



طرح نگهداشت و افزایش تولید ۲۷ مخزن

**PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES**

نگهداشت و افزایش تولید میدان نفتی بینک



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## 1.0 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:	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.

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## 2.0 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 general service pumps 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:



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No.	Item	Description	Total QTY.
1	P-2206	Diesel Pump	1
2	P-2104	Glycol Drain Pump	1
3	P-2209	Potable Water Pump	1
4	P-2203 A/B	Sump Pump	2
5	P-2103 A/B	Glycol Transfer Pump	2
6	P-2102	Glycol Manual Pump	1

## 3.0 REFERENCE / ATTACHED DOCUMENTS

- Specified documents in attachment 1 shall be considered as a part of this material Requisition.
- All codes and standards which have been referenced in above mentioned specs shall be considered.
- 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.
- 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.

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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.

## 4.0 SUBJECT OF THE SUPPLY

The supplier shall supply centrifugal pumps each one shall be driven by an electromotor completely assembled and tested. 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.



## 5.0 LIMITS OF SUPPLY

### 5.1 SCOPE OF SUPPLY



#### 5.1.1 MAIN DESCRIPTION

❖ The scope of supply is detailed below

- Centrifugal Pumps
- appropriate seal system according to its data sheets including all the relevant accessories

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- Baseplate common (according to API 686) for each pump train incl. pump, driver, gearbox (If any), seals and sealing systems, coupling with guard and other auxiliary systems (mounted by vendor at shop)
- Coupling (dry flexible spacer with spark proof guard)
- Electrical motor for each pump with terminal boxes and accessories incl. anti-condensation heater, RTD's and etc. (if applicable)
  - On-skid cabling, tray and fittings
  - Outdoor MCC for Auxiliaries Electrical Load (if any)
  - All motor junction boxes complete with necessary terminals
- Instrumentation including junction box, wiring from instruments to the junction box and manifolds for pressure instruments
- Earthing lugs and material
- All necessary lifting lugs
- Valved casing drain & vent (for horizontal items)
- Gasket, bolts and nuts for on-vessel items
- Foundation bolts and nuts (anchor bolt), skid leveling screws, shims, sub-plates
- Any other accessories and auxiliaries specify in data sheet
- First fill of oil / grease
- Cooling plan with all required piping, valves instruments and etc. routed to the edge of skid
- Charging device for nitrogen and trolley mobile charging unit for all seal pots.
- Barrier filling device
- Suction strainer for vertical pumps
- All necessary accessories for utility distribution
- Name plates
- Thermal insulation jacket (if needed)
- Insulation clip and supports for line and equipment

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- Clip and supports required for equipment fire proofing (if required)
- Sun protection facilities
- Special tools for erection and maintenance
- Spare Parts for erection, pre-commissioning, commissioning and start up and two years operation.
- Capital spare parts (as option)
- All requirements for safe and easy start up of pumps
- Any other items not listed above which are necessary for satisfactory design and operation of the pump shall be furnished by vendor.



#### 5.1.2 ENGINEERING SERVICES

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/QC Organization Chart 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





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- 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.



#### 5.1.3 SPARE PARTS

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

#### 5.1.4 OTHER ITEMS

- Special tools required for installation and maintenance
- Noise acoustic protection and relevant ancillaries in order to match with max. noise level requirements (if necessary)
- Name plate
- Earthing plate
- Painting of all items in accordance with "Painting Specification".
- Preparation for shipment
- Packing for sea freight transportation
- Shop inspections and testing as per specifications & data sheets
- Free access to manufacturing plants for the PURCHASER's inspectors
- Certificates or declarations of conformance (as required) of all Ex-equipment.
- Daily rate for erection supervision (separate price)
- Daily rate for commissioning and start-up supervision (separate price)
- Training for customer's personnel (separate price)
- KOM
- Technical/Clarification meeting
- Pre-Inspection Meeting

