OIL INDIA LIMITED
(A Govt. of India Enterprise)
Rajasthan Project, Jodhpur – 342005, Rajasthan

Telephone No. (91-291) 2729473

Fax No: (91-291) 2727050
Email: km_kumar@oilindia.in; erp_mm@oilindia.in

Tender No. & Date	**: SJG3233P17 Dated 08.12.2016**
Tender Fee	: INR 30,000/- OR USD 500/-
Bid Security Amount	: INR 5,70,000/- OR USD 8,250/-
Bid Validity	: Bid should be valid for 120 days from bid closing date.
Bid Bond Validity	: Bid Bond should be valid upto 07.08.2017

(Bid bond format has been changed. Please submit bid bond as per revised format failing which offer will be rejected)

Bidding Type	**: SINGLE STAGE TWO BID SYSTEM**
Bid Closing on	: As mentioned in e-portal
Technical Bid Opening on	: As mentioned in e-portal
Performance Guarantee	: Applicable @ 10% of purchase order value.

Note: Against Tender Fee - Payment should be made only through online payment gateway and no other instrument (Cash/DD/Chequ'es/Cashier Cheque, etc.) will be acceptable.

Against Bid Security /EMD /Performance Bank Guarantee – Only payments through online gateway mode or Submission of Bank Guarantee/LC will be acceptable. No DD/Cheques/Cashier Cheque or any other mode will be acceptable.

OIL INDIA LIMITED invites Global Tenders for items detailed below:

Item No./Mat. Code	Material Description	QTY.	UOM
10 0C000260	DOWN HOLE HEATER & ACCESSORIES (The Down Hole Heater accessories include the following: a. Design of electrical Down Hole Heating system. b. Well head penetrator system, Cable splice kit, Cable Protectors and centralizers etc. c. Step Up Transformer and surface electrical power cable.)	1	NO
20 0C000242	GENERATING SET (Generating Set with the control panel and accessories.)	1	NO
30 0C000662	WELL HEAD	1	NO
40	INSTALLATION & COMMISSIONING (Installation and commissioning of the Electrical Down Hole system)	1	AU

The tender will be governed by:

a) Instructions to Bidders - Annexure – I

a) Scope of work/terms of reference/technical specifications
Special Terms and Conditions
Bid Evaluation Criteria (BEC) /Bid Rejection Criteria (BRC) – Annexure - II.

c) Integrity Pact- Proforma-III

d) General Terms & Conditions" for e-Procurement as per Booklet No. MM/RP/GLOBAL/E-01/2005, user manual, and general guideline for e-procurement.

Pre-Bid Conference: A pre-bid conference to explain Company's exact requirements and to reply queries of Bidders, if any, on the tender stipulations will be held on 11.01.2017 at 11:00 hrs (IST) in OIL's Project Office at 2A, District Shopping Centre, Saraswati Nagar, Basni, Jodhpur -342005, Rajasthan. Maximum of two representatives of each bidder will be allowed to attend the pre-bid conference on producing authorization letter. Bidders interested to attend the Pre-Bid Conference should intimate Chief Manager (M&C), Oil India Limited , Jodhpur latest by 09.01.2017.

Note: The bidder's queries, if any should reach us at least 4 working days prior to the date of Pre-bid conference.

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ANNEXURE – I

INSTRUCTIONS TO BIDDERS

1.0 All the Items shall be procured from single source for compatibility reasons.

2.0 Call out notice for installation & commissioning will be issued within one (01) year from the date of receipt and acceptance of material at site.

3.0 The items covered by this enquiry shall be used by Oil India Limited in the PEL/ML areas which are issued/renewed after 01/04/99 and hence Nil Customs Duty during import will be applicable. Indigenous bidder shall be eligible for Deemed Export Benefit against this purchase. Details of Deemed Export are furnished vide Addendum to MM/RP/GLOBAL/E-01/2005 attached. However, Indian bidders will not be issued Recommendatory Letter.

4.0 Please note that all tender forms and supporting documents are to be submitted through OIL's e-Procurement site only except following documents which are to be submitted manually in sealed envelope super scribed with **Tender no.** and **Due date** to **The Chief Manager (M&C), Materials & Contracts Department, Oil India Limited, Rajasthan Project, 2A-Saraswati Nagar, Basni, Jodhpur - 342005, Rajasthan** on or before **11:00 Hrs (IST)** on the Bid Closing Date mentioned in the Tender.

