

	<b>OFFSHORE ENGINEERING SERVICES ISO 9001: 2015</b>	<b>BASIC BID WORK S&amp;SRP (Sump Caisson and SWLP Casing Replacement Project)</b>	<b>Section No.</b>	<b>1.0</b>
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**S&SRP**  
**(Sump Caisson and SWLP Casing  
Replacement Project)**

**VOLUME – II**



**OIL AND NATURAL GAS CORPORATION LIMITED**  
**INDIA**



OFFSHORE  
ENGINEERING  
SERVICES  
ISO 9001: 2015

**BASIC BID WORK**  
**S&SRP (Sump Caisson and SWLP**  
**Casing Replacement Project)**

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**VOLUME – II**

**SECTION – 1.0**

**BACKGROUND AND GENERAL**

**FOR**

**S&SRP**

**(Sump Caisson and SWLP Casing Replacement Project)**



**OIL AND NATURAL GAS CORPORATION LIMITED  
INDIA**

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## 1.0 INTRODUCTION

Oil and Natural Gas Corporation Limited (ONGC), hereinafter called as 'ONGC', is engaged in exploration and exploitation of oil and gas on Western Offshore Fields in the Arabian Sea on the continental shelf of Western India. The fields are well developed with an extensive infrastructure of wellhead platforms, process platforms and pipelines.

Western offshore consists of three assets viz. Mumbai High (MH), Neelam & Heera (N&H) and Bassein & Satellite (B&S). As the platforms in these fields are operational for several years in the marine environment, their structure, piping, equipment, etc. require replacement /modifications /revamping to operate the platforms safely and efficiently.

ONGC intends to take up repair/refurbishment/replacement work at Wellhead and Process Platforms of MH (both North and South) Asset and Neelam and Heera Asset.

The purpose of the present tender is to enable ONGC to award a contract for carrying out Replacement of Sump Caissons, Sea Water Lift Pump (SWLP) Casings, Vent Booms, 30" PBIV, and Well Fluid Heaters at process platforms and Repair of topside at RS-21 wellhead platform. The contract shall be awarded on an EPC basis with detail engineering, procurement, fabrication, transportation, installation and all associated pre-commissioning/commissioning checks as per the tender specifications along with provision of marine support.

## 1.1 STRUCTURE OF BID DOCUMENTS

The Bid Document consists of 5 Volumes.

**Volume I** consist of Instructions to Bidders, General Conditions of Contract and Appendices. Volume II, III and IV contain technical information and data of the project.

**Volume II** of the Project includes 'Background and General' along with 'Basic Bid Work' and 'Design Criteria'. Background and General broadly covers the overview of the facilities being envisaged under the project. Basic Bid Work consists of description of facilities. Design Criteria provides for Design Parameters, followed by Functional Specifications and Drawings.

**Volume III** of the Bid consists of Functional Specifications applicable for total Scope of Work for the project. Functional Specifications for items pertaining to structural, piping, mechanical and safety, electrical, and instrumentation disciplines required for this project are covered in this part. The Functional Specifications describe the essential and minimum required functional considerations regarding selection, installation, calibration, testing and commissioning of individual equipment, items and systems. Some of the design requirements, instead of being given as itemized list of components, are given in terms of function of the Equipment or function required. Contractor shall provide everything required for producing fully functional and pre –commissioned/ commissioned topside facilities under replacement/modification works undertaken and everything that constitutes the works (which is defined in the general conditions of Contract). These

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Specifications are general in nature and are intended only as a supplement to Section 2 & 3 of Volume – II, indicative P&ID's, Process flow description, Equipment layouts etc.

**Volume IV** contains Legends, Notes, Indicative P&IDs, PFDs, Datasheets, Drawings etc. and As-Built documents of existing facilities.

**Volume V** consists of Structural Integrity Reports etc.

## 1.2 DESIGN PHILOSOPHY

The bid document provides the following:

- Functional design and engineering requirements including PFDs, UFDs & P&IDs for topside facilities to be replaced/modified on process platform. However, bidder to carry out the detailed engineering & design as per design requirements and functional specifications given in the Bid Documents and generate AFC drawings.
- Design requirements for hook-up/modification works on existing process complex. The design shall be based on Design Criteria given in Section 3 of Volume - II of Bidding Documents. However, selection of equipment / assemblies shall be governed by the functional specifications given in Volume III of the Bidding Documents. Bidder is required to furnish the cost effective, industry proven design of topside facilities and other modification work for platforms, based on applicable International Codes and content of the bid document.

## 1.3 OVERVIEW OF PROJECT

Under this Project, Contractor has to carry out pre-engineering survey, demolition, post-demolition survey, design & engineering, procurement of all material and services, inspection, testing, fabrication, load out, tie down, transportation, installation, post Installation / construction survey, site acceptance test, pre commissioning, commissioning, as-built, over-all quality assurances & quality control and all warranties/guarantees related to the scope of work including video recording of underwater surveys.

Following table provides the list of equipment covered in the scope and the nature of work to be carried out.