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## 5.2 SCOPE OF WORK

- Engineering and Documentation
- Manufacturing and assembling
- Mechanical Guarantee
- Performance Guarantee
- Sub-Vendor Coordination
- Mounting of main driver and auxiliary driver on baseplate at shop
- Inspection and testing at shop
- Piping within the Pump Package, all on skid piping/tubing with supports and all required fitting, valves, instruments and etc. on them. All on skid piping / tubing to be supplied by vendor and installed by him at shop
- All drains and vents piping routed to the edge of skid with block valves, manifold piping and blind flanges.
- Painting
- Prime Coats at Shop
- Finish Coats at Shop
- Packing Preservation suitable for more than 18 months at outdoor conditions of the site environment
- Packing including suitable protection for both sea transport and road transport on rough tracks
- Rust prevention for long term (over 6 month)
- Shipping and transportation to point of delivery (according to delivery condition)
- Supervision for installation (Per diem rate and/or lump sum - as an option)
- Supervision for erection, commissioning and start up (Per Diem rate and/or lump sum - as an option)
- Preparing of Final Book (Data Book)

## 5.3 EXCLUSIONS

The following items are excluded by the supplier scope of supply and will be provided by purchaser:

- Concrete foundation (which shall be anyway designed based on supplier's technical data)

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- Instrument air supply
- Nitrogen supply (if any)
- Electrical supply
- Interconnecting power cables among each skid mounted terminal boxes and remote switch gear
- Interconnecting cabling, serial link, between the remotely mounted unit control panel and the process control system in the main control room
- Connection to plant earthing system
- Transport from receiving port to site
- Shelter for Pumps
- Site erection
- Lubricants (except first filling)



#### 5.4 BATTERY LIMITS

The battery limits are summarized as follows:

- Process Gas
  - Inlet and outlet flanges on pump skid
- Instrumentation and control
  - terminal strips inside junction boxes at skid edges
- Electrical
  - Electrical equipment terminal boxes on skids
  - Incoming Power Supply of AC or DC UPS (if Any)
  - Earth Bosses on Skids.
- Vents and Drains
  - Drain flanges manifold
  - Outlet vent piping flanges

#### 6.0 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

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at least be according to the "Commodity Procurement and Manufacturing Inspection Instruction"; Doc. No. ICE-EID-MI-SP01-Rev.01, "دستورالعمل انتخاب سطح بازرسی کالا و تجهیزات", ICE-EID-MI-SP02-REV-01 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.

## 7.0 VENDOR DOCUMENTATION REQUIREMENTS & SCHEDULE

- Vendor shall prepare and submit all of required documents as per relevant "Vendor Data" section of relevant reference standard (ISO 5199).
- As a minimum 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**"



## 8.0 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.

## 9.0 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 and/or twelve (12) months from the installation date of each equipment/packages at site. VENDOR shall

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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 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.

## 10.0 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.

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## 11.0 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&D-QC-SP-1)
- 3) 2 years operational spare parts (E&D-QC-SP-1)
- 4) Capital spare parts
- 5) Packing & transportation
- 6) Other fee (if any)

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES</th></tr><tr><th>پروژه</th><th>بسته کاری</th><th>صادر کننده</th><th>تسهیلات</th><th>رشته</th><th>نوع مدرک</th><th>سریال</th><th>نسخه</th></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>ME</td><td>MR</td><td>0010</td><td>D02</td></tr></table>	PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES								پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	ME	MR	0010	D02	شماره صفحه : ۱۵ از ۲۷
PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
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### ATTACHMENT 1

