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| **طرح نگهداشت و افزایش تولید 27 مخزن** | | | | | | | |
| **PMR FOR FLARE PACKAGES**  **نگهداشت و افزایش تولید میدان نفتی بینک** | | | | | | | |
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| D00 | May. 2023 | IFI | H. Adineh | M.Fakharian | A.M.Mohseni |  |
| **Rev.** | **Date** | **Purpose of Issue/Status** | **Prepared by:** | **Checked by:** | **Approved by:** | **CLIENT Approval** |
| **Class: 3** | | **CLIENT Doc. Number: F0Z-709237** | | | | |
| **Status:** | **IDC: Inter-Discipline Check**  **IFC: Issued For Comment**  **IFA: Issued For Approval**  **AFD: Approved For Design**  **AFC: Approved For Construction**  **AFP: Approved For Purchase**  **AFQ:** Approved For Quotation  **IFI: Issued For Information**  **AB-R: As-Built for CLIENT Review**  **AB-A: As-Built –Approved** | | | | | |

**REVISION RECORD SHEET**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **PAGE** | **D00** | **D01** | **D02** | **D03** | **D04** |  | **PAGE** | **D00** | **D01** | **D02** | **D03** | **D04** |
| **1** | X |  |  |  |  | **66** |  |  |  |  |  |
| **2** | X |  |  |  |  | **67** |  |  |  |  |  |
| **3** | X |  |  |  |  | **68** |  |  |  |  |  |
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| **15** | X |  |  |  |  | **80** |  |  |  |  |  |
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| **20** | X |  |  |  |  | **85** |  |  |  |  |  |
| **21** | X |  |  |  |  | **86** |  |  |  |  |  |
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| **23** | X |  |  |  |  | **88** |  |  |  |  |  |
| **24** | X |  |  |  |  | **89** |  |  |  |  |  |
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| **28** | X |  |  |  |  | **93** |  |  |  |  |  |
| **29** | X |  |  |  |  | **94** |  |  |  |  |  |
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1. **INTRODUCTION**

Binak oilfield in Bushehr province is a part of the southern oilfields of Iran, is located 20 km northwest of Genaveh city.

With the aim of increasing production of oil from Binak oilfield, an EPC/EPD Project has been defined by NIOC/NISOC and awarded to Petro Iran Development Company (PEDCO). Also PEDCO (as General Contractor) has assigned the EPC-packages of the Project to "Hirgan Energy - Design and Inspection" JV.

As a part of the Project, a New Gas Compressor Station (adjacent to existing Binak GCS) shall be constructed to gather of 15 MMSCFD (approx.) associated gases and compress & transfer them to Siahmakan GIS.

**GENERAL DEFINITION**

The following terms shall be used in this document.

|  |  |
| --- | --- |
| CLIENT: | National Iranian South Oilfields Company (NISOC) |
| PROJECT: | Binak Oilfield Development – Surface Facilities; New Gas Compressor Station |
| EPD/EPC CONTRACTOR (GC): | Petro Iran Development Company (PEDCO) |
| EPC CONTRACTOR /PURCHASER: | Joint Venture of : Hirgan Energy – Design & Inspection (D&I) Companies |
| VENDOR: | The firm or person who will fabricate/supply the equipment or material. |
| EXECUTOR: | Executor is the party which carries out all or part of construction and/or commissioning for the project. |
| THIRD PARTY INSPECTOR (TPI): | The firm appointed by EPD/EPC CONTRACTOR (GC) and approved by CLIENT (in writing) for the inspection of goods. |
| SHALL: | Is used where a provision is mandatory. |
| SHOULD: | Is used where a provision is advisory only. |
| WILL: | Is normally used in connection with the action by CLIENT rather than by an EPC/EPD CONTRACTOR, VENDOR. |
| MAY: | Is used where a provision is completely discretionary. |

1. **GENERAL**

* This document presents the item material requisitions for Contractor’s use as appropriate.
* This material requisition covers the requirements for the design, manufacturing, testing and supply of flare packages as listed below. All equipment/devices/items shall conform to this requisition and all specifications which have been mentioned in Attachment 1 of this material requisition.
* The vendor's supply shall include:

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Item** | **Description** | **QTY.** |
| 1 | FST-2201 | LP FLARE PACKAGE | 1 SET |
| 2 | IG-2201 | LP FLARE IGNITION PACKAGE | 1 SET |

1. **reference / ATTACHED DOCUMENTS**
2. Specified documents in attachment 1 shall be considered as a part of this material Requisition.
3. All codes and standards which have been referenced in above mentioned specs shall be considered.
4. In case of any conflict between the contents of this document or any discrepancy between this document and other project documents or reference standards, this issue must be reported to the CLIENT. The final decision in this situation will be made by CLIENT.
5. Deviations

Any exceptions/clarifications to codes/standards and specifications listed in attachment 1 must be clearly stated in a separate dedicated section of the proposal in the format submitted in attachment 3.

The proposed deviations/comments list shall include as minimum:

* Reference for the involved specification, chapter and paragraph.
* Technical justification for the non-compliance.
* Detailed description of the proposed alternative.

If no exceptions or clarifications exist, either for the complete referenced document or an individual paragraph, VENDOR shall be considered to be in full compliance with the relevant document.

VENDOR may propose materials of equivalent or better quality compared to those indicated in the equipment data sheet. Even these cases shall be duly included/technically supported in the deviations/clarifications list.

1. **SUBJECT OF THE SUPPLY**

Vendor’s Scope of supply and works shall be in accordance to Para. 5 of this Material Requisition. Exceptions, deviations and alternatives will be valid only by written approval of Purchaser.

The Vendor shall include in the supply, all other equipment/ devices/ item not listed in the following but not necessary for good design and a safe operation, taking into account process data and installation conditions such as area classification and climatic conditions.

For general terms and conditions of material/equipment purchasing (e.g. delivery condition,…) reference should be made to Purchaser’s inquiry package.

