ME-SPC-001-E - Piping classes specification,
 PE-D-A10164226300_01-HS-REP-004-E - Vapour cloud & Flare gas dispersion study report
 PE-D-A10164226300_01-HS-REP-005-E - Flare Radiation Assessment modelling and Report
 PE-D-A10164226300_01-EL-SPC-002-E - Ignition panel specification
 PE-D-A10164226300_01-ME-SPC-007-E - Specification for Flare tip package
 PE-D-A10164226300_01-ME-DAS-003-E - Data Sheet for Flare tip 43-TP-001

Above mentioned documents can and will be upgraded during EXECUTE PHASE of the project and additional documents can be added based on necessity.

6.0 LANGUAGE

All FINAL DOCUMENTATION, proposals, correspondence and communications shall be in English language, with the exception of documents required for Romanian Authorities and the ones used by OMVP offshore Operations team which should be in English and Romanian language.

Where COMPANY requires documents seeking permits and approvals from the authorities or legislative bodies or any other documents required in Romanian language these shall be specified by COMPANY and these shall be authorized via CHANGE ORDER process.

7.0 SCOPE OF WORK

The scope of this document is to define the requirements for the performance, executions, delivery and completion of one Flare Tip, one Molecular Seal/Air Lock Seal (or equivalent) and one Ignition Panel for the PROJECT – EXECUTE PHASE.

7.1 DETAIL ENGINEERING DELIVERABLES/ACTIVITIES

The deliverables and activities to be performed by the CONTRACTOR include, but are not limited to, those in the following list:

- Incorporate engineering deliverables of SUBCONTRACTORS into its overall Detail Engineering (including final documentation);
- Review of technical information, including client specifications, standards and procedures, preparing for and attending technical meetings and workshops (including HAZOP and Constructability) as required;
- Technical support during detail design and commissioning phase;
- Provision of offshore surveys, if applicable;
- Provide and maintain 3D model of Flare Tip, Ignition Panel and related equipment in an AutoCAD 3D compatible file;
- Provide Detailed Engineering package containing appropriate Process, Mechanical, Electrical and Control/Instrumentation and any other relevant documentation

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- Fabrication/Production schedule;
- Non-destructive test procedures;
- PED Certifications and approvals
- ATEX Certifications and approvals
- Assist in the production of detailed Construction Plan;
- Input into Construction Work Pack reviews;
- Input into Mechanical Handling reviews and Lifting Plans as required.
- Issue Installation procedure
- Preparation of the manufacturers record book (MRB);
- Offshore assistance during Ignition Panel commissioning
- Provision of commissioning/2 years Operating/Insurance SPIRs;

7.2 CONTRACTOR RESPONSIBILITIES

CONTRACTOR shall:

- Comply with APPLICABLE LAWS, Regulatory Laws and Standards, applicable for the performance and completion of the WORK, including, but not limited to, Romanian, regional (including European Commission and European Union) and International laws, government decisions and decrees;
- Comply with the requirements, recommendations and procedures of the relevant industry codes and standards and regulatory authorities in the performance of the WORK;
- At all times comply in all respects with, and is responsible for meeting the requirements, recommendations and procedures as set by the COMPANY in its Management System Standards;
- Carry out the WORK in accordance with the requirements and standards set out in the specific CONTRACT;
- Inform COMPANY of any changes to the current laws and legislation in respect to the WORK;
- Comply fully with all the requirements set out in the CONTRACT, including compliance with the specific CONTRACT SCHEDULE. CONTRACTOR shall identify all interfaces with COMPANY, THIRD PARTIES and / or SUBCONTRACTORS;
- Be fully responsible to ensure all WORKS, including all SUBCONTRACTORS, are progressed and completed in accordance with the CONTRACT SCHEDULE (i.e. including deliverables and/or activities required to support the procurement process, supply of equipment and material and support the procurement process and provision of fabrication);
- Provide full Quality Assurance and Quality Control of the WORKS;
- Provide full Project Management of the WORKS.