#### LIST OF REFERENCE / APPLICABLE DOCUMENTS



No.	Document Title	Document No.	Rev.
<b>Process</b>			
1	Process Basis of Design	BK-GNRAL-PEDCO-000-PR-DB-0001	D08
2	Process Design Criteria	BK-GNRAL-PEDCO-000-PR-DC-0001	D02
3	Symbol & Legend For PFD and P&ID	BK-GCS-PEDCO-120-PR-PI-0001	D04
4	P&ID - Diesel Oil System	BK-GCS-PEDCO-120-PR-PI-0023	D06
5	P&ID - Potable Water System	BK-GCS-PEDCO-120-PR-PI-0024	D06
6	P&ID - Glycol Sump Drum	BK-GCS-PEDCO-120-PR-PI-0025	D06
7	P&ID - Close Drain System	BK-GCS-PEDCO-120-PR-PI-0017	D06
8	P&ID - Lean Glycol Storage Tank	BK-GCS-PEDCO-120-PR-PI-0014	D06
9	Process Data Sheets For Potable Water Pump	BK-GCS-PEDCO-120-PR-DT-0026	D04
10	Process Data Sheets For Diesel Pump	BK-GCS-PEDCO-120-PR-DT-0029	D05
11	Process Data Sheets For Glycol Drain Pump	BK-GCS-PEDCO-120-PR-DT-0028	D04
12	Process Data Sheets For Sump Pump	BK-GCS-PEDCO-120-PR-DT-0024	D03
13	Process Data Sheets For Glycol Transfer Pump	BK-GCS-PEDCO-120-PR-DT-0021	D04
14	Process Data Sheets For Glycol Manual Pump	BK-GCS-PEDCO-120-PR-DT-0022	D04
15	Utility Flow Diagrams (UFD)	BK-GCS-PEDCO-120-PR-UF-0001	D04
16	Calculation Note for Pumps	BK-GCS-PEDCO-120-PR-CN-0001	D06
<b>Mechanical</b>			
17	Mechanical Design Criteria	BK-GNRAL-PEDCO-000-ME-DC-0001	D04
18	Specification For Centrifugal Pumps for General Services	BK-GCS-PEDCO-120-ME-SP-0004	D03
19	Mechanical Data Sheets For Potable Water Pump	BK-GCS-PEDCO-120-ME-DT-0025	D04
20	Mechanical Data Sheets For Diesel Pump	BK-GCS-PEDCO-120-ME-DT-0026	D06
21	Mechanical Data Sheets For Glycol Drain Pump	BK-GCS-PEDCO-120-ME-DT-0035	D04
22	Mechanical Data Sheets For Sump Pump	BK-GCS-PEDCO-120-ME-DT-0023	D03
23	Mechanical Data Sheets For Glycol Transfer Pumps	BK-GCS-PEDCO-120-ME-DT-0020	D05
24	Mechanical Data Sheets For Glycol Manual Pump	BK-GCS-PEDCO-120-ME-DT-0021	D05
<b>Piping &amp; Material</b>			
25	Piping Material Specification	BK-GCS-PEDCO-120-PI-SP-0001	D02
26	Specification For Fittings, Flanges, Gaskets and Bolts	BK-GNRAL-PEDCO-000-PI-SP-0005	D02
27	Specification For Painting	BK-GNRAL-PEDCO-000-PI-SP-0006	D04
28	Specification For Insulation	BK-GNRAL-PEDCO-000-PI-SP-0019	D02
29	Specification For Manual Valves	BK-GNRAL-PEDCO-000-PI-SP-0009	D01
30	Specification For Welding of Plant Piping System	BK-GNRAL-PEDCO-000-PI-SP-0011	D01