1. **LIMITS OF SUPPLY**
   1. **scope of supply**

Vendor’s technical proposal shall include but not be limited to, equipment, materials specified in the following table. Hereunder articles marked with "X" shall be within Vendor’s Scope of Supply and articles marked with “O” shall be considered as optional.

| **Description** | **Required by Purchaser** | **Bidder’s**  **Proposal (\*)** | **Remarks** |
| --- | --- | --- | --- |
| Flare package including: |  |  |  |
| 1. Flare Tip including: | [ X ] | [ ] | Sub-sonic type |
| * Self-inspiring pilots | [ X ] | [ ] |  |
| * Windshield | [ X ] | [ ] |  |
| * Thermocouples (for flame monitoring) | [ X ] | [ ] | K type  Dual element |
| * Flame retention device | [ X ] | [ ] |  |
| * Purge conservation device (as integrated) | [ X ] | [ ] | Molecular seal |
| * Lifting lugs | [ X ] | [ ] |  |
| * All clips and supports for cable ducts, ignition and gas/air pipes, etc. | [ X ] | [ ] |  |
| * All required bolts, nuts and gaskets | [ X ] | [ ] |  |
| 1. Flare stack including: | [ X ] | [ ] |  |
| * Flanged connection at top (for Tip) | [ X ] | [ ] | Retractable type |
| * Davit (mounted on top) | [ X ] | [ ] |  |
| * Air craft warning light (with all required cables, etc.) | [ X ] | [ ] |  |
| * Winch (manual and electrical) with all required pulleys | [ X ] | [ ] |  |
| * Earthing lugs | [ X ] | [ ] |  |
| * Lifting lugs | [ X ] | [ ] |  |
| * All clips and supports for cable ducts, ignition and gas/air pipes, ACWL, junction box, nameplate, etc. | [ X ] | [ ] | prefabricated |
| 1. Support structure (derrick) including: | [ X ] | [ ] |  |
| * Top platform (360o) for maintenance of flare tip, pilot and seal | [ X ] | [ ] |  |
| * All access platforms | [ X ] | [ ] |  |
| * Caged ladders | [ X ] | [ ] |  |
| * Resting platforms | [ X ] | [ ] |  |
| * Gratings, toe guards, etc. | [ X ] | [ ] |  |
| 4. Ignition system including: | [ X ] | [ ] | Automatic  re-ignition |
| * High energy igniter (HEI) | [ X ] | [ ] |  |
| * Flame front generator (FFG) | [ X ] | [ ] |  |
| * Ignition generator | [ X ] | [ ] |  |
| * High voltage spark plug | [ X ] | [ ] |  |
| * Ignition control panel type A (with all required push buttons and alarms) | [ X ] | [ ] |  |
| * Electrical and instrumentation junction boxes | [ X ] | [ ] |  |
| * Mounting stand equipped with sun shade and rain hood | [ X ] | [ ] |  |
| * Earthing lug | [ X ] | [ ] |  |
| * All types of valves, gauges, transmitters and all required piping and cabling/wiring from pilots on the flare tip to local control panel | [ X ] | [ ] |  |
| 1. Liquid drain system including piping and valves within the package | [ X ] | [ ] | for smokeless operation |
| 1. Air blower including:  * Electrical motor with terminal box * All required cables, cable glands, wiring, etc. within the package * Control panel * All interconnecting ducting/supports | [ X ] | [ ] |  |
| 1. LPG cylinders including:  * Bottle rack/skid with sun shade * Pressure gauge * Piping and required valves * Lifting and earthing lugs | [ X ] | [ ] |  |
| 1. All necessary piping materials within the package battery limit such as flanges, valves, fittings, supports, gaskets, bolts / nuts, etc according to P&ID | [ X ] | [ ] |  |
| 1. All necessary electrical equipment within the package battery limit such as motors, cables, cable glands, etc. | [ X ] | [ ] |  |
| 1. All necessary instrument equipment within the package battery limit such as transmitters, gauges, wiring / tubing, control valves, safety valves, junction boxes, etc. | [ X ] | [ ] |  |
| 1. Lifting lugs for all other pieces and equipment required inside the package | [ X ] | [ ] | where necessary |
| 1. Anchor bolts, nuts, and templates | [ X ] | [ ] | 10% |
| 1. Touch-up paint | [ X ] | [ ] | stainless steel |
| 1. Nameplates | [ X ] | [ ] |  |
| 1. Spare parts for pre-commissioning, commissioning and start-up | [ O ] | [ ] |  |
| 1. Spare parts for two years operation (based on project’s spare part requirement) | [ X ] | [ ] |  |
| 1. Special tools for erection and maintenance | [ X ] | [ ] |  |
| 1. Other accessories required for safe operation (not referred in this MR.) |  |  |  |

(\*) : Bidder to put “C” as confirmation or “D” as deviation and to fill the related form (Att. #3) accordingly.

Commissioning and start-up spare parts shall be listed in a separate SPIR form (Att. #5 If requested).

During bid stage and if requested by the Purchaser, Vendor shall submit a detail list of spare parts for two years of operation (Based on Project’s Spare Part requirements)

**Notes:**

1. Sub-Vendor List (If applicable) shall be specified in Attachment #5 which will be subject to Purchaser's Approval.
2. Vendor shall confirm and clarify suitability of above mentioned scope of supply based on technical aspect, safe operation, his experience and industrial normal practices.
3. All utilities (Instrument air, nitrogen …) will be delivered at one point. Distribution is by Vendor.
   1. **SCOPE OF WORK**

Vendor’s technical proposal shall include but not be limited to works specified in the following table. Hereunder Articles marked with "X" shall be within Vendor’s Scope of Work and articles marked with “O” shall be considered as optional.

