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| **طرح نگهداشت و افزایش تولید 27 مخزن** | | | | | | | |
| **PMR FOR CONTROL SYSTEM/ESD**    **نگهداشت و افزایش تولید میدان نفتی بینک** | | | | | | | |
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| D01 | JAN. 2024 | IFI | P.Hajisadeghi | M.Fakharian | S.Faramarzpour |  |
| D00 | MAY. 2024 | IFI | P.Hajisadeghi | M.Fakharian | S.Faramarzpour |  |
| **Rev.** | **Date** | **Purpose of Issue/Status** | **Prepared by:** | **Checked by:** | **Approved by:** | **CLIENT Approval** |
| **Class:3** | | **CLIENT Doc. Number:** **F0Z-** **708672** | | | | |
| **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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| **2** | X | X |  |  |  | **67** |  |  |  |  |  |
| **3** | X |  |  |  |  | **68** |  |  |  |  |  |
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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, New Gas/Condensate Pipelines (from Binak New GCS to Siahmakan GIS/Binak PU) shall be constructed.

**GENERAL DEFINITION**

The following terms shall be used in this document.

|  |  |
| --- | --- |
| CLIENT: | National Iranian South Oilfields Company (NISOC) |
| PROJECT: | Binak Oilfield Development – Surface Facilities; Gas & Gas-Condensate Pipelines |
| EPD/EPC CONTRACTOR (GC): | Petro Iran Development Company (PEDCO) |
| EPC CONTRACTOR/PURCHSER: | Joint Venture of: Hirgan Energy – Design & Inspection(D&I) Companies |
| VENDOR: | The firm or person who will fabricate the equipment or supply material. |
| SUB VENDOR: | The firm or person who will have a direct contract with the Vendor or another Subvendor to perform a part or parts of the Work |
| 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 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, Installation and testing on site of one Set Additional Equipment on Existing Relay Based Control / ESD Panel (located in Siyahmakan CCR) as listed in section 5. All equipment/devices/items shall conform to this requisition and all specifications which have been mentioned in attachment 1 of this material requisition.

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 shall supply Set of Additional Equipment on Existing Relay Based Control / ESD Panel (located in Siyahmakan CCR). The scope of supply is detailed at part 5. VENDOR shall include in the supply, all other equipment/devices/items not listed in part 5, 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**

## Scope of Supply

### Main Description

The scope of supply includes Set of Additional Equipment on Existing Relay Based Control / ESD Panel (located in Siyahmakan CCR) Main feature are as below:

* Open / Close Status Alarm Lamp
* Emergency Stop Push Button
* Open / Close Selector Switch
* Normal / SIL3 ESD Relay
* Normal / ESD Terminal Set

Detail of supply is listed below:

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Item** | **Description** | **Total QTY.** |
| 1 | Set of Additional Equipment on Existing Relay Based Control / ESD Panel (Note\*\*) | Set of Additional Equipment shall includes SIL3 ESD Relay, Normal Relay, Selector Switch, Signal Lamps, Emergency Stop Push Button (Mushroom Head Key Latch Type), Cable, Internal wiring and interconnections, terminations, … and all required accessories required for control Panel.  The Circuit of this Control shall be designed and Executed by Control System Vendor.  The references document is Block Diagram Configuration For Control/ESD/F&G System Doc. No.: “BK-PPL-PEDCO-320-IN-BD-0001” and Control System/ESD system Loop Diagram Doc. No.: “BK-PPL-PEDCO-320-IN-DG-0005”. | 1 |

Note\*\*: The suggested quantity of equipment is one 24v DC SIL3 AUX Relay, one 24v DC AUX Relay, two Open/Close Status Alarm Lamp, one Emergency Stop Push Button (Mushroom Head Key Latch Type), one Open / Close Selector Switch, one normal Terminal set, One ESD Terminal set, but the drawing inside the control circuit and equipment MTO shall be finalized by Vendor.

* VENDOR shall assume overall responsibility for the design, manufacture, assembly on site, test and performance erection on site, pre-commissioning, commissioning and start up assistance 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

D01

* The quality plan applied to the scope of supply shall include:
  + QA/QC Organization Chart and procedures that shall be submitted for approval.
  + Plan for HOLD points in the production process proposed to CLIENT AND EPC/EPD CONTRACTOR 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
  + Vendor shall also provide the description of the following quality activities:
* Sub vendor products quality
* Quality check and identification of the materials and equipment entering in their manufacturing shop.
* Provide detailed specifications and data sheets.
* Transportation to Site (including insurance)
* Packing, marking, preparation for shipment, and delivery.
* The supplier shall take the full responsibility for the whole package control/protection system and shall be responsible for SAT and Commissioning of the package

### Spare parts

D01

* Spare parts for 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)
* Special Tools (as option; to be recommended by Vendor)
* Capital spare parts (as option; to be recommended by Vendor)

### Other Items

* Name plate
* Earthing plate
* Preparation for shipment
* Installation and testing on site as per specification
* Free access to manufacturing plants for the PURCHASER's inspectors
* Certificates or declarations of conformance (as required) Daily rate for erection supervision (separate price)
* Daily rate for commissioning and start-up supervision (separate price)
* Training for customer's personnel (refer to BK-GNRAL-PEDCO-000-IN-SP-0003)
* All required meeting at Vendor shop/office including but not limited to:
  + KOM
  + Technical/Clarification meeting
  + Pre-Inspection Meeting

## Exclusions

No exclusion is applicable.