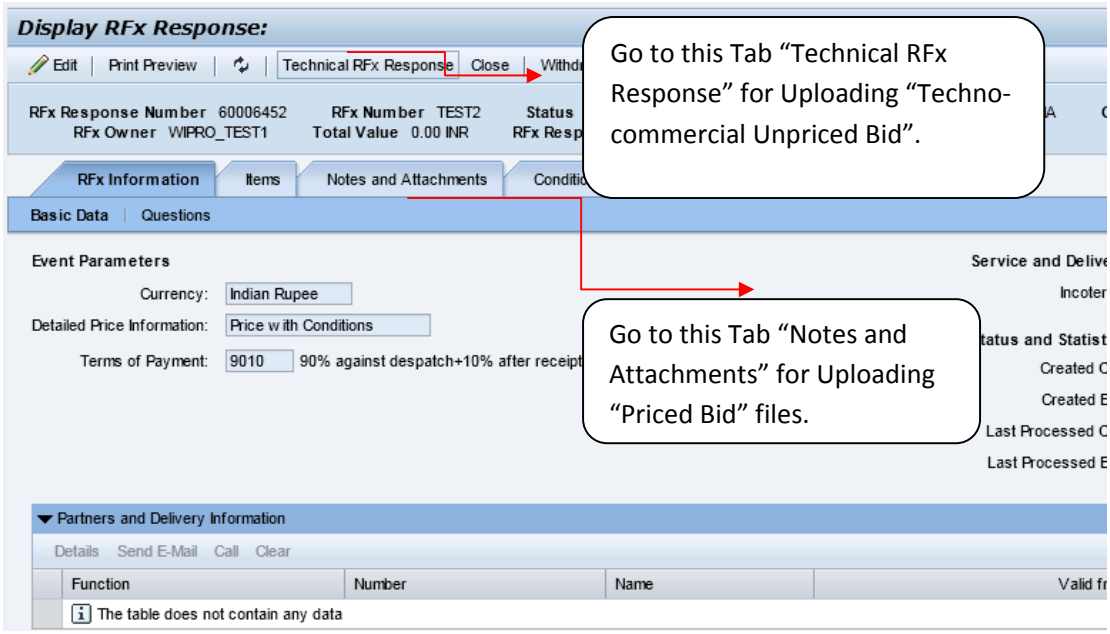
a) **Original Bid Security .**
b) **Details Catalogue and any other document which have been specified to be submitted in original.**

All documents submitted in physical form should be signed on all pages by the authorised signatory of the bidder and to be submitted in triplicate.

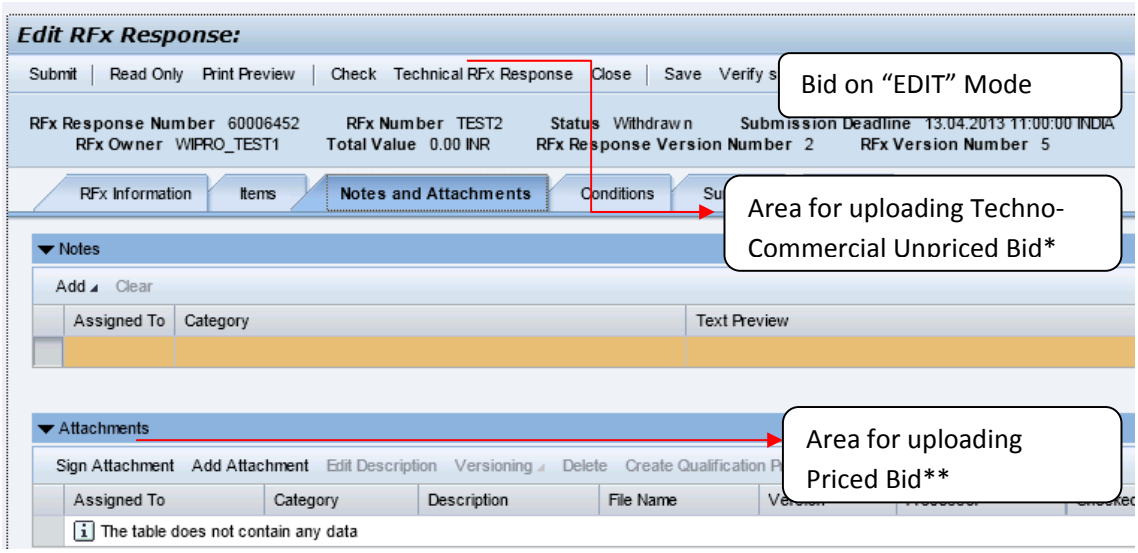
5.0 In case of SINGLE STAGE-TWO BID SYSTEM, bidders shall prepare the "Techno-commercial Unpriced Bid" and "Priced Bid" separately and shall upload through electronic form in the OIL's e-Tender portal within the Bid Closing Date and Time stipulated in the e-Tender. The "Techno-commercial Unpriced Bid" shall contain all technical and commercial details except the prices which shall be kept blank. Details of prices as per Price Bid Format / Commercial Bid to be uploaded as attachment in the Attachment Tab "Notes and Attachments".

