

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک								
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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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 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

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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 /PURCHASER:	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, vendor 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:

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.

The proposed deviations/comments list shall include as minimum:

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- 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 vendor shall be considered to be in full compliance with the relevant document.

The 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.

4.0 SUBJECT OF THE SUPPLY

The vendor 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 vendor 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
- 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)

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- 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
- Clip and supports required for equipment fire proofing (if required)
- Sun protection facilities
- Special tools for erection and maintenance

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- 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 vendor 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
 - Vendor shall also provide the description of the following quality activities:
 - Sub vendor s products quality
 - Quality check and identification of the materials and equipment entering in their manufacturing shop.
- Calibration of test instruments and equipment

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- 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&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)

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

5.2 SCOPE OF WORK

- Engineering and Documentation
- Manufacturing and assembling

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- 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 vendor scope of supply and will be provided by purchaser:

- Concrete foundation (which shall be anyway designed based on vendor 's technical data)
- Instrument air supply
- Nitrogen supply (if any)
- Electrical supply

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- 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 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

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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.

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 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.
- ITP, QCP, MPS documents shall be presented at the PIM by vendor

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-vendors.

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&C-QC-SP-1)
- 3) 2 years operational spare parts (E&C-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>D05</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	D05	شماره صفحه : ۱۵ از ۲۶
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.
Process			
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	D08
5	P&ID - Potable Water System	BK-GCS-PEDCO-120-PR-PI-0024	D08
6	P&ID - Glycol Sump Drum	BK-GCS-PEDCO-120-PR-PI-0025	D09
7	P&ID - Close Drain System	BK-GCS-PEDCO-120-PR-PI-0017	D09
8	P&ID - Lean Glycol Storage Tank	BK-GCS-PEDCO-120-PR-PI-0014	D09
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	D05
16	Calculation Note for Pumps	BK-GCS-PEDCO-120-PR-CN-0001	D07
Mechanical			
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	D06
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	D05
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
Piping & Material			
25	Piping Material Specification	BK-GCS-PEDCO-120-PI-SP-0001	D06
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	D02
31	Piping Design Criteria	BK-GNRAL-PEDCO-000-PI-DC-0001	D03

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No.	Document Title	Document No.	Rev.
32	Specification For the Design of Piping in Mechanical Packages	BK-GNRAL-PEDCO-000-PI-SP-0003	D02
33	Specification For Lining (Internal Protection of Equipment by Painting)	BK-GNRAL-PEDCO-000-PI-SP-0007	D03
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	D05
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	D02
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	D03
Structure			
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
Control & Instrumentation			
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
Electrical			
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
Safety & Fire Fighting			
53	Specification For Hazardous Area Classification	BK-GNRAL-PEDCO-000-SA-SP-0002	D03
54	Hazardous Area Classification Layout	BK-GCS-PEDCO-120-SA-PY-0002	D02
General			
55	دستورالعمل بازرسی، خرید و ساخت کالا	ICE-EID-MI-SP01	D01
56	دستورالعمل تامین قطعات یدکی راه اندازی و راهبری دو سالانه	E&C-QC-SP-1	D01
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	

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	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	ME	MR	0010	D05	

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)
015	Pump Data Sheets	4N	6C+E		6C+E	
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	

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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)
036	Ladder & Platform Detail Drawing		6C+E		6C+E	
037	Steel Structure Detail Drawing		6C+E		6C+E	
ENGINEERING						
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	Painting Operator Qualification Record		6C+E		6C+E	
047	Piping Detailed Specifications (one per component)		6C+E		6C+E	
048	Piping Routing		6C+E		6C+E	
049	Valves & Instruments Location Drawings (incl. provisions for operational and maintenance access)		6C+E		6C+E	
050	Electrical Detailed Specifications (one per component)		6C+E		6C+E	
051	Electrical Cables Routing (incl. cable trays & junction boxes)		6C+E		6C+E	
052	Electrical Equipment Location Drawings (incl. provisions for operational and maintenance access)		6C+E		6C+E	
053	Protection Device Operating Curves		6C+E		6C+E	
054	Electrical Control Schematics		6C+E		6C+E	
055	Instrument & Control Detailed Specifications (one per component)		6C+E		6C+E	

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	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	ME	MR	0010	D05	

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

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	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	ME	MR	0010		D05