| **Description** | **Required by Purchaser** | **Bidder’s**  **Proposal (\*)** | **Remarks** |
| --- | --- | --- | --- |
| 1. Engineering Design and Documentation, Document control and submissions to purchaser for review/ comments/ Final Filling and updating them progressively 2. As built drawing and documents | [ X ] | [ ] |  |
| 1. Manufacturing and Assembling | [ X ] | [ ] |  |
| 1. Trial assembling at shop | [ X ] | [ ] |  |
| 1. PIM (pre-inspection meeting) | [ X ] | [ ] |  |
| 1. Procurement | [ X ] | [ ] |  |
| 1. Sub-Vendor Coordination | [ X ] | [ ] |  |
| 1. Guarantee For:  * Mechanical * Process * Performance * Dispersion and radiation * Smokeless * Noise level * Utility consumption * Flue gas emission * Gas dispersion * Flaring capacity * Pressure drop * Radiation level * Material compliance with the specification | [ X ] | [ ] |  |
| 1. Calculations and study reports for:  * Mechanical and structural (including static calculations, foundation load calculations, strength calculations for flare and lifting equipment) * Radiation and dispersion * Noise * Pressure drop | [ X ] | [ ] |  |
| 1. HAZOP | [ X ] | [ ] |  |
| 1. Inspection and Testing at Shop | [ X ] | [ ] |  |
| 1. Services for Field Test | [ X ] | [ ] |  |
| 1. Painting at Shop | [ X ] | [ ] |  |
| 1. Packing and Marking | [ X ] | [ ] |  |
| 1. Shipping and Transportation according to Delivery Conditions | [ X ] | [ ] |  |
| 1. Supervision for Installation / Assembling (per diem) | [ O ] | [ ] |  |
| 1. Supervision for start-up, Commissioning, Initial Operation & Test Runs | [ O ] | [ ] |  |
| 1. Certification | [ X ] | [ ] | Material, IP, ATEX, etc. |
| 1. Management including coordination with sub-vendors | [ X ] | [ ] |  |
| 1. Export Customs Clearance | [ X ] | [ ] |  |
| 1. Obtain any Export License or other Official Authorization for Exportation | [ X ] | [ ] |  |
| 1. Vendor Shop Training for Client’s Personnel (Training for Operation and Maintenance) | [ O ] | [ ] |  |

**Notes:**

(\*) Bidder to put “C” as confirmation or “D” as deviation and to fill the related form (Att. #3) accordingly.

The Design and Construction shall comply with all Regulations of the Project Defined Codes and Standards.

All document to be submitted with vendor's proposal shall be in reproducible(s)according to attachment #2 requirements and be written in English.

All documents and drawings shall state the name of purchaser work No., Identification No. and the name of commodity.

Vendor should submit the commercial quotation according to procurement instruction for proposal commercial part.

All prefabricated components or loose-supplied components shall be clearly identified by suitable marking method in order to simplify field handling, storage and erection.

All rolled plates shall be shipped on temporary saddles to prevent any deformation during handling and storage (such temporary saddles shall be supplied by VENDOR)

* 1. **Spare parts**

Following items shall be considered (supplied) and included in the bid documentation:

* Spare parts for erection, commissioning, pre-commissioning and start-up; a qualified and complete list based on PROJECT SPARE PART SUPPLY PROCEDURE (Doc. No. E&C-QC-SP-1).
* Spare parts for two years operation; a qualified and complete list based on PROJECT SPARE PART SUPPLY PROCEDURE (Doc. No. E&C-QC-SP-1).
* Capital spare parts (as option / if any)
  1. **exclusion**
* Site Installation Cathodic protection
* Foundation anchor bolts
* Civil work at site

1. **INSPECTION AND TESTS**

The equipment shall be inspected and tested in accordance with the Inspection &Test plan (ITP) issued by the vendor and approved by the CLIENT/EPC CONTRACTOR before the award of the order . The Inspection & Test plan (ITP) shall be at least according to the Commodity Procurement and Manufacturing Inspection Instruction (Docs .Nos. ICE-EID-MI-SP01-Rev01), Inspection Level of Commodity and Equipment (Docs .Nos. ICE-EID-MI-SP02-Rev01) and Data Sheets. The vendor shall in any case conduct all the tests required by contractual documents, specifications, codes and standards, manufacturer standard quality system and keep the relevant documentation. All required manufacturing and function test/inspection also Factory Acceptance Test /Site Acceptance Test and Quality Assurance requirements shall be considered in vendor responsibility as per-project specification.

1. **VENDOR DOCUMENTATION REQUIREMENTS & SCHEDULE**

* Vendor document shall be according to attachment 2 of this document.
* All documents, preliminary or final, are to be stamped and signed by VENDOR.
* Failure in dispatch of the required documents shall cause the supply to be considered as unfulfilled.
* PURCHASER’s approval does not relieve vendor, in any way, from his obligation to fulfill the requirements of the purchase order documents.
* All vendor drawings and documents shall be in English language.

All drawings and documents are to be identified as per clause 1 **“GENERAL DEFINITION”**

1. **UNIT RESPONSIBILITY**

VENDOR shall be responsible for the design, engineering, co-ordination, supply, manufacturing/ fabrication (delivery, testing, final check-out and satisfactory operation of the equipment/devices/items. The engineering coordination also includes responsibility for handing and expediting drawings.

Also VENDOR shall be responsible for ensuring that all relevant information and documentation is passed on the sub-Vendors.

1. **GUARANTEE AND WARRANTY**

All material and Equipment/Devices/Items in VENDOR’s scope of work/supply shall be guaranteed by VENDOR.

The guarantee period shall be eighteen (18) months from the date of delivery or twelve (12) months from the installation date of each equipment/packages at site.

VENDOR shall guarantee the performance of supplied items (if any).

VENDOR shall guarantee that the Equipment/Device/Item is suitable for the operating conditions herein specified, and that all materials and components are free from any defects; verifications of all calculations are in VENDOR’s responsibility.

VENDOR shall unconditionally guarantee the materials and workmanship of all material and/or services. If, within the guarantee period, any defects occur which are due to faulty material and/or services included in his scope (design, manufacturing, inspection, testing, supply & etc.), VENDOR shall, at his own expense, repair or adjust the condition, or replace the material and/or services to the complete satisfaction of CLIENT’s representative. These repairs, replacement or adjustments shall be made only at such time as will be least detrimental to the operation of the CLIENT’s business.

VENDOR warrants promptly repairing or replacing the defective parts in the warranty period.

Vendor shall ensure a correct and safe operation of the unit, providing all safety protection Devices.

