طرح نگهداشت و افزایش تولید ۲۷ مخزن

SPECIFICATION FOR TELECOMMUNICATION TOWER

نگهداشت و افزایش تولید میدان نفتی بینک

D03	Jan. 2023	IFA	H.Shakiba	M.Fakharian	M.Mehrshad	
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D01	Oct. 2021	IFA	H.Shakiba	M.Fakharian	Sh.Ghalikar	
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Status:

IDC: Inter-Discipline Check
IFC: Issued For Comment
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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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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.

GENERAL DEFINITION

The following terms shall be used in this document.

CLIENT:	National Iranian South Oilfields Company (NISOC)
PROJECT:	Binak Oilfield Development – General Facilities
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 COMPANY (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 COMPANY rather than by an EPC/EPD CONTRACTOR, supplier or VENDOR.
MAY:	Is used where a provision is completely discretionary.

2.0 SCOPE

This document covers minimum necessary requirements for the design, selection, manufacture, inspection, testing and delivery of Telecom Tower Packages

It shall be used in conjunction with data/requisition sheets for present document subject.

3.0 NORMATIVE REFERENCES

3.1 Local Codes and Standards

IPS (Iranian Petroleum Standard)

2800 Iranian by laws

3.2 International Codes and Standards

- NFPA 780 Standard for the Installation of Lightning Protection Systems
- ANSI/EIA/TIA 222F-1996 Structural Standard for Steel Antenna Towers and Antenna Supporting Structures
- BS81001 Tower Structure Standard
- IEEE C37.90.1 Surge Withstand Capability (SWC) Tests for Relays and Relay Systems Associated with Electric Power Apparatus
- EN10025:2004 steel European structural steel standard
- Normung (DIN) standards for materials and workmanship, where applicable
- American Welding Society (AWS) for tower welding
- EIA-RS-0 standard for Earthing system.
- American National Standards Institute(ANSI)for steel structure requirements
- DTI MPT Specifications
- IMO Regulations
- ICAO Regulations
- CENELEC Standards
- ASTM Standard American Society for Testing and Materials
- ACI Standard
- SSPC Standard
- AISC Standard
- S235JR or S235JO
- EIA/TIA 222 F & G Wind load capacity per TIA/EIA 222 standard (Rev. F)

- Wind load capacity per latest revision of TIA/EIA 222 standard (Rev. G)

3.3 The Project Documents

BK-GNRAL-PEDCO-000-TE-DC-0001 Telecom Design Criteria

3.4 Environmental Data

The installation site is in south of Iran with corrosive, hot and medium humid atmosphere. Therefore, all equipment shall be designed to fully comply with the performance specification in the environmental conditions. For more information refer to “Process Basis Design; section 11”.

For the Ambient Conditions, Special Care should be paid to:

- Enclosures of Equipment for Outdoor Installation
- Painting and Coating of Metal Parts to Resist to the Severe Environmental Conditions

Any environmental derating factors shall be considered by vendor before design.

4.0 TELECOM TOWER OVERVIEW

4.1 General

Telecom Tower shall be provided by a contractor who possesses experience in the Tower Manufacturing industry. In addition to the requirements detailed in the project’s contract, the following system-specific requirements are included in the Contractor’s scope of work:

- Contractor is responsible for the detailed design and supply of completely operational turn-key systems.
- Scope of work shall include all project management, development work, equipment supply, installation, documentation, acceptance testing, service, spare parts and training as described in this specification, unless otherwise stated.
- Developing the detailed design, as well as supplying, testing, installing, commissioning and demonstrating satisfactory performance of the Tower.
- Supplying all hardware, cables, panels, power supplies, structured wiring as required by the project.
- Supplying design drawings and equipment required to install.
- Providing data sheets, information on spares and operational instructions for supplied equipment.
- Performing factory acceptance testing, site acceptance testing and commissioning.

- Supplying spare parts, special tools, and all necessary hardware and software to perform preventative and corrective maintenance on Tower.
- Providing an equipment and design warranty.
- Producing and supplying a complete set of product documentation.
- Providing maintenance procedures.

Contractor should note that this specification defines minimum requirements for Tower Specification.

5.0 TECHNICAL REQUIREMENTS

5.1 Technical Specification for Tower

- **1 set (Minimum 50 Meter) Self-supporting lattice Hot Dip Galvanised -4 Legs** Telecommunication Tower shall be provided close to the Telecommunication Building For service of BINAK site. It shall support the antennas of the Radio Systems such as microwave antenna . **Also the Exist tower in binak shall be removed from site and all of the equipment on it moved to new tower.**
- The tower shall conform to EIA/TIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures. It shall be Hot dip galvanized.
- The survival wind speed shall be Followed as related “Design Basis” Document.

  The Towers shall be designed to meet the deflection, twist and sway limits required for operation at 4Hz. The deflection and twist limits to be within, + or – 0.5 deg for a wind speed 130 Km/h, and shall survive under wind pressures 160 km/h

5.2 Accessories

At Least below Accessories shall be considered for Tower:

- OB Lighting
- Lightening And Areester System
- Grounding System
- LADDERS AND PLATFORM
- Cable Tray
- Provision for climbing shall be made by means of a ladder inside or (if the tower dimension does not permit the former) on the face of the tower.
- On all self-supporting towers the ladder shall be fitted with lateral safety hops joined by at least two longitudinal steel straps for the whole length of the ladder.