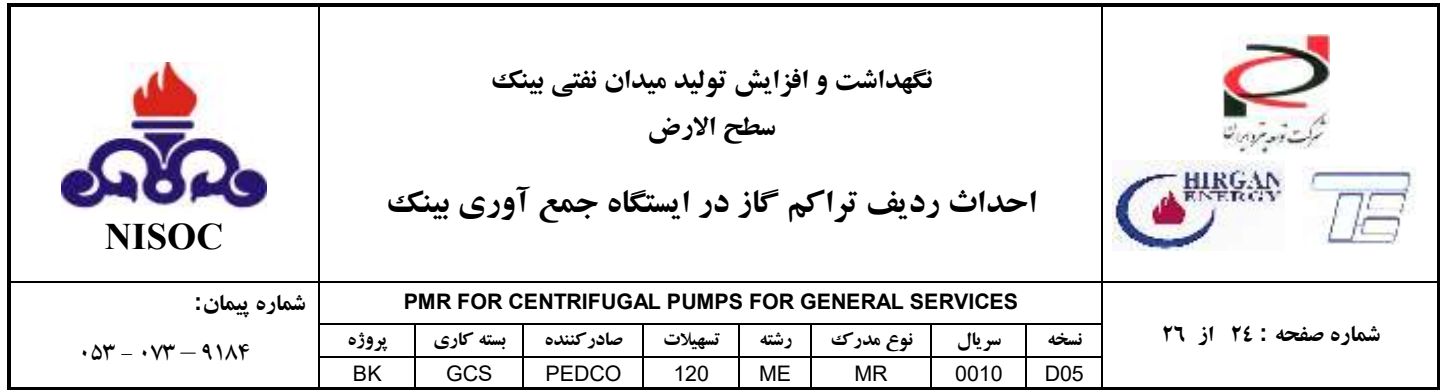
Item No.	Document	With Bid	TIME SCHEDULE			
			For Review		Final Issue	
			Copies No./Type (7)	Copies No./Type (1)	Solar days (2)	Copies No./Type (1) Calendar days (3)
078	Local Control Station of motors wiring diagram, termination drawing and general arrangement			6C+E		6C+E
079	Gear System Detailed Specifications / Drawings			6C+E		6C+E
080	Coupling System Detailed Specifications / Drawings			6C+E		6C+E
PROCUREMENT						
081	List of Sub-Vendor s (table giving: part of equipment, tag no., sub-vendor reference)(5.1.3)	4N				6C+E
082	Unpriced copy of sub-orders			6C+E		
MANUFACTURING						
083	Weld and NDT Map			6C+E		6C+E
084	Surface Preparation and Painting Procedures			6C+E		6C+E
085	Heat Treatment Procedures			6C+E		6C+E
086	Welding Procedure Specification (including repair procedures).			6C+E		6C+E
087	Welder Qualification Procedure			6C+E		6C+E
088	Fabrication Degree	3N				
TESTING						
089	Hydrostatic / Pneumatic Testing Procedure			6C+E		6C+E
090	Performance & Functional Test Procedure			6C+E		6C+E
091	Non-Destructive Testing/Examination Procedures			6C+E		6C+E
092	Factory Acceptance Test (FAT) Procedure			6C+E		6C+E
093	SAT Procedure			6C+E		6C+E
RECORDS, REPORTS & CERTIFICATES						
094	Material Conformity Certificate			6C+E		6C+E
095	Testing Authority Approval Certificate (if any)			6C+E		6C+E

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES							شماره صفحه : ۲۲ از ۲۶	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	ME	MR	0010		D05

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)
096	Hazardous Area Certificates.		6C+E		6C+E	
097	Ingress Protection Certificate		6C+E		6C+E	
098	Conformity Certificates (sub-vendor /equipment)		6C+E		6C+E	
099	Material Certificates Identification Diagram. (cross-reference material location ; certificates for critical components)		6C+E		6C+E	
100	Welding Procedure Qualification Record		6C+E		6C+E	
101	Welder Qualification Records.		6C+E		6C+E	
102	NDT Operator Qualifications		6C+E		6C+E	
103	Detailed NDT Reports		6C+E		6C+E	
104	Weld/ NDT Identification Diagram. (Cross-reference weld locations, WPS, welders, NDT reports).		6C+E		6C+E	
105	Dimensional Control Reports		6C+E		6C+E	
106	Hardness Test Reports		6C+E		6C+E	
107	PWHT Charts & Reports, including calibration records of recorders (for each heat treatment)		6C+E		6C+E	
108	Pressure Test Reports / Certificates		6C+E		6C+E	
109	FAT Test Report / Certificates		6C+E		6C+E	
110	Performance Test Report / Certificates		6C+E		6C+E	
111	Noise & Vibration Test Report / Certificates		6C+E		6C+E	
112	Electric Motor Type Test Report (if any)		6C+E		6C+E	
113	Electric Motor Routine Test Report		6C+E		6C+E	
114	Cable Continuity and Resistance Test Reports		6C+E		6C+E	
115	Calibration Curves of Control Equipment		6C+E		6C+E	
116	Calibration Test Certificates		6C+E		6C+E	
117	Surface Preparation & Coating Reports		6C+E		6C+E	
118	Hydrostatic / Pneumatic Testing Certificates		6C+E		6C+E	

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES							شماره صفحه : ۲۳ از ۲۶	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	ME	MR	0010		D05

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)
119	Welding Consumable Certificate		6C+E		6C+E	
120	Inspection and Test Reports(if any)		6C+E		6C+E	
121	Rust Prevention Report		6C+E		6C+E	
122	Non-Conformities Report		6C+E		6C+E	
INSTALLATION						
123	Sub-Assembly Documentation		6C+E		6C+E	
124	Sub-Assembly Drawings		6C+E		6C+E	
125	Erection/Installation Manual (if required)		6C+E		6C+E	
126	Name Plate Documents		6C+E		6C+E	
127	Handling, Transportation & Storage Instructions		6C+E		6C+E	
128	Unpacking & Inspection Instructions		6C+E			
129	Preliminary Packing List	4N				
130	Packing List		6C+E		6C+E	
OPERATION & MAINTENANCE						
131	Operating Instructions		6C+E		6C+E	
132	Maintenance Instructions (if required)		6C+E		6C+E	
133	Commissioning & Start-up Manual		6C+E		6C+E	
134	List of Spare Parts Commissioning & Start-up	4N	6C+E		6C+E	
135	List of Spare Parts 2 Years Operation	4N	6C+E		6C+E	
136	List of Special Tools	4N	6C+E		6C+E	
137	Lube Oil Schedule		6C+E		6C+E	
138	Software Manual (incl. Troubleshooting)		6C+E		6C+E	
139	Consumables List		6C+E		6C+E	
140	Function Test Procedure		6C+E		6C+E	
OTHERS						
141	All others documents (if required) will be		6C+E			



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)
	listed in the order					

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

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES							شماره صفحه : ۲۵ از ۲۶	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	ME	MR	0010	D05	

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	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	PMR FOR CENTRIFUGAL PUMPS FOR GENERAL SERVICES							شماره صفحه : ۲۶ از ۲۶	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	ME	MR	0010	D05	

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