## Battery Limits

No battery limit is applicable.

D01

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 AND EPC/EPD 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, delivery, and testing, final check-out, training 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.

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 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 CLIENT/EPC CONTRACTOR’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 & transportation

**ATTACHMENT 1**

D01

## LIST OF REFRENCE / APPLICABLE DOCUMENTS

| **No.** | **Document No.** | **Document Title** | **REV.** |
| --- | --- | --- | --- |
| **Instrument** | | |  |
|  | BK-PPL-PEDCO-320-IN-BD-0001 | Block Diagram Configuration For Control/ESD/F&G System | D06 |
|  | BK-PPL-PEDCO-320-IN-DC-0001 | Instrument & Control System Design Criteria | D02 |
|  | BK-PPL-PEDCO-320-IN-DG-0005 | Control System/ESD system Loop Diagram | D04 |
|  | BK-PPL-PEDCO-320-IN-LD-0001 | Control System /ESD Logic Diagram | D02 |
|  | BK-PPL-PEDCO-320-IN-LI-0002 | I/O List For Control /ESD System | D03 |
|  | BK-PPL-PEDCO-320-IN-PY-0003 | Instrument Cable Trench/Route Layout Drawing | D02 |
|  | BK-PPL-PEDCO-320-IN-DG-0007 | Instrument Junction Box Termination Diagram | D03 |
|  | BK-PPL-PEDCO-320-IN-DG-0001 | Instrument Earthing Typical Diagram | D05 |
|  | BK-PPL-PEDCO-320-IN-LI-0004 | Panels & Junction Box List | D02 |
|  | BK-PPL-PEDCO-320-IN-LI-0005 | Set Point & Alarm List | D01 |
|  | BK-PPL-PEDCO-320-IN-LI-0007 | Instrument Cable List | D01 |
|  | BK-GNRAL-PEDCO-000-IN-SP-0002 | Specification For Control System | D04 |
|  | BK-GNRAL-PEDCO-000-IN-SP-0003 | Specification For ESD | D05 |
|  | BK-GNRAL-PEDCO-000-IN-SP-0010 | Specification For Instrument/F&G Cables | D02 |
|  | BK-GCS-PEDCO-120-IN-DC-0002 | Instrument & Control System Design Criteria | D02 |
| **Process** | | |  |
|  | BK-PPL-PEDCO-320-PR-PI-0001 | P&ID - Gas Pipeline (to Siahmakan G.I. Station) | D05 |
|  | BK-PPL-PEDCO-320-PR-PH-0002 | Control Philosophy | D01 |
|  | BK-PPL-PEDCO-320-PR-PH-0005 | ESD Philosophy | D02 |
|  | BK-GNRAL-PEDCO-000-PR-DC-0001 | Process Design Criteria | D02 |
|  | BK-GNRAL-PEDCO-000-PR-DB-0001 | Process Basis Of Design | D08 |
| **General** | | |  |
|  | ICE-EID-MI-SP01-Rev01 | دستورالعمل بازرسی خرید و ساخت کالا | D01 |
|  | ICE-EID-MI-SP02-Rev01 | دستورالعمل سطح بازرسی کالا و تجهیزات | D01 |
|  | E&C-QC-SP-1 | دستورالعمل تامین قطعات یدکی راه اندازی و راهبردی دوساله | D00 |
|  | BK-GNRAL-PEDCO-000-QC-PR-0022 | Specification For Final Data Book (FDB) Requirements | D00 |
|  | BK-GNRAL-PEDCO-000-QC-PR-0045 | Packing, Marking, Transportation Procedure | D00 |

