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| **طرح نگهداشت و افزایش تولید 27 مخزن** | | | | | | |
| **PMR FOR TOTAL FLOODING SYSTEM**  **نگهداشت و افزایش تولید میدان نفتی بینک** | | | | | | |
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| D01 | NOV. 2023 | FI | A.H.Saber | M.Fakharian | S.Faramarzpour |  |
| D00 | MAY. 2022 | IFI | A.H.Saber | M.Fakharian | M.Mehrshad |  |
| **Rev.** | **Date** | **Purpose of Issue/Status** | **Prepared by:** | **Checked by:** | **Approved by:** | **CLIENT Approval** |
| **Class: 3** | | **CLIENT Doc. Number: F0Z-709317** | | | | |
| **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 | X |  |  |  | **66** |  |  |  |  |  |
| **2** | X | X |  |  |  | **67** |  |  |  |  |  |
| **3** | X |  |  |  |  | **68** |  |  |  |  |  |
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| **7** | X |  |  |  |  | **72** |  |  |  |  |  |
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| **9** | X |  |  |  |  | **74** |  |  |  |  |  |
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| **14** | X |  |  |  |  | **79** |  |  |  |  |  |
| **15** | X |  |  |  |  | **80** |  |  |  |  |  |
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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 Fcilities; New Gas Compressor Station |
| EPD/EPC CONTRACTOR (GC): | Petro Iran Development Company (PEDCO) |
| EPC CONTRACTOR: | Joint Venture of : Hirgan Energy – Design & Inspection (D&I) Companies |
| VENDOR: | The firm or person who will fabricate 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, supplier or 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 ofCO2 Total Flooding System 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** | **Total QTY.** |
| 1 | CO2 Total Flooding System | CO2 Cylinders (4 Nos. Main + 4 Nos. Reserve) + Control panel + all of relevant accessories and nozzles | One skid\* |

*\*For more detail to be referred to MTO. No of nozzles should be calculated and cylinder quantities to be confirmed by vendor.*

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 the event of a conflict among the various documents, the order of precedence shall   
   be as follow:
5. Purchase Order (Including Attached Clarifications and Variations Thereon)
6. Purchase Material Requisition (PMR)
7. Data Sheets
8. Drawings
9. Specifications
10. Other Project Documents
11. Iranian Petroleum Standards (IPS)
12. Other Local Codes and Standards
13. International Codes and Standards
14. 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, the supplier shall be considered to be in full compliance with the relevant document.

The supplier 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**

The supplier shall supply CO2 Total Flooding System. The scope of supply is detailed at para. 5. The supplier shall include in the supply, all other equipment/devices/items not listed in the following, but necessary for a good design and a safe operation, taking into account process data and installation conditions such as area classification and climatic conditions.

The grade of shop assembly of the equipment/devices/items supplied shall be at maximum extent to facilitate site erection and pre-commissioning activities.

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

### main description

This type of fire extinguishing system consists of high-pressure containing carbon dioxide (CO2) agent under pressure, connected to fixed piping and nozzles. The systems are used for total flooding of a volume or for local application.

This Material Requisition, with the attachments, covers the requirements for the design, engineering material supply, prefabrication, shop assembly, shop test, shop inspection, packaging and delivery of CO2 Total Flooding System for Binak compressor station.

The supplier shall assume overall responsibility for the design, manufacture, assembly, test and performance of all equipment/devices/items supplied as indicated in this requisition. This shall include, but not be limited to:

* Resolve engineering issues relating to equipment/devices/items within the scope of supply.
* Provide detailed design and documentation of all equipment/devices/items and components within the scope of supply in accordance with attachment 2 of this document.
* Provide all necessary information documents in order to allow the contractor to erect, install and verify the proposed equipment/devices/items.
* Implement a quality assurance plan
* The quality plan applied to the scope of supply shall include:
  + QA organization and procedures that shall be submitted for approval.
  + Plan for HOLD points in the production process proposed to PURCHASER for witness or approval particular activities.
  + Production schedule indicating main quality manufacturing processes, inspection and tests.
  + Qualification of all personnel performing tests to be reviewed by the inspector
  + Supplier shall also provide the description of the following quality activities:
* Sub suppliers products quality
* Quality check and identification of the materials and equipment entering in their manufacturing shop.
* Calibration of test instruments and equipment
* Provide detailed specifications and data sheets.

### Spare parts (NOT appicable)

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

* Spare parts for commissioning and start-up; a qualified and complete list based on PROJECT SPARE PART SUPPLY PROCEDURE (Doc. No. END-QC-SP-1).
* Spare parts for two years operation; a qualified and complete list based on PROJECT SPARE PART SUPPLY PROCEDURE (Doc. No. END-QC-SP-1).
* Capital spare parts (as option / if any)

### Other items

* Fixing provisions and sunshade boxes shall be provided by vendor.
  1. **Exclusions**

HVAC for CO2 room is required to control the inside temperature and humidity of CO2 room. This system will be fed by project HVAC system (without return duct) and will be provided by HVAC vendor.