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No.	Document Title	Document No.	Rev.
31	Piping Design Criteria	BK-GNRAL-PEDCO-000-PI-DC-0001	D03
32	Specification For the Design of Piping in Mechanical Packages	BK-GNRAL-PEDCO-000-PI-SP-0003	D01
33	Specification For Lining (Internal Protection of Equipment by Painting)	BK-GNRAL-PEDCO-000-PI-SP-0007	D01
34	Specification For Piping Cleaning and Flushing	BK-GNRAL-PEDCO-000-PI-SP-0017	D03
35	Piping Corrosion Study & Material Selection Report	BK-GCS-PEDCO-120-PI-RT-0001	D04
36	NDT Plan For steel Structures	BK-GNRAL-PEDCO-000-QC-PR-0041	D00
37	Specification For Material Requirements in Sour service	BK-GNRAL-PEDCO-000-PI-SP-0008	D01
38	Specification For Metallic Pipes	BK-GNRAL-PEDCO-000-PI-SP-0004	D06
39	Specification For Color Coding and Marking	BK-GNRAL-PEDCO-000-PI-SP-0001	D02
40	Specification For Plant Piping Systems Pressure Testing	BK-GNRAL-PEDCO-000-PI-SP-0010	D02
<b>Structure</b>			
41	Structural Design Criteria	BK-GNRAL-PEDCO-000-ST-DC-0001	D02
42	Standard Drawing For Anchor Bolts	BK-GNRAL-PEDCO-000-ST-DW-0002	D02
<b>Control &amp; Instrumentation</b>			
43	Specification For Instrumentation	BK-GNRAL-PEDCO-000-IN-SP-0001	D04
44	Specification For Instrument and Control of package Unit System (PU)	BK-GNRAL-PEDCO-000-IN-SP-0004	D02
45	Specification For Instrument/F&G Cables	BK-GNRAL-PEDCO-000-IN-SP-0010	D02
<b>Electrical</b>			
46	Electrical System Design Criteria	BK-GNRAL-PEDCO-000-EL-DC-0001	D02
47	Specification For LV Switchgear & Motor Control Centers	BK-GNRAL-PEDCO-000-EL-SP-0001	D03
48	Specification For LV Induction Motors	BK-GNRAL-PEDCO-000-EL-SP-0010	D03
49	Specification For MV Induction Motors	BK-GNRAL-PEDCO-000-EL-SP-0017	D03
50	Specification For Electrical Requirements of Packaged Units	BK-GNRAL-PEDCO-000-EL-SP-0011	D03
51	Data Sheets For LV Induction Motors	BK-GCS-PEDCO-120-EL-DT-0008	D03
52	Data Sheets For MV Induction Motors	BK-GCS-PEDCO-120-EL-DT-0009	D03
<b>Safety &amp; Fire Fighting</b>			
53	Specification For Hazardous Area Classification	BK-GNRAL-PEDCO-000-SA-SP-0002	D03



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No.	Document Title	Document No.	Rev.
54	Hazardous Area Classification Layout	BK-GCS-PEDCO-120-SA-PY-0002	D00
<b>General</b>			
55	دستورالعمل بازرسی، خرید و ساخت کالا	ICE-EID-MI-SP01	D01
56	دستورالعمل تامین قطعات یدکی راه اندازی و راهبری دو سالانه	E&D-QC-SP-1	D00
57	دستورالعمل انتخاب سطح بازرسی کالا و تجهیزات	ICE-EID-MI-SP02-REV-01	D01
58	Specification For Final Data Book (FDB) Requirements	BK-GNRAL-PEDCO-000-QC-PR-0022	D00
59	Packing, Marking, Transportation Procedure	BK-GNRAL-PEDCO-000-QC-PR-0045	D00



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## ATTACHMENT 2

### VENDOR DOCUMENTS MIN. REQUIREMENT



Item No.	Document	With Bid	TIME SCHEDULE			
		Copies No./Type (7)	Copies No./Type (1)	Solar days (2)	Final Issue	
					Copies No./Type (1)	Calendar days (3)
MANAGEMENT						
001	Vendor Document Index and Schedule (Deleted)	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	
INTERFACE						
013	Electrical & Instrumentation Cable Schedule (for all systems)		6C+E		6C+E	
014	Electrical & Instrumentation Wiring Drawings (for all systems)		6C+E		6C+E	
015	Pump Data Sheets	4N	6C+E		6C+E	