Vendor shall be responsible for the safe, reliable, continuous functioning of the Equipment/Devices/Items.

VENDOR is fully responsible for the design of Equipment for correct and safe operation based on project requirement during Equipment life time; therefore, VENDOR shall specify any documents/specifications which may be required for design, manufacture and finalizing of Equipment/Devices/Items to avoid any problems during the Equipment operation at site before P.O; otherwise, VENDOR shall be hold responsible for any corresponding deviation from expectations from the Equipment/Devices/Items.

1. **DEVIATION**

VENDOR’s proposal shall be prepared in strict compliance with the requirements set forth in the relevant specifications of tender documents.

VENDOR shall include in his proposal the statement of compliance with the tender documents should VENDOR wish to submit exception to the requirements of tender documents. They shall be submitted for PURCHASER’s approval.

1. **PRICE BREAKDOWN**

Breakdown price of following items shall be included in the proposal, as well as total price.

1. Material and Fabrication for each Section Separately
2. Pre-commissioning & commissioning spare parts (E&C-QC-SP-1)
3. 2 years operational spare parts (E&C-QC-SP-1)
4. Packing & loading on truck
5. Other fee (if any)
6. **SPECIAL Notes**
   1. **Kick-Off Meeting (KOM)**

After the order is awarded, Vendor shall, upon receipt of Purchaser’s notice, dispatch sufficient number of qualified personnel to Purchaser’s office at Vendor’s cost to hold the Kick-Off Meeting to confirm the procedure at least for the following categories:

* Detail procedures for correspondence, document delivery plan and Purchaser’s review method and etc. shall be established.
* Document Handling procedure
* Production plan / time schedule
* Quality Control
* VPIS (Vendor Print Index Schedule)
* Invoicing procedure
* Shipping document
* Other Technical Points
  1. **Pre-Inspection Meeting (PIM)**

Before starting the fabrication and inspection jobs, a pre-inspection meeting (PIM) will be held (at VENDOR shop or Puchaser’s office based on Purchaser decision) with presence of Client (NISOC and PEDCO), Purchaser and Third Party Inspector representatives and vendor shall be submitted QCP, ITP, MPS docuument.

* 1. **Technical Quotation shall include the following items as a minimum:**
* Proposal No., date and revision
* Purchaser’s Requisition number
* Approximate shipping weight and dimension
* Special tools and test equipment list
* Completed Purchaser's Data Sheets
* Description of System
* Completed TBA Form
* Completed Attachment #1 (Filled designated cells)
* Filled, signed and stamped Exception, Deviation and Alternative list
* Signed and stamped pages of this Material Requisition and cover page of attachments
* Time schedule
* Earliest delivery date(s)
* Vendors reference list
* ITP, QCP, MPS
* Quality system certificates (ISO...)
* Origin of material being quoted (country, place and name of manufacturer)
* All technical documentation and Drawings shall be in English language.
* Purchaser or CLIENT’s acceptance of Vendor’s drawings or data with or without comments does not relieve VENDOR of the responsibility of complying with all terms, conditions, codes, standards, requirements of this requisition and project specifications.
* Purchaser reserves the right to review and comment on vendor documents that have previously been accepted with or without comments based on project requirement.
* Proven technologies only shall be considered in the selection of equipment. Vendor shall submit reference list with at least two years trouble-free running experience in similar duty and environment to those specified within quotations stage.
* This Requisition sets out the minimum requirements and does not relieve VENDOR of his full responsibility for the design and reliable operation of the elements supplied. Therefore VENDOR will be liable for the correct operation of any auxiliary elements involved.
* In the preparation of their proposal, Vendor shall fulfill all the provisions of this Requisition even if they differ from the standard supply. Whenever VENDOR cannot comply with the present Requisition for technical reasons, it shall be stated in detail in the Exception, Deviation and Alternative list (Attachment #3).
* For satisfactory system performance and full compliance with the attached specification, all required accessories and/or components shall be provided by Vendor whether or not requested devices are herein specified.
* Bidders may supplement their basic quotations with alternative design of significant advantages such as improving performance, delivery date, costs, etc. The supplement shall be provided with proper evidence/justification and shall be subjected to Purchaser’s written approval prior to start of the work although the base offer shall be always in line with the inquiry.
* Any comments on drawing and/or Vendor data which will be submitted in accordance with Vendor document approval process shall be incorporated by Vendor and shall not affect the contracted price as far as they are in line with the requirements of this specification and/or good industrial engineering practice.
* Purchaser reserves the right to change the delivery sequence, interval and timing in order to meet the requirements of the site erection or overall construction sequence, etc. Upon Purchaser’s change requests of the delivery sequence, interval and timing, Vendor shall control and expedite his work and delivery process.