A screen shot in this regard is given below.

Any offer not complying with above submission procedure will be rejected as per Bid Evaluation Criteria mentioned in the tender.



On "EDIT" Mode- The following screen will appear. Bidders are advised to Upload "Techno-Commercial Unpriced Bid" and "Priced Bid" in the places as indicated above:



Note :

* The "Techno-Commercial Unpriced Bid" shall contain all techno-commercial details **except the prices**.

** The "Price bid" must contain the price schedule and the bidder's commercial terms and conditions. For uploading Price Bid, first click on Sign Attachment, a browser window will open, select the file from the PC and click on Sign to sign the Sign. On Signing a new file with extension .SSIG will be created. Close that window. Next click on Add Atachment, a browser window will open, select the .SSIG signed file from the PC and name the file under Description, Assigned to General Data and clock on OK to save the File.

6.0 Bidders are requested to examine all instructions, forms, terms and specifications in the bid. Failure to furnish all information required as per the bid or submission of offers not substantially responsive to the bid in every respect will be at the bidders risk and may result in the rejection of its offer without seeking any clarifications.

7.0 Other terms and conditions of the tender shall be as per "General Terms & Conditions" for e- Procurement as per Booklet No. MM/RP/GLOBAL/E-01/2005 for E-procurement (ICB Tenders) and its amendments. However, if any of the Clauses of the Bid Evaluation Criteria (BEC) / Bid Rejection Criteria (BRC) mentioned here contradict the Clauses in the "General Terms & Conditions" for e-Procurement as per Booklet No. MM/RP/GLOBAL/E-01/2005 for E-procurement (ICB Tenders) of the tender and/or elsewhere, those mentioned in this BEC/BRC shall prevail.

8.0 The Integrity Pact is applicable against this tender .OIL shall be entering into an Integrity Pact with the bidders as per format enclosed vide Proforma-III of the tender document. This Integrity Pact proforma has been duly signed digitally by OIL's competent signatory. The proforma has to be returned by the bidder (along with the technical bid) duly signed (digitally) by the same signatory who signed the bid, i.e., who is duly authorized to sign the bid. Uploading the Integrity Pact with digital signature will be construed that all pages of the Integrity Pact has been signed by the bidder's authorized signatory who sign the Bid. **If any bidder refuses to sign Integrity Pact or declines to submit Integrity Pact with the offer, their bid shall be rejected straightway.**

OIL's Independent External Monitors at present are as under:

1. SHRI RAJIV MATHUR, IPS(Retd.),
e-Mail ID : rajivmathur23@gmail.com
2. SHRI SATYANANDA MISHRA, IAS(Retd.)
Former Chief Information Commissioner of India &

Ex-Secretary, DOPT, Govt. of India
e-Mail ID : satyanandamishra@hotmail.com

9.0 GUIDELINES FOR PARTICIPATING IN OIL'S E-PROCUREMENT:

9.1 To participate in OIL's E-procurement tender, bidders should have a legally valid digital certificate **of Class 3 with Organizations Name** as per Indian IT Act from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India (http://www.cca.gov.in). **Digital Signature Certificates having "Organization Name" field as "Personal" are not acceptable**.

9.2 Bidders must have a valid User ID to access OIL e-Procurement site for submission of bid. Vendors having User ID & password can purchase bid documents **on-line through OIL's electronic Payment Gateway**. New vendor shall obtain User ID & password through online vendor registration system in e-portal and can purchase bid documents subsequently in the similar manner. Tender Fee (Non-refundable) of INR 30,000.00 OR USD 500.00 Payment should be made only through online payment gateway and no other instrument (Cash/DD/Chequ'es/Cashier Cheque, etc.) will be acceptable.Tender fee shall be accepted only upto one week prior to Bid Closing date (as mentioned in e-portal).

For participating in Oil India limited e-tenders, all new vendors must get themselves enlisted in Oil India e-portal. Please go to the url: https://etender.srm.oilindia.in/irj/portal and go to the link Supplier Enlistment for E-Tender. For, the detailed procedure for payments towards 'Tender Fee' and 'Bid Security /EMD' through 'Payment Gateway', please refer the manual.

No physical tender documents will be provided. Details of NIT can be viewed using "Guest Login" provided in the e-Procurement portal. The link to e-Procurement portal has also been provided through OIL's web site www.oil-india.com.

PSUs and SSI units are provided USER_ID and initial PASSWORD Free of Cost (as per govt guidelines), however they have to obtain USER_ID and initial PASSWORD as mentioned above and apply to OIL's designated office before the last date of receipt of tender fee (as mentioned in e-portal).

9.3 Parties shall be eligible for accessing the tender in E-portal after OIL enables them in the E-portal after receipt of the requisite cost of the bidding document.

10.0 Any sum of money due and payable to the contractor (including