S/N	Asset	Complex	Platform	Equipment	Tag No.	Nature of Work
1	MH	IC	ICW	SWLP Casing	SWLP-1010	Replacement
2	MH	IC	ICW	SWLP Casing	SWLP-1020	Replacement
3	MH	IC	ICW	SWLP Casing	SWLP-1030	Replacement
4	MH	SH	SHW	SWLP Casing	P-6210	Replacement
5	MH	SH	SHW	SWLP Casing	P-6220	Replacement
6	MH	SH	SHW	SWLP Casing	P-6310	Replacement
7	MH	IC	ICP	Vent Boom		Replacement
8	MH	SH	SHP	Vent Boom		Replacement
9	MH	SH	SHD	Vent Boom		Replacement
10	MH	BHS	BHS	Vent Boom		Replacement
11	MH	WIN	NC	Vent Boom		Demolition
12	MH	SH	SHG	Well Fluid Heater	E-1150 (Train A)	Replacement
13	MH	SH	SHG	Well Fluid Heater	E-1160 (Train B)	Replacement
14	MH	IC-Heera Trunk Line	IC	30" PBIV(Pig Barrel Isolation Valve)(12MT)		Replacement
15	MH	RS- 21(BHS)	RS-21 wellhead	Topside Structure of platform		Repair of damage structure, handrail, cable tray etc. damaged due to hit by OSV
16	MH	IC	ICP	Sump Caisson with Blowcase	S-1800/V- 1820	Replacement
17	MH	SH	SHP	Sump Caisson with Blowcase	S-1060/V- 1060	Replacement
18	MH	SH	SHP	Sump Caisson with Blowcase	S-1070/V- 1070	Replacement
19	N&H	NL	NLP	Sump Caisson with Blowcase	S- 5201/V5211	Replacement
20	N&H	NL	NLP	Sump Caisson	S-5200	Piping Replacement
21	N&H	HR	HRA	Sump Caisson with Blowcase	S-810/V-820	Replacement

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#### **1.4 CONTRACTOR'S SCOPE OF SUPPLY**

**1.4.1** The procurement and supply in sequence and at the appropriate time, of all materials and consumables required for the completion of work in accordance with the technical specifications/time schedule shall be entirely the responsibility of the Contractor and his quoted price shall include the provision of all such materials. Contractor's scope of supply shall consist of the following but not limited to:

- All materials (pipes, flanges, fittings, valves, instruments, cables, wirings, structural steel, hoses etc.) other than those defined in Company's scope.
- All equipment and bulk material as described in Basic bid work.
- All matching flanges, gaskets, bolts etc. wherever new piping/instruments are being hooked up to the existing piping.
- All types of welding consumables, electrodes, filler wires etc.
- All types of structural members as required for pipe supports, temporary supports, scaffolding materials etc.
- Primers and paints as specified in Spec.No.2005.
- Spool pipes, blinds, plugs, gaskets and other materials/arrangement required for testing of pipe work.
- Radiography/UT/MPI/DP machines and materials as required for NDT as per welding Functional Specifications.
- Any other material not-specifically mentioned above but required for completion of the work as per specifications, drawings and instructions of Engineer-in-charge.
- Supply of materials within scheduled time shall be the Contractor's responsibility

**1.4.2** The procurement of all equipment and material shall preferably be from Company's approved Vendors /Sub-vendors (Suggested Vendors' List enclosed). All necessary documents including test certificates shall be furnished for Company's review and approval.

The procurement of all equipment and material shall preferably be from Company's approved Vendors /Sub-vendors (Suggested Vendors' List enclosed). All necessary documents including test certificates shall be furnished for Company's review and approval.

Company reserves the right to participate in the selection of vendor for major equipment and items. Vendor, other than those indicated in the suggested vendor list, if proposed then contractor shall notify the company in writing of the name / details of the intended vendor and furnish company with two sets of the vendor's complete technical bid offer including past experience of supplying similar items and all technical correspondence/ clarification furnished by the vendor to the contractor. Contractor shall ensure that the vendor's technical offer shall be duly vetted by their engineering sub-contractor incorporating observations/recommendations, before submission to the company.

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**1.4.3** Transportation of materials to/from Contractor's/Vendor's stores/workshop worksite/field for fabrication/installation including handling loading/ unloading etc. included in Contractor's scope.

**1.4.4** Demolished material shall be disposed as specified elsewhere in the bid.

## **1.5 QUALITY ASSURANCE**

The Contractor and his sub-Contractors/ vendors, shall operate a quality system satisfying the applicable provisions of BS 5750/ISO 9000 (Series) latest edition.

Contractor shall include in his bid the quality assurance plan containing overall quality management procedures which is required to be adhered to during execution of contract. After the award of the contract, detailed QA plans to be followed for execution of contract under various division of works, will be mutually discussed and finalized.

The Contractor shall establish document and maintain an effective quality assurance system as outlined in recognized codes.