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	پروژه BK	بسته کاری GCS	صادر کننده PEDCO	تسهیلات 120	رشته ME	نوع مدرک MR	سریال 0010	



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)
016	Reliability, Availability, Maintainability Calculations/Reports	4N	6C+E		6C+E	
017	Performance Curves		6C+E		6C+E	
018	PFD's	4N	6C+E		6C+E	
019	Functional Description		6C+E		6C+E	
020	General Arrangements Drawings	4N	6C+E		6C+E	
021	Mechanical Equipment List	3N	6C+E		6C+E	
022	Electrical Equipment List	3N	6C+E		6C+E	
023	Control, Instrument & Cable List		6C+E		6C+E	
024	Interface Block Diagrams	3N	6C+E		6C+E	
025	Junction Box, Local Panels & Cabinets: wiring diagrams & termination drawings		6C+E		6C+E	
026	Functional Logic Diagram		6C+E		6C+E	
027	P & ID's	3N	6C+E		6C+E	
028	Utility Consumption List	3N	6C+E		6C+E	
029	Power Supply Requirements	3N	6C+E		6C+E	
030	Single Line Diagram	3N	6C+E		6C+E	
031	Earthing Details	3N	6C+E		6C+E	
032	Weight / Centre of Gravity Drawings & Data's		6C+E		6C+E	
033	External Static and Dynamic Forces & Moments (present during test, start-up, normal/maximum operation, shutdown, and other conditions of service)		6C+E		6C+E	
034	Wind and Seismic Loads including shear and moment forces on supports and foundation.		6C+E		6C+E	
035	Anchor Bolt Details Drawings (incl. size, type, locations relative to the equipment center-lines in three planes).		6C+E		6C+E	
036	Ladder & Platform Detail Drawing		6C+E		6C+E	

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	<table><tr><td>پروژه</td><td>بسته کاری</td><td>صادر کننده</td><td>تسهیلات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>ME</td><td>MR</td><td>0010</td><td>D02</td></tr></table>		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	ME	MR
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه									
BK	GCS	PEDCO	120	ME	MR	0010	D02									



Item No.	Document	With Bid Copies No./Type (7)	TIME SCHEDULE			
			For Review		Final Issue	
			Copies No./Type (1)	Solar days (2)	Copies No./Type e (1)	Calenda r days (3)
037	Steel Structure Detail Drawing		6C+E		6C+E	
<b>ENGINEERING</b>						
038	Detailed Functional Design Specification		6C+E		6C+E	
039	Detailed Overall Description		6C+E		6C+E	
040	Mechanical Detailed Specifications (one per component)		6C+E		6C+E	
041	Detailed Design / Fabrication Drawings for Equipment & Auxiliary Parts		6C+E		6C+E	
042	Cross Sectional Drawings with Part Lists		6C+E		6C+E	
043	Assembly Drawings		6C+E		6C+E	
044	Design Calculation Notes		6C+E		6C+E	
045	Pressure Parts Calculations		6C+E		6C+E	
046	Piping Detailed Specifications (one per component)		6C+E		6C+E	
047	Piping Routing		6C+E		6C+E	
048	Valves & Instruments Location Drawings (incl. provisions for operational and maintenance access)		6C+E		6C+E	
049	Electrical Detailed Specifications (one per component)		6C+E		6C+E	
050	Electrical Cables Routing (incl. cable trays & junction boxes)		6C+E		6C+E	
051	Electrical Equipment Location Drawings (incl. provisions for operational and maintenance access)		6C+E		6C+E	
052	Protection Device Operating Curves		6C+E		6C+E	
053	Electrical Control Schematics		6C+E		6C+E	
054	Instrument & Control Detailed Specifications (one per component)		6C+E		6C+E	
055	Instrument cables routing (incl. cable trays & junction boxes)		6C+E		6C+E	
056	Instrument Equipment Location Drawings		6C+E		6C+E	