* 1. **Battery Limits**

The battery limits includes Cylinders, control system, pilot cylinders, alarming devices, CO2 discharge nozzles and all related accessories, fixture devices as per relevant P&ID for CO2 total flooding system (BK-GCS-PEDCO-120-SA-PI-0002).

Moreover one CO2 detector should be supplied by vendor to be installed inside the cylinder room.

Vendor shall supply all of specified devices in P&ID as per project specification ;( BK-GNRAL-PEDCO-000-SA-SP-0005)

1. **INSPECTION AND TESTS**

The equipment shall be inspected and tested in accordance with the quality control plan issued by the supplier and approved by the PURCHASER before the award of the order. The QC plan shall at least be according to the PROJECT ITP PROCEDURE (Doc. No. E&D-QC-INSP-1) and data sheets (if any).

The supplier 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.

Where multiple hazards are protected from a common supply, a full discharge test shall be performed for each hazard.

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 the supplier.
* 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, 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-suppliers.

1. **GUARANTEE, WARRANTY AND CUSTOMER SERVICES**

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

The guarantee period shall be twenty four (24) months from the date of delivery or twelve (12) months from the date of installation, whichever occurs later. Anyway guarantee period shall not be less than twelve (12) months.

The after-sales and customer services period shall be minimum twenty (20) years from the date of delivery.

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 COMPANY’s representative. These repairs, replacement or adjustments shall be made only at such time as will be least detrimental to the operation of the COMPANY’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 package for correct and safe operation based on project requirement during package 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 package 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 (END-QC-SP-1)
3. 2 years operational spare parts (END-QC-SP-1)
4. Packing & transportation
5. Other fee (if any)

# ATTACHMENT 1

## LIST OF REFERENCE / APPLICABLE DOCUMENTS

| **No.** | **Document No.** | **Document Title** | **Rev.** | | |
| --- | --- | --- | --- | --- | --- |
| **Process** | | | | | |
| **1** | Process Basis of Design | BK-GNRAL-PEDCO-000-PR-DB-0001 | D02 | | |
| **Safety** | | | | | |
| **2** | BK-GNRAL-PEDCO-000-SA-SP-0005 | Specification For Total Flooding System | D02 | | |
| **3** | BK-GCS-PEDCO-120-SA-PI-0002 | P&ID - Total Flooding System For Extension of Existing Elect. Building | D01 | | |
| **4** | BK-GCS-PEDCO-120-SA-CN-0001 | Calculation Note For Total Flooding Demand For Extension of Existing Elect. Building | D01 | | |
| **5** | BK-GNRAL-PEDCO-000-SA-SP-0008 | Specification For Safety Signs | D03 | | |
|  |  |  |  | | |
| **General** | | | | | |
| **6** | ICE-EID-MI-SP01-Rev01 | دستورالعمل بازرسی، خرید و ساخت کالا |  | | |
| **7** | E&D-QC-SP-1 | دستورالعمل تامین قطعات یدکی راه اندازی وراهبری دو سالانه |  | | |
| **Piping & Material** | | | | |
| **8** | BK-GNRAL-PEDCO-000-PI-SP-0006 | Specification For Painting | | D04 |
| **9** | BK-GNRAL-PEDCO-000-PI-SP-0019 | Specification For Insulation | | D02 |
| **10** | BK-GNRAL-PEDCO-000-PI-SP-0009 | Specification For Manual valve | | D00 |
| **11** | BK-GNRAL-PEDCO-000-PI-SP-0011 | Specification For Welding of Plant Piping System | | D00 |
|  |  |  | |  |
| **Instrumentation** | | | | |
| **12** | BK-GNRAL-PEDCO-000-IN-SP-0001 | Specification For Instrumentation | | D03 |
| **13** | BK-GNRAL-PEDCO-000-IN-SP-0002 | Specification For Control System | | D03 |
| **14** | BK-GNRAL-PEDCO-000-IN-SP-0004 | Specification For Instrument and Control of Package Unit System (PU) | | D00 |
| **15** | BK-GNRAL-PEDCO-000-IN-SP-0005 | Specification For Control Valves | | D02 |
| **16** | BK-GNRAL-PEDCO-000-IN-SP-0006 | Specification For On-off /Shut Down Valves(ESDV/MOV) | | D02 |
| **17** | BK-GNRAL-PEDCO-000-IN-SP-0007 | Specification For Pressure Safety Valves(PSV) | | D03 |
| **18** | BK-GNRAL-PEDCO-000-IN-SP-0010 | Specification For Instrument/F&G Cables | | D00 |
| **19** | BK-GNRAL-PEDCO-000-IN-SP-0011 | Specification For Control Panels and System Cabinets | | D00 |