Quality assurance system plans/procedures of the Contractor shall be furnished in the form of a QA manual. This document should cover details of the personnel responsible for the quality assurance plans/procedures to be followed for quality control in respect of design engineering, procurement, fabrication, installation, hook-up and testing. The quality assurance system should indicate organizational approach for quality control and quality assurance of the constructional activities at all stages of work at site as well as workshop.

The Company or its representative shall reserve the right to witness/inspect review any or all stages of work at shop or site as deemed necessary for quality assurance.

The Contractor has to ensure the deployment of quality control and quality assurance Engineer depending upon the quantum of work. The QA/QC group shall be fully responsible to carry out the work as per contract. In case the Engineer in-charge feels that the Contractor's QA/QC Engineers are incompetent or insufficient, Contractor has to deploy other experienced Engineers as per site requirement and to the full satisfaction of Engineer in-charge.

## **1.6 HEALTH, SAFETY & ENVIRONMENT (HSE) REQUIREMENTS**

The Contractor shall be responsible to comply with code requirements of International Maritime Organization (IMO), International Convention of Safety of life on sea (SOLAS), Occupational Safety & Health Administration (OSHA), ISO – 14000 series, ISO-45001, American Petroleum Institute (API) RP-14A, 14B, 14C, 14D, 14E, 14F, 14G, 14H, 14J and the international practices and the requirements as stipulated in Volume - I of the bid document with regards to Health, Safety & Environment.

Besides, above Contractor shall follow International Maritime Contractors Association (IMCA) Guidelines or International code of practice for Offshore Diving work. During

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execution of the project, Contractor shall ensure compliance of various activities related to Safety, Health & Environment as per applicable codes and submit the compliance report to Company.

#### **1.7 RESPONSIBILITIES OF THE COMPANY**

Company shall make available the as-built documents, drawings and other relevant information to the extent possible depending upon their availability

#### **1.8 RESPONSIBILITIES OF THE CONTRACTOR**

As described herein and in the instructions provided in Part-III of this bid document, following shall be carried out by the Contractor:

- i. All surveys such as pre-engineering (including pre-demolition and post-demolition), pre-construction, post-construction, as-built, safety etc. as described in the bid document
- ii. Design and detailed engineering of all facilities in accordance with design parameters and International Codes and Standards but incorporating changes/revisions which are not adequately covered and reflected, considering that bid document is solely based on functional specifications
- iii. Preparation of all fabrication drawings, purchase specifications, specifications and procedures for fabrication, load out tie-down, transportation, offshore installation, hook-up, testing, pre-commissioning and commissioning (wherever applicable) including the existing facilities where modifications are to be carried out or where loose material are to be handed over.
- iv. Procurement including expediting and inspection of all materials and equipment for construction and incorporation in the facilities. In addition to Company or Company appointed inspection agency, the Contractor has to carry out the inspection of material/equipment through third part inspection agency duly approved by the company.
- v. Fabrication and assembly of all facilities including installation of equipment, piping, piping supports, cabling, ducting, tubing etc. into the facilities in accordance with approved drawings and specifications.
- vi. Load out of all fabricated and bought out components for facilities, sea fastening and transportation to the offshore site.
- vii. Offshore installation of all facilities, hook-up, testing, pre-commissioning and commissioning. Contractor shall perform leak test as part of pre-commissioning work. Further, Contractor shall pre-commission all hydrocarbons handling system and fire suppression system. All such pre-commissioning activities shall be witnessed by Company for their satisfactory completion.
- viii. Contractor shall provide list of spare parts for one year of operation and maintenance of the facilities along with their budgetary quotes as described elsewhere in the bid document.

In accomplishing the above tasks, the Contractor shall take total responsibility of executing the project in accordance with this bid document including supply of all materials and

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consumables, construction equipment, etc. and will adhere to bid document instructions and requirements in respect of all matters relating to the project.

### 1.9 PROJECT DOCUMENTATION

It shall be the contractor's responsibility to prepare project documentation including as built drawings & documents, specifications, operation and maintenance manual, vendor data book etc. Soft copies of all as built drawings on Portable Hard disc using latest version of software shall be provided. During detailed engineering all Drawings and documents shall be generated for submission to the company in electronic form and hard copy, wherever required. Contractor shall be required to follow Company's on-line documentation system (OPMAC) for uploading and online review of documents, drawings etc.

Instructions for submission of project documentation including as-built (in addition to the hard copy documents) shall be as follows:

Sl. No.	Description	Format
1	Project Documents	Latest version of Microsoft Office
2	Vendor drawings, specifications, Operation and maintenance manual, Vendor data book etc. (All documents pertaining packaged items delivered by third party)	Latest version of PDF along with native files
3	All drawings pertaining to modification job	Latest version of AUTOCAD / MICROSTATION (as per contractors convenience)
4	As-built P&IDs	Latest version of PDF along with native files.
5	Data sheets and PS	Latest version of PDF along with native files.
6	All drawings for new Facilities	Latest version of AUTOCAD / MICROSTATION only
7	Engineering Analysis	Soft copies of all input and final Analysis