- Service platforms shall be provided to permit service of microwave antennas and lights. The service platform for service the microwave antenna shall be designed so that replacement of damaged feed-horn or can be accomplished from the front of the antenna, in addition to the standard. Proper guard should be considered for service platform.
- Rest /Work Platforms(Every 20 meters)
- Rest Platform Accessories
- Automatic & Manual Control Unit for Tower Lighting (with Photocell, GPS Module & Manual Switch)
- Tower Foundation: The design criteria for foundation shall be based on the soil bearing capacity of 4900 Kg/Sqm.
- Painting (according to specification for painting Procedure)
- Antenna Mountings
- Anchore Bolts ,Assembly Bolts and Templates
- Tower Erection Materials
- Tower Erection Tools
- Climbing ladders and Safety loop
- All Accessories wire and Conduits

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5.3 Earthing

The Earthing of Tower shall be arranged to prevent electrical interference. Particular attention shall be given to the arrangement of Earthing circuits to prevent unwanted circulating currents in earthing, signal and measurement conductors and screens. **The Earth copper Plate 50x50 cm^2** will be provided for tower as earthing protection design by electrical.

5.4 Lightning Protection

CONTRACTOR shall provide, deliver, and install a complete earthing and lightning protect tion system for the system, which shall be designed and installed as per NFPA 780, IEC 61662 or IEC 61024-1.

- Lightning arrester rod will be installed at minimum 1.5 meter distance from maximum height of tower.
- The lightning rod will be connected to the earth rod via CU cable Type (70 mm) as direct. Also the earth pit rod will be connected to earthling network of site that is under 1 ohm resistance.

5.5 TOWER FOUNDATION

The design and calculation of foundation of tower, loading of tower, soil electrical/mechanical resistivity… will be done by tower supplier /Contractor as well. The design and related calculation need to be approved by owner before construction.

The Civil Department have been issued related doc about this subject.

5.6 WARNING LIGTH

The air craft warning light will be designed base on ICAO Standard. The air craft warning light shall be supplied by telecom tower contractor. The warning light cable shall be routed from conduit.

The Photocell, Flashing warning light, Fix Warning light, suitable power cable, Conduit for power cable route shall be considered by sub-contractor.

6.0 NAMEPLATES AND PAINTING

6.1 Name Plates

6.2 Rating Plates

Each device shall have a rating plate fixed to the front or side of the enclosure.

The rating plates shall be of non-corrodible material.

The rating plates shall give the necessary information specified in the applicable standards.

Language to be used in the rating plates shall be English.

7.0 PAINTING

General requirements for painting and its color shall be referred to “**Specification for Painting.**

All metallic surfaces, except machined or plated surfaces, shall be shop painted. Prior to painting, surface treatment for rust prevention shall be given. Enclosure panels shall be given a mat-finish. Material and method for painting is left to the discretion of Vendor, unless otherwise specified.

The Painting of tower shall be done with Red and white color on all of the galvanized parts.

The Polyurethane color thickness shall be Considered 70 Micron.

8.0 DOCUMENTATION

All documents shall be in English language. Documentation must include:

- Technical description.

- Service manual for maintenance personnel.
- Operating instructions for station users.
- Operating instructions for the attendant console.
- System engineering and manual.
- Circuit drawing.
- Installation manuals
- Part list
- Factory list
- Terminal block connection diagram
- Trouble shooting chart
- List & location of component

9.0 PREPARATION FOR SHIPMENT

Preparation for shipment shall be in accordance with manufacturing standards. Manufacturer shall be solely responsible for the adequacy of the preparation for shipment with respect to materials and application, and provide materials to their destination in ex-work condition when handled by commercial carrier system.

10.0 STORAGE AND CARE EQUIPMENT

General checking of equipment materials shall be examined as soon as possible following arrival at Checking should be carried out against respective orders and specifications and where deficiencies or noncompliance with an order occurs, details shall immediately be notified, to site Engineer. Wherever possible equipment shall be returned to its original packing for storage until required for use.

11.0 STORAGE AND PROTECTION

Methods of storage and protection required will vary according to the type of equipment and the area of operation concerned. Details of storage accommodation and proposed methods of storage for electrical hardware should be discussed and agreed with site Engineer.

12.0 INSTALLATION

Locate and install Telecom Tower as indicated on the applicable drawings and in accordance with the manufacturer's recommendations. The Telecom Tower shall be installed on BINAK Site– near the telecom building.

All Tower material shall be checked and tested to ensure that there are no any damaged.

The equipment manufacturer shall provide technical guidance during and/or following construction to perform a checkout of the tower.

12.1 TAGGING AND MARKING

All Components and equipments shall be tagged by proper marking strips or labels after installation on the telecom tower.

12.2 POST INSTALLATION

All drawings and related documents shall be as built after tower installation.