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES</th></tr><tr><th>نسخه</th><th>سریال</th><th>نوع مدرک</th><th>رشته</th><th>تسهیلات</th><th>صادر کننده</th><th>بسته کاری</th><th>پروژه</th></tr><tr><td>D02</td><td>0010</td><td>MR</td><td>ME</td><td>120</td><td>PEDCO</td><td>GCS</td><td>BK</td></tr></table>	PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES								نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه	D02	0010	MR	ME	120	PEDCO	GCS	BK	شماره صفحه : ۲۱ از ۲۷
PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه																			
D02	0010	MR	ME	120	PEDCO	GCS	BK																			



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)
	(incl. provisions for operational and maintenance access)					
057	Hook-Up Diagrams			6C+E		6C+E
058	Wiring Loops Diagrams			6C+E		6C+E
059	Instrument Control Schematics			6C+E		6C+E
060	Instrument Mounting & Housing Instructions			6C+E		6C+E
061	Power Distribution & Consumption			6C+E		6C+E
062	Cause & Effect Charts			6C+E		6C+E
063	Original Software for Control & Monitoring System			6C+E		6C+E
064	Software System Specifications			6C+E		6C+E
065	Approximate Weight & Dimension	4N				
066	Shipping Detail Drawing			6C+E		6C+E
067	Final Data Book			6C+E		6C+E
068	Pressure Loss Calculations			6C+E		6C+E
069	Lubrication System Detailed Specifications / Drawings			6C+E		6C+E
070	Cooling System Detailed Specifications/Drawings			6C+E		6C+E
071	Shaft Sealing System Detailed Specifications/Drawings	4N		6C+E		6C+E
072	Completed Equipment Datasheets	4N		6C+E		6C+E
073	Calculation sheets for safety valves, control valves & orifice plate			6C+E		6C+E
074	Complex loop & automation descriptions, list of alarms & shutdown with set points			6C+E		6C+E
075	Electrical Equipment Catalogue	3N		6C+E		6C+E
076	Electrical Interface Block Diagrams			6C+E		6C+E
077	Local Control Station of motors wiring diagram, termination drawing and general arrangement			6C+E		6C+E

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>								
شماره پیمان:  ۰۵۳ - ۰۷۳ - ۹۱۸۴	PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES							شماره صفحه : ۲۲ از ۲۷	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	ME	MR	0010		D02

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)
078	Gear System Detailed Specifications / Drawings		6C+E		6C+E	
079	Coupling System Detailed Specifications / Drawings		6C+E		6C+E	
PROCUREMENT						
080	List of Sub-Suppliers ( table giving: part of equipment, tag no., sub-supplier reference)(5.1.3)	4N			6C+E	
081	Unpriced copy of sub-orders		6C+E			
MANUFACTURING						
082	Weld and NDT Map		6C+E		6C+E	
083	Surface Preparation and Painting Procedures		6C+E		6C+E	
084	Heat Treatment Procedures		6C+E		6C+E	
085	Welding Procedure Specification (including repair procedures).		6C+E		6C+E	
086	Welder Qualification Procedure		6C+E		6C+E	
087	Fabrication Degree	3N				
TESTING						
088	Hydrostatic / Pneumatic Testing Procedure		6C+E		6C+E	
089	Performance & Functional Test Procedure		6C+E		6C+E	
090	Non-Destructive Testing/Examination Procedures		6C+E		6C+E	
091	Factory Acceptance Test (FAT) Procedure		6C+E		6C+E	
RECORDS, REPORTS & CERTIFICATES						
092	Material Conformity Certificate		6C+E		6C+E	
093	Testing Authority Approval Certificate (if any)		6C+E		6C+E	
094	Hazardous Area Certificates.		6C+E		6C+E	
095	Ingress Protection Certificate		6C+E		6C+E	
096	Conformity Certificates (sub-		6C+E		6C+E	