* No protection, paint or other filling shall be applied to the contract works before they have been inspected, tested and approved.
* Spare parts for erection, pre-commissioning, commissioning and start-up:
* The erection, pre-commissioning, commissioning and start-up spare parts shall be supplied together with the equipment (If requested as per Scope of Supply of this MR). All spare parts shall comply with the same standard and spec. as the original equipment and shall be fully interchangeable with the original parts.
* Supply of Spare Part for two years of operation (If requested as per Scope of Supply of this MR), shall be within Vendor’s scope of supply. All spare parts shall comply with the same standard and spec. as the original equipment and shall be fully interchangeable with the original parts.
* Vendor shall provide utility summary within proposal stage.
* VENDOR’s quotation shall be in strict conformity with conditions stated in this material requisition and any attached documents. Exceptions, deviations and alternatives will be valid only if approved by PURCHASER. Vendor shall confirm full compliance with the project specification requirements except the deviation listed and Purchaser has no responsibility to discover any more deviations or alternative in other parts of Vendor proposal than the agreed submitted list.
* It is Vendor's responsibility to supply/carry out all devices/measures to achieve proper and safe operation, hence if any additional device(s) is needed in VENDOR's battery limit as result of HAZOP study and it could not be proven to eliminate by Vendor's representative(s) in related HAZOP meeting, shall be supplied by Vendor, without cost impact.
* Vendor shall confirm all purchaser reference documents (with considering revision numbers) which have been attached to MR for providing his technical proposal. After each stage of clarification the revised documents and new applicable documents (if any) will be sent to Vendor and the aforementioned list shall be updated as well. Vendor is responsible to consider all consequences regarding the changes in project documents and specifications through whole BID stage. After P.O. placement no cost impact could be accepted.
* All material should be specified according to ASTM. In case non ASTM, AISI, ASME or SAE materials are applied, Vendor shall submit material equivalent comparison table with ASTM; classification such as C.S or S.S is not acceptable.
* First filling requirements (lube oil, grease, water/glycol …) shall be supplied by Vendor. Required lube oil for flushing of rotating equipment shall also be included in Vendor scope.
* Scope of supply and work shall be fully based on Scope of supply and work in this Material Requisition (Attachment 1).
* Name plates shall be made up of stainless steel.
* Certifications as following shall be supplied by Vendor:
* Material Certification (For pressure parts)
* Material Certification (For Non Pressure parts)
* SPIR (Spare Part Interchangeability/Identification Report) shall be fully filled out by Vendor after purchaser order.
* The minimum ship loose items to be considered and informed to Purchaser.
* All tie-in point connections at B.L. shall be flanged type in accordance with ANSI B16.5 and PMS of the project. Otherwise, mating flanges with bolts, nuts and gaskets shall be supplied by Vendor and considered in the base price.
* Tie-ins shall be designed so that movements and rotation tend to zero and allowable imposed loads and moments from piping conform to those values that specified in Appendix N of “Specification for Pressure Vessels”; Doc. No. ”BK-GNRAL-PEDCO-000-ME-SP-0001”.
* All gaskets shall be asbestos free.
* Vendor shall provide site supervision for construction, pre-commissioning, commissioning, and start-up according to agree per-diem rates. And Vendor shall issue a detailed program for site erection estimating the number of man/day required for supervision and specifying the technical qualification and experience for the personnel deemed necessary for the erection of the equipment after PO.
* All package (equipment, interconnecting piping...) paintings including final painting shall be carried out at Vendor shop prior to delivery to site as per project paint specification.
* Sound pressure level of equipment shall be less than 85 dB at 1 meter of noise source otherwise noise attenuation covers shall be supplied by Vendor.
* Vendor has already been informed regarding Purchaser's utility conditions and in case any device is needed to meet Vendor's equipment requirements (such as amplifier, regulator, etc.) shall be supplied by Vendor.
* Manifold flange connection with block valve at the edge of base plate for terminal point with purchaser for all utility services shall be supplied by vendor.
* Motor sunshade, air finned tube coolers sunshade, cooling fan for air fin coolers (if required) shall be supplied by vendor.
* Coupling guards shall be non-sparking type.
* Provision of PDMS 3D Model (or exported model in \*.dgn format) is in Vendor scope.
* Vendor's supervisor, who is to be dispatched to site for installation, start-up inspection, repair and maintenance of equipment supplied by Vendor, shall perform his duty for all equipment including materials provided by his subcontractor.
* Vendor's supervisor shall be sufficiently qualified to perform his duty. Vendor shall provide a resume of expected personnel for Purchaser's approval. Purchaser has right to reject the supervisor proposed by Vendor and to appoint alternative personnel.
* The duty of the Supervisor shall include, but not be limited to the following:

1. Witnessing of unpacking inspection of the goods
2. Supervising and giving direction of assembling and installation
3. Checking of the leveling and alignment
4. Checking of the equipment performance
5. Adjustment of safety device and instruments
6. Supervising of preparation of start-up
7. Supervising and giving direction of start-up operation
8. Executing and/or supervising and giving direction for assembling disassembling, inspection and repair.
9. Preparing of inspection and test records and miscellaneous reports
10. To monitor activities time schedule
11. Supervising and giving technical assistance for maintenance service(s).

* Vendor shall indentify and be responsible for damages to properties and/or personnel injuries resulted from the gross negligence of the Supervisor while performing duty.
* Any other points as per Purchase Order (PO).

# ATTACHMENT #1

## LIST OF REFERENCE / APPLICABLE DOCUMENTS

| **No.** | **Document No.** | **Document Title** | **Rev.** |
| --- | --- | --- | --- |
| 1. **Process & Safety** | | | |
| **1** | BK-GCS-PEDCO-120-PR-PI-0020 | P&ID - LP Flare System | D06 |
| **2** | BK-GCS-PEDCO-120-PR-SP-0003 | Duty Specification for LP Flare Package | D03 |
| **3** | BK-GNRAL-PEDCO-000-PR-DB-0001 | Process Basis of Design | D08 |
| **4** | BK-GNRAL-PEDCO-000-PR-DC-0001 | Process Design Criteria | D02 |
| **5** | BK-GCS-PEDCO-120-SA-PY-0002 | Hazardous Area Classification Layout | D00 |
| 1. **Mechanical** | | | |
| **1** | BK-GNRAL-PEDCO-000-ME-DC-0001 | Mechanical Design Criteria | D03 |
| **2** | BK-GCS-PEDCO-120-ME-SP-0013 | Specification For Flare Package | D04 |
| **3** | BK-GNRAL-PEDCO-000-ME-SP-0001 | Specification For Pressure Vessel | D03 |
| 1. **General Document & Procedures** | | | |
| **1** | BK-GNRAL-PEDCO-000-QC-PR-0015 | Specification for Welding Procedure | D00 |
| **2** | BK-GNRAL-PEDCO-000-QC-PR-0045 | Packing, Marking, Transportation Procedure | D00 |
| **3** | ICE-EID-MI-SP01 | دستورالعمل بازرسی، خرید و ساخت کالا | D01 |
| **4** | ICE-EID-MI-SP02 | سطح بازرسی کالا و تجهیزات | D01 |
| **5** | E&C-QC-SP-1 | دستورالعمل تامین قطعات یدکی راه اندازی وراهبری دو سالانه | D01 |
| **6** | BK-GNRAL-PEDCO-000-QC-PR-0022 | Specification For Final Data book(FDB)Requirements | D00 |
| 1. **Instrument** | | | |
| **1** | BK-GNRAL-PEDCO-000-IN-SP-0001 | Specification for Instrumentation | D04 |
| **2** | BK-GNRAL-PEDCO-000-IN-SP-0004 | Specification For Instrument and Control of Package Unit System (PU) | D02 |
| **3** | BK-GNRAL-PEDCO-000-IN-SP-0009 | Specification for Fire & Gas Sensor and Devices | D04 |
| 1. **Electrical** | | | |
| **1** | BK-GNRAL-PEDCO-000-EL-DC-0001 | Electrical System Design Criteria | D03 |
| **2** | BK-GNRAL-PEDCO-000-EL-SP-0014 | Specification For Power & Control Cables | D03 |
| **3** | BK-GNRAL-PEDCO-000-EL-SP-0006 | Specification For Earthing & Lightning System | D03 |
| **4** | BK-GNRAL-PEDCO-000-EL-SP-0011 | Specification For Electrical Requirements of Packaged Units | D03 |
| 1. **Piping & Material** | | | |
| **1** | BK-GNRAL-PEDCO-000-PI-SP-0011 | Specification of welding of plant piping system & NDT | D01 |
| **2** | BK-GNRAL-PEDCO-000-PI-SP-0008 | Specification for Material Requirements in Sour service | D01 |
| **3** | BK-GCS-PEDCO-120-PI-SP-0001 | Piping Material Specification (PMS) | D02 |
| **4** | BK-GNRAL-PEDCO-000-PI-DC-0001 | Piping Design Criteria | D03 |
| **5** | BK-GNRAL-PEDCO-000-PI-SP-0005 | Specification for Fittings, Flanges, Gaskets and Bolts | D02 |
| **6** | BK-GNRAL-PEDCO-000-PI-SP-0006 | Specification for Painting | D04 |
| **7** | BK-GNRAL-PEDCO-000-PI-SP-0001 | Specification for color coding and marking | D11 |
| **8** | BK-GNRAL-PEDCO-000-PI-SP-0007 | Specification for Lining ( Internal Protection of Equipment By Painting) | D02 |
| **9** | BK-GNRAL-PEDCO-000-PI-SP-0017 | Specification for Cleaning and Flushing | D03 |
| **10** | BK-GNRAL-PEDCO-000-PI-SP-0019 | Specification for Insulation | D02 |
| 1. **Civil** | | | |
| **1** | BK-GNRAL-PEDCO-000-CV-DC-0001 | Structural Design Criteria | D01 |
| **2** | BK-GNRAL-PEDCO-000-CV-SP-0005 | Specification for Civil Works | D02 |
| **3** | BK-GNRAL-PEDCO-000-ST-DC-0001 | Design Criteria for Concrete Works | D00 |
| **4** | BK-GNRAL-PEDCO-000-ST-DW-0002 | Standard Drawing for Anchor Bolts | D02 |
| **5** | BK-GNRAL-PEDCO-000-ST-SP-0003 | Specification for Fabrication of Steel Structures | D02 |
| **6** | BK-GNRAL-PEDCO-000-ST-SP-0005 | Specification for Erection of Steel Structures | D02 |
| **7** | BK-GNRAL-PEDCO-000-ST-SP-0006 | Specification for Fireproofing | D03 |
| 1. **Drawing** | | | |
| **1** | BK-GNRAL-PEDCO-000-ME-DW-0001 | Standard Detail Drawing For Pressure Vessels and Heat Exchangers | D02 |