7.3 CONTRACTOR PROJECT MANAGEMENT AND COMPETENCE REQUIREMENTS

The CONTRACTOR will be responsible for the full WORKS as outlined in this document. The CONTRACTOR will also have the following responsibilities:

- Have in place an accredited HSE and Quality Management System;
- Provide all personnel and supervision, to achieve completion of the WORKS;

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- Provide an accredited Quality Control Program consistent with the overall project that ensures a high-quality deliverable is provided which meets the COMPANY's requirements;
- Coordination of its activities with the EPCCM CONTRACTOR, COMPANY or any THIRD PARTY
- Provide competence and experience of technical and project management personnel identified to complete the WORKS (including CVs);
- Provide relevant CONTRACTOR experience of supplying Flare Tips offshore and onshore (including number of completed projects in the last 5 years, geographical location, client, contract values);
- Provide any other services necessary for successful completion of the work;
- Provide specific exclusions to the above scope and requirements.

8.0 BATTERY LIMITS

For instrumentation the battery limits are existing Delta V DCS and Delta V SIS cabinets.

The power supply boundaries are represented by the incoming terminals of flare ignition panel.

The flare ignition panel and all cabling starting from panel to pilot burners are in CONTRACTOR's charge (i.e. HV ignition cables and temperature thermocouple cables) as per reference document PE-D-A10164226300_01-EL-SPC-002-E - Ignition panel specification.

Battery limits for piping and mechanical is defined by:

- connection flange with existing flare stack;
- connection flange for high pressure vent;
- connection flange for low pressure vent connection flange for gas pilot gas supply;
- connection flange for steam purges.

See reference documents from point 5.0. Data to be confirmed later.

9.0 FACTORY ACCEPTANCE TEST (FAT)

FAT is the responsibility of the CONTRACTOR that shall propose FAT procedures for all equipment deliveries. FAT procedures and acceptance criteria shall be approved by COMPANY and EPCCM CONTRACTOR before commencement of any FAT.

CONTRACTOR shall ensure that packages shall be tested as far as practically possible and in accordance with COMPANY Standard RO-EP-QA-GDL-008-00-E-QA on Factory Acceptance Test.

EPCCM CONTRACTOR and COMPANY have the right to attend and witness all equipment FATs. Therefore 10 (ten) working days prior to performance of each FAT, CONTRACTOR shall notify EPCCM CONTRACTOR of the equipment item, the time and the location of the FAT.

All punchlist items shall be cleared and all relevant Certification shall be reviewed and approved by COMPANY before the equipment can be sent offshore.

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10.0 DELIVERY AND WARRANTY PERIOD

The delivery period for the Flare Tip, Ignition Panel, Molecular Seal/Air Lock Seal (or equivalent) and any other associated equipment is expected to be 20 weeks DDP to Constanta, Romania. Equipment Warranty is 24 months from delivery, but not less than 18 months from installation.

11.0 MATERIALS AND EQUIPMENT

CONTRACTOR shall be responsible for preparing required plans/procedures for the management of offloading, storage, and verification of receipt, preservation, handling, installation, and weld out or securing of all equipment at warehouse.

All items shall be delivered with associated certification, where appropriate. Items shall be delivered as a package or unit requiring mechanical installation, levelling, integration with system and mechanical completion.

12.0 WORK BREAKDOWN STRUCTURE

CONTRACTOR shall agree with the COMPANY, based on COMPANY procedures, an appropriate WBS for implementation of the offshore Construction & Commissioning scope.

13.0 PRESSURE EQUIPMENT DIRECTIVE (PED) REQUIREMENTS

CONTRACTOR shall comply with mandatory EC Directives during all construction activities, and shall ensure that all individual components, requirement and complete packages, as appropriate, are 'CE' marked as applicable. Supporting 'Declaration of Conformity'/'Declaration of Incorporation' shall be included in the Certification Manual.

CONTRACTOR has a legal obligation to follow the Pressure Equipment Regulations which is applicable to all pressure equipment with maximum allowable pressure greater than 0.5 barg, in the EEU, except for certain excluded equipment (as defined in the regulations). It is a requirement that all items supplied which fall under the scope of this legislation and requires CONTRACTOR and Sub-SUBCONTRACTORS to comply with these requirements are covered and suitably CE marked.

14.0 QUALITY ASSURANCE AND QUALITY CONTROL

All the project Quality Assurance and Quality Control activities, objectives and deliverables shall be fully aligned with and in compliance with COMPANY Standards and Procedures referred to in this Scope of Work and in CONTRACT.

CONTRACTOR and its SUBCONTRACTORS shall operate and maintain an independently verified and approved Quality Assurance System in accordance with ISO 9001:2015, to ensure that the product or service provided complies in all respects with the requirements of the contract and associated documentation.

SUBCONTRACTORS shall submit for approval, upon request, a list of key Sub-SUBCONTRACTORS.