**\*\*NOTE: THE LATEST REVISION OF PROJECT DOCUMENT IN ATTACHMENT 1 TO BE CONSIDERED AS REFERENCE BY VENDOR.**

**ATTACHMENT 2**

## VENDOR DOCUMENTS MIN. REQUIREMENT

| **Item No.** | **Document** | **With Bid** | **TIME SCHEDULE** | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **For Review** | | **Final Issue** | |
| **Copies**  **No./Type** | **Copies**  **No./Type (1)** | **Solar**  **days**  **(2)** | **Copies**  **No./Type (1)** | **Calendar days**  **(3)** |
| **MANAGEMENT** | | | | | | |
|  | Vendor Document Index and Schedule | 4N | 6C+E |  | 6C+E |  |
|  | Organization Brief | 3N | 6C+E |  |  |  |
|  | Schedule Level 1, 2, 3 & 4 showing Engineering, Procurement, Fabrication, Inspection, Testing, and Delivery Plan. | 4N | 6C+E |  | 6C+E |  |
|  | Physically Progress Report (Every 2 Weeks) |  | 6C+E |  |  |  |
|  | Project Organization Chart | 3N | 6C+E |  |  |  |
|  | Reference List | 3N |  |  |  |  |
|  | Vendor Catalogue | 3N |  |  |  |  |
| **QUALITY** | | | | | | |
|  | Quality Assurance Manual /Quality Management System Certificate (according to latest rev. of ISO) | 4N |  |  | 6C+E |  |
|  | Preliminary / Inspection and Test Plan | 4N |  |  |  |  |
|  | Inspection and Test Plan |  | 6C+E |  | 6C+E |  |
|  | Quality Control Plan | 4N |  |  |  |  |
| **HSE** | | | | | | |
|  | HSE Procedure |  | 6C+E |  | 6C+E |  |
| **ENGINEERING** | | | | | | |
|  | Supplier Document Schedule | 3N | 6C+E |  | 6C+E |  |
|  | Power Consumption List | 3N | 6C+E |  | 6C+E |  |
|  | Detailed Devices Catalogues | 3N | 6C+E |  | 6C+E |  |
|  | Equipment List And Cabinet Bill Of Material |  | 6C+E |  | 6C+E |  |
|  | Loop Diagrams |  | 6C+E |  | 6C+E |  |
|  | Earthing Diagram |  | 6C+E |  | 6C+E |  |
|  | General Arrangement |  | 6C+E |  | 6C+E |  |
|  | Reliability/Availability Report |  | 6C+E |  | 6C+E |  |
| **PROCUREMENT** | | | | | | |
|  | List of Sub-Suppliers ( table giving: part of equipment, tag no., sub-supplier reference) | 4N |  |  | 6C+E |  |
|  | Unpriced copy of sub-orders |  | 6C+E |  |  |  |
|  | Packing Spec. / Shipping Schedule | 3N | 6C+E |  | 6C+E |  |
|  | Weight List/ Shipping List | 3N | 6C+E |  | 6C+E |  |
|  | Mechanical & Performance Guarantees | 3N | 6C+E |  | 6C+E |  |
| **TESTING** | | | | | | |
|  | Manufacturing, Test & Inspection Procedures | 3N | 6C+E |  | 6C+E |  |
|  | Performance & Functional Test Procedure |  | 6C+E |  | 6C+E |  |
|  | Factory Acceptance Test (FAT) Procedure |  | 6C+E |  | 6C+E |  |
|  | Site Acceptance Test (SAT) Procedure |  | 6C+E |  | 6C+E |  |
| **RECORDS, REPORTS & CERTIFICATES** | | | | | | |
|  | HAZARDOUS AREA CLASSIFICATION CERTIFICATES -  Testifying to suitability of electrical/electronic apparatus for use in the Hazardous Area Specified. |  |  |  | 6C+E |  |
|  | INGRESS PROTECTION CERTIFICATES -  Testifying to suitability of electrical/electronic apparatus for use in the Hazardous Area Specified. |  |  |  | 6C+E |  |
|  | CONFORMITY/COMPLIANCE CERTIFICATES  Attesting conformance to type approval. |  |  |  | 6C+E |  |
|  | MANUFACTURING RECORD BOOK INDEX (Standard index will be issued with the Purchase Order). |  | 6C+E |  | 6C+E |  |
|  | SAT Report |  |  |  | 6C+E |  |
|  | Conformity Certificates (sub-supplier/equipment) |  | 6C+E |  | 6C+E |  |
| **INSTALLATION** | | | | | | |
|  | Sub-Assembly Documentation |  | 6C+E |  | 6C+E |  |
|  | Sub-Assembly Drawings |  | 6C+E |  | 6C+E |  |
|  | Erection/Installation Manual |  | 6C+E |  | 6C+E |  |
|  | Name Plate Documents |  | 6C+E |  | 6C+E |  |
|  | Handling, Transportation & Storage Instructions |  | 6C+E |  | 6C+E |  |
|  | Unpacking & Inspection Instructions |  | 6C+E |  |  |  |
|  | Preliminary Packing List | 4N |  |  |  |  |
|  | Packing List |  | 6C+E |  | 6C+E |  |
| **OPERATION & MAINTENANCE** | | | | | | |
|  | Operating Instructions |  | 6C+E |  | 6C+E |  |
|  | Maintenance Instructions |  | 6C+E |  | 6C+E |  |
|  | Commissioning & Start-up Manual |  | 6C+E |  | 6C+E |  |
|  | List of Spare Parts Commissioning & Start-up | 4N | 6C+E |  | 6C+E |  |
|  | List of Spare Parts 2 Years Operation | 4N | 6C+E |  | 6C+E |  |
|  | List of Special Tools | 4N | 6C+E |  | 6C+E |  |
| **OTHERS** | | | | | | |
|  | Vendor Final Book |  |  |  | 6C+E | 1 week after delivery |
|  | All others documents 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) List of documents will be finalized in VPIS.  (8) Vendor shall offer all material/equipment only from the latest approved vendor list of NIOC referred to NIOC website." | | | | | | |

**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** |
|  |  |  |  |  |