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# ATTACHMENT #2

## VENDOR DOCUMENTS MIN. REQUIREMENT

| **Item No.** | **Document** | **With Bid** | **TIME SCHEDULE** | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **For Review** | | **Final Issue** | |
| **Copies**  **No./Type**  **(7)** | **Copies**  **No./Type (1)** | **Solar**  **days**  **(2)** | **Copies**  **No./Type (1)** | **Calendar days**  **(3)** |
| **MANAGEMENT** | | | | | | |
| 001 | Vendor Document Index and Schedule | 4N | 6C+E |  | 6C+E |  |
| 002 | Organization Brief | 3N | 6C+E |  |  |  |
| 003 | Schedule Level 1, 2, 3 & 4 showing Engineering, Procurement, Fabrication, Inspection, Testing, and Delivery Plan. | 4N | 6C+E |  | 6C+E |  |
| 004 | Physically Progress Report (Every 2 Weeks)) |  | 6C+E |  |  |  |
| 005 | Project Organization Chart | 3N | 6C+E |  |  |  |
| 006 | Reference List | 3N |  |  |  |  |
| 007 | Vendor Catalogue | 3N |  |  |  |  |
| **QUALITY** | | | | | | |
| 008 | Quality Assurance Manual /Quality Management System Certificate (according to latest rev. of ISO) | 4N |  |  | 6C+E |  |
| 009 | Preliminary Inspection and Test Plan | 4N |  |  |  |  |
| 010 | Inspection and Test Plan |  | 6C+E |  | 6C+E |  |
| **HSE** | | | | | | |
| 011 | HSE Procedure |  | 6C+E |  | 6C+E |  |
| 012 | Noise & Vibrations Calculations / Reports (If any) |  | 6C+E |  | 6C+E |  |
| 013 | ESD Instructions |  | 6C+E |  | 6C+E |  |
| **INTERFACE** | | | | | | |
| 014 | Electrical & Instrumentation Cable Schedule (for all systems) |  | 6C+E |  | 6C+E |  |
| 015 | Electrical & Instrumentation Wiring Drawings (for all systems) |  | 6C+E |  | 6C+E |  |
| 016 | Package Data Sheets | 4N | 6C+E |  | 6C+E |  |
| 017 | Reliability, Availability, Maintainability Calculations/Reports | 4N | 6C+E |  | 6C+E |  |
| 018 | Performance Curves |  | 6C+E |  | 6C+E |  |
| 019 | PFD's | 4N | 6C+E |  | 6C+E |  |
| 020 | Functional Description |  | 6C+E |  | 6C+E |  |
| 021 | General Arrangements Drawings | 4N | 6C+E |  | 6C+E |  |
| 022 | Mechanical Equipment List | 3N | 6C+E |  | 6C+E |  |
| 023 | Electrical Equipment List | 3N | 6C+E |  | 6C+E |  |
| 024 | Control, Instrument & Cable List |  | 6C+E |  | 6C+E |  |
| 025 | Interface Block Diagrams | 3N | 6C+E |  | 6C+E |  |
| 026 | Junction Box, Local Panels & Cabinets: wiring diagrams & termination drawings |  | 6C+E |  | 6C+E |  |
| 027 | Functional Logic Diagram |  | 6C+E |  | 6C+E |  |
| 028 | P & ID's | 3N | 6C+E |  | 6C+E |  |
| 029 | Utility Consumption List | 3N | 6C+E |  | 6C+E |  |
| 030 | Power Supply Requirements | 3N | 6C+E |  | 6C+E |  |
| 031 | Single Line Diagram | 3N | 6C+E |  | 6C+E |  |
| 032 | Earthing Details | 3N | 6C+E |  | 6C+E |  |
| 033 | Weight / Centre of Gravity Drawings & Data's |  | 6C+E |  | 6C+E |  |
| 034 | External Static and Dynamic Forces & Moments (present during test, start-up, normal/maximum operation, shutdown, and other conditions of service) |  | 6C+E |  | 6C+E |  |
| 035 | Wind and Seismic Loads including shear and moment forces on supports and foundation. |  | 6C+E |  | 6C+E |  |
| 036 | Anchor Bolt Details Drawings (incl. size, type, locations relative to the equipment center-lines in three planes). |  | 6C+E |  | 6C+E |  |
| 037 | Ladder & Platform Detail Drawing |  | 6C+E |  | 6C+E |  |
| 038 | Steel Structure Detail Drawing |  | 6C+E |  | 6C+E |  |
| 039 | Dimensional Outline Drawing |  | 6C+E |  | 6C+E |  |
| **ENGINEERING** | | | | | | |
| 040 | Detailed Functional Design Specification |  | 6C+E |  | 6C+E |  |
| 041 | Detailed Overall Description |  | 6C+E |  | 6C+E |  |
| 042 | Mechanical Detailed Specifications (one per component) |  | 6C+E |  | 6C+E |  |
| 043 | Detailed Design / Fabrication Drawings for Equipment & Auxiliary Parts |  | 6C+E |  | 6C+E |  |
| 044 | Cross Sectional Drawings with Part Lists |  | 6C+E |  | 6C+E |  |
| 045 | Assembly Drawings |  | 6C+E |  | 6C+E |  |
| 046 | Valves & Instruments Location Drawings (incl. provisions for operational and maintenance access) |  | 6C+E |  | 6C+E |  |
| 047 | Electrical Detailed Specifications (one per component) |  | 6C+E |  | 6C+E |  |
| 048 | Electrical Cables Routing (incl. cable trays & junction boxes) |  | 6C+E |  | 6C+E |  |
| 049 | Electrical Equipment Location Drawings (incl. provisions for operational and maintenance access) |  | 6C+E |  | 6C+E |  |
| 050 | Protection Device Operating Curves |  | 6C+E |  | 6C+E |  |
|  | Electrical Control Schematics |  | 6C+E |  | 6C+E |  |
| 051 | Instrument & Control Detailed Specifications (one per component) |  | 6C+E |  | 6C+E |  |
| 052 | Instrument cables routing (incl. cable trays & junction boxes) |  | 6C+E |  | 6C+E |  |
| 053 | Instrument Equipment Location Drawings (incl. provisions for operational and maintenance access) |  | 6C+E |  | 6C+E |  |
| 054 | Hook-Up Diagrams |  | 6C+E |  | 6C+E |  |
| 055 | Wiring Loops Diagrams |  | 6C+E |  | 6C+E |  |
| 056 | Instrument Control Schematics |  | 6C+E |  | 6C+E |  |
| 057 | Instrument Mounting & Housing Instructions |  | 6C+E |  | 6C+E |  |
| 058 | Power Distribution & Consumption |  | 6C+E |  | 6C+E |  |
| 059 | Cause & Effect Charts |  | 6C+E |  | 6C+E |  |
| 060 | Original Software for Control & Monitoring System |  | 6C+E |  | 6C+E |  |
| 061 | Software System Specifications |  | 6C+E |  | 6C+E |  |
| 062 | Approximate Weight & Dimension | 4N |  |  |  |  |
| 063 | Shipping Detail Drawing |  | 6C+E |  | 6C+E |  |
| 064 | Pressure Loss Calculations |  | 6C+E |  | 6C+E |  |
| 065 | Lubrication System Detailed Specifications / Drawings |  | 6C+E |  | 6C+E |  |
| 066 | Completed Equipment Datasheets | 4N | 6C+E |  | 6C+E |  |
| 067 | Complex loop & automation descriptions, list of alarms & shutdown with set points |  | 6C+E |  | 6C+E |  |