# 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  (See attachment 2) | 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 |  |
| **INTERFACE** | | | | | | |
| 011 | Electrical & Instrumentation Cable Schedule (for all systems) |  | 6C+E |  | 6C+E |  |
| 012 | Electrical & Instrumentation Wiring Drawings (for all systems) |  | 6C+E |  | 6C+E |  |
| 013 | Package Data Sheets | 4N | 6C+E |  | 6C+E |  |
| 014 | Functional Description |  | 6C+E |  | 6C+E |  |
| 015 | General Arrangements Drawings | 4N | 6C+E |  | 6C+E |  |
| 016 | Equipment List | 3N | 6C+E |  | 6C+E |  |
| 017 | Control, Instrument & Cable List |  | 6C+E |  | 6C+E |  |
| 018 | Interface Block Diagrams | 3N | 6C+E |  | 6C+E |  |
| 019 | Junction Box, Local Panels & Cabinets: wiring diagrams & termination drawings |  | 6C+E |  | 6C+E |  |
| 020 | Functional Logic Diagram |  | 6C+E |  | 6C+E |  |
| 021 | P & ID's | 3N | 6C+E |  | 6C+E |  |
| 022 | Utility Consumption List | 3N | 6C+E |  | 6C+E |  |
| 023 | Power Supply Requirements | 3N | 6C+E |  | 6C+E |  |
| 024 | Single Line Diagram | 3N | 6C+E |  | 6C+E |  |
| 025 | Earthing Details | 3N | 6C+E |  | 6C+E |  |
| 026 | Weight / Centre of Gravity Drawings & Data's |  | 6C+E |  | 6C+E |  |
| **ENGINEERING** | | | | | | |
| 027 | Detailed Functional Design Specification |  | 6C+E |  | 6C+E |  |
| 028 | Detailed Overall Description |  | 6C+E |  | 6C+E |  |
| 029 | Mechanical Detailed Specifications (one per component) |  | 6C+E |  | 6C+E |  |
| 030 | Detailed Design / Fabrication Drawings for Equipment & Auxiliary Parts |  | 6C+E |  | 6C+E |  |
| 031 | Cross Sectional Drawings with Part Lists |  | 6C+E |  | 6C+E |  |
| 032 | Assembly Drawings |  | 6C+E |  | 6C+E |  |
| 033 | CO2 demand Calculation Notes |  | 6C+E |  | 6C+E |  |
| 034 | Piping Routing |  | 6C+E |  | 6C+E |  |
| 035 | Valves & Instruments Location Drawings (incl. provisions for operational and maintenance access) |  | 6C+E |  | 6C+E |  |
| 036 | Instrument & Control Detailed Specifications (one per component) |  | 6C+E |  | 6C+E |  |
| 037 | Instrument cables routing (incl. cable trays & junction boxes) |  | 6C+E |  | 6C+E |  |
| 038 | Instrument Equipment Location Drawings (incl. provisions for operational and maintenance access) |  | 6C+E |  | 6C+E |  |
| 039 | Hook-Up Diagrams |  | 6C+E |  | 6C+E |  |
| 040 | Wiring Loops Diagrams |  | 6C+E |  | 6C+E |  |
| 041 | Instrument Control Schematics |  | 6C+E |  | 6C+E |  |
| 042 | Instrument Mounting & Housing Instructions |  | 6C+E |  | 6C+E |  |
| 043 | Approximate Weight & Dimension | 4N |  |  |  |  |
| 044 | Shipping Detail Drawing |  | 6C+E |  | 6C+E |  |
| 045 | Hydraulic calculation of CO2 system |  | 6C+E |  | 6C+E |  |
| 046 | Final Data Book |  | 6C+E |  | 6C+E |  |
| **PROCUREMENT** | | | | | | |
| 014 | List of Sub-Suppliers ( table giving: part of equipment, tag no., sub-supplier reference)(5.1.3) | 4N |  |  | 6C+E |  |
| 015 | Unpriced copy of sub-orders |  | 6C+E |  |  |  |
| **RECORDS, REPORTS & CERTIFICATES** | | | | | | |
| 016 | Material Conformity Certificate |  | 6C+E |  | 6C+E |  |
| **INSTALLATION** | | | | | | |
| 017 | Handling, Transportation & Storage Instructions |  | 6C+E |  | 6C+E |  |
| 018 | Installation detail |  | 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 | | | | | | |

# 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

## ALTERNATIVES TO JOB SPECIFICATION

Requisition No.:

Description:

Equipment No.:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item No.** | **Job Specification No. & Paragraph No.** | **Requirements of Job Specification** | **Description of Proposed Alternative** | **Reason for Proposed Alternative** |
|  |  |  |  |  |