 <p>NISOC</p>	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	ME	MR	0010	D02																			

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			For Review		Final Issue	
			Copies No./Type (1)	Solar days (2)	Copies No./Type e (1)	Calenda r days (3)
	supplier/equipment)					
097	Material Certificates Identification Diagram. (cross-reference material location ; certificates for critical components)		6C+E		6C+E	
098	Welding Procedure Qualification Record		6C+E		6C+E	
099	Welder Qualification Records.		6C+E		6C+E	
100	NDT Operator Qualifications		6C+E		6C+E	
101	Detailed NDT Reports		6C+E		6C+E	
102	Weld/ NDT Identification Diagram. (Cross-reference weld locations, WPS, welders, NDT reports).		6C+E		6C+E	
103	Dimensional Control Reports		6C+E		6C+E	
104	Hardness Test Reports		6C+E		6C+E	
105	PWHT Charts & Reports, including calibration records of recorders (for each heat treatment)		6C+E		6C+E	
106	Pressure Test Reports / Certificates		6C+E		6C+E	
107	FAT Test Report / Certificates		6C+E		6C+E	
108	Performance Test Report / Certificates		6C+E		6C+E	
109	Noise & Vibration Test Report / Certificates		6C+E		6C+E	
110	Electric Motor Type Test Report (if any)		6C+E		6C+E	
111	Electric Motor Routine Test Report		6C+E		6C+E	
112	Cable Continuity and Resistance Test Reports		6C+E		6C+E	
113	Calibration Curves of Control Equipment		6C+E		6C+E	
114	Calibration Test Certificates		6C+E		6C+E	
115	Surface Preparation & Coating Reports		6C+E		6C+E	
116	Hydrostatic / Pneumatic Testing Certificates		6C+E		6C+E	
117	Welding Consumable Certificate		6C+E		6C+E	
118	Inspection and Test Reports(if any)		6C+E		6C+E	

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه																			
D02	0010	MR	ME	120	PEDCO	GCS	BK																			

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			For Review		Final Issue	
		Copies No./Type (7)	Copies No./Type (1)	Solar days (2)	Copies No./Type (1)	Calendar days (3)
119	Rust Prevention Report		6C+E		6C+E	
120	Non-Conformities Report		6C+E		6C+E	
<b>INSTALLATION</b>						
121	Sub-Assembly Documentation		6C+E		6C+E	
122	Sub-Assembly Drawings		6C+E		6C+E	
123	Erection/Installation Manual (if required)		6C+E		6C+E	
124	Name Plate Documents		6C+E		6C+E	
125	Handling, Transportation & Storage Instructions		6C+E		6C+E	
126	Unpacking & Inspection Instructions		6C+E			
127	Preliminary Packing List	4N				
128	Packing List		6C+E		6C+E	
<b>OPERATION &amp; MAINTENANCE</b>						
129	Operating Instructions		6C+E		6C+E	
130	Maintenance Instructions (if required)		6C+E		6C+E	
131	Commissioning & Start-up Manual		6C+E		6C+E	
132	List of Spare Parts Commissioning & Start-up	4N	6C+E		6C+E	
133	List of Spare Parts 2 Years Operation	4N	6C+E		6C+E	
134	List of Special Tools	4N	6C+E		6C+E	
135	Lube Oil Schedule		6C+E		6C+E	
136	Software Manual (incl. Troubleshooting)		6C+E		6C+E	
137	Consumables List		6C+E		6C+E	
138	Function Test Procedure		6C+E		6C+E	
<b>OTHERS</b>						
139	All others documents (if required) will be listed in the order		6C+E			



 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES							شماره صفحه : ۲۵ از ۲۷	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	ME	MR	0010	D02	

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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) List of Documents will be Finalized in VPIS

D02

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	ME	MR	0010	D02																			



**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

 NISOC	<p>نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p>احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																									
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PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	ME	MR	0010	D02																			

**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