| 068 | Electrical Equipment Catalogue | 3N | 6C+E |  | 6C+E |  |
| 069 | Electrical Interface Block Diagrams |  | 6C+E |  | 6C+E |  |
| 070 | Local Control Station of motors wiring diagram, termination drawing and general arrangement |  | 6C+E |  | 6C+E |  |
| 071 | Coupling System Detailed Specifications / Drawings |  | 6C+E |  | 6C+E |  |
| PROCUREMENT | | | | | | |
| 072 | List of Sub-Vendors ( table giving: part of equipment, tag no., sub-Vendor reference)(5.1.3) | 4N |  |  | 6C+E |  |
| 073 | Unpriced copy of sub-orders |  | 6C+E |  |  |  |
| MANUFACTURING | | | | | | |
| 074 | Weld and NDT Map |  | 6C+E |  | 6C+E |  |
| 075 | Surface Preparation and Painting Procedures |  | 6C+E |  | 6C+E |  |
| 076 | Heat Treatment Procedures |  | 6C+E |  | 6C+E |  |
| 077 | Welding Procedure Specification (including repair procedures). |  | 6C+E |  | 6C+E |  |
| 078 | Welder Qualification Procedure |  | 6C+E |  | 6C+E |  |
| 079 | Fabrication Degree | 3N |  |  |  |  |
| TESTING | | | | | | |
| 080 | Hydrostatic / Pneumatic Testing Procedure |  | 6C+E |  | 6C+E |  |
| 081 | Performance & Functional Test Procedure |  | 6C+E |  | 6C+E |  |
| 082 | Non-Destructive Testing/Examination Procedures |  | 6C+E |  | 6C+E |  |
| 083 | Factory Acceptance Test (FAT) Procedure |  | 6C+E |  | 6C+E |  |
| 084 | Site Acceptance Test (SAT) Procedure |  | 6C+E |  | 6C+E |  |
| RECORDS, REPORTS & CERTIFICATES | | | | | | |
| 085 | Material Conformity Certificate |  | 6C+E |  | 6C+E |  |
| 086 | Testing Authority Approval Certificate (if any) |  | 6C+E |  | 6C+E |  |
| 087 | Ingress Protection Certificate |  | 6C+E |  | 6C+E |  |
| 088 | Conformity Certificates (sub-Vendor/equipment) |  | 6C+E |  | 6C+E |  |
| 089 | Material Certificates Identification Diagram. (cross-reference material location ; certificates for critical components) |  | 6C+E |  | 6C+E |  |
| 090 | Welding Procedure Qualification Record |  | 6C+E |  | 6C+E |  |
| 091 | Welder Qualification Records. |  | 6C+E |  | 6C+E |  |
| 092 | NDT Operator Qualifications |  | 6C+E |  | 6C+E |  |
| 093 | Detailed NDT Reports |  | 6C+E |  | 6C+E |  |
| 094 | Weld/ NDT Identification Diagram. (Cross-reference weld locations, WPS, welders, NDT reports). |  | 6C+E |  | 6C+E |  |
| 095 | Dimensional Control Reports |  | 6C+E |  | 6C+E |  |
| 096 | Hardness Test Reports |  | 6C+E |  | 6C+E |  |
| 097 | PWHT Charts & Reports, including calibration records of recorders (for each heat treatment) |  | 6C+E |  | 6C+E |  |
| 098 | Surface Preparation & Coating Reports |  | 6C+E |  | 6C+E |  |
| 99 | Hydrostatic / Pneumatic Testing Certificates |  | 6C+E |  | 6C+E |  |
| 100 | Welding Consumable Certificate |  | 6C+E |  | 6C+E |  |
| 101 | Inspection and Test Reports(if any) |  | 6C+E |  | 6C+E |  |
| 102 | Rust Prevention Report |  | 6C+E |  | 6C+E |  |
| 103 | Non-Conformities Report |  | 6C+E |  | 6C+E |  |
| **INSTALLATION** | | | | | | |
| 104 | Sub-Assembly Documentation |  | 6C+E |  | 6C+E |  |
| 105 | Sub-Assembly Drawings |  | 6C+E |  | 6C+E |  |
| 106 | Erection/Installation Manual (if required) |  | 6C+E |  | 6C+E |  |
| 110 | Name Plate Documents |  | 6C+E |  | 6C+E |  |
| 111 | Handling, Transportation & Storage Instructions |  | 6C+E |  | 6C+E |  |
| 112 | Unpacking & Inspection Instructions |  | 6C+E |  |  |  |
| 113 | Preliminary Packing List | 4N |  |  |  |  |
| 114 | Packing List |  | 6C+E |  | 6C+E |  |
| **OPERATION & MAINTENANCE** | | | | | | |
| 115 | Operating Instructions |  | 6C+E |  | 6C+E |  |
| 116 | Maintenance Instructions (if required) |  | 6C+E |  | 6C+E |  |
| 117 | Commissioning & Start-up Manual |  | 6C+E |  | 6C+E |  |
| 118 | List of Spare Parts Commissioning & Start-up | 4N | 6C+E |  | 6C+E | 136 |
| 119 | List of Spare Parts 2 Years Operation | 4N | 6C+E |  | 6C+E | 136 |
| 120 | List of Special Tools | 4N | 6C+E |  | 6C+E |  |
| 121 | Lube Oil Schedule |  | 6C+E |  | 6C+E |  |
| 122 | Software Manual (incl. Troubleshooting) |  | 6C+E |  | 6C+E |  |
| 123 | Consumables List |  | 6C+E |  | 6C+E |  |
| 124 | Function Test Procedure |  | 6C+E |  | 6C+E |  |
| 125 | Lubrication List |  | 6C+E |  | 6C+E |  |
| **VENDOR FINAL DOCUMENTS** | | | | | | |
| 126 | Vendor Final Book |  |  |  | 6C+E |  |
| 127 | All others documents (if required) will be listed in the order |  | 6C+E |  |  |  |
| NOTES:  (1) N= Number of document, C=Copy, E=Electronic Copy  (2) Starting from date of order placement  (3) Starting from reception of documentation without comments  (4) First issue of the document is subjected to the release of payment milestone as per purchase order  (5) Calendar days after reception of drive data,  (6) Prior to testing  (7) One copy each bid copy  (8) Refer to Project’s Vendor Document Handling Procedure  (9) List of Documents will be Finalized in Vendor Document Index and Schedule. | | | | | | |

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# ATTACHMENT #3

## DEVIATIONS / EXCEPTIONS TO JOB SPECIFICATION

Requisition No.:

Description:

Equipment No.:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item No.** | **Description**  **of proposed exception** | **Recommended revision to job specification** | **Reason for proposed exception** | **Effect on base**  **proposal if CONTRACTOR rejects exception** |
|  |  |  |  |  |

Attachment #4

**SUB VENDOR LIST**

(To be in accordance with MOP)

|  |  |  |
| --- | --- | --- |
| **Item No.** | **Material Description** | **Proposed Sub-Vendor** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# Attachment #5

**SPARE PARTS LIST**

(Based on E & C- QC- SP-1)

|  |  |
| --- | --- |
| **(TABLE 1-14) PRESSURE VESSELS & TANKS** | |
| **ITEMS** | **QUANTITIES** |
|  |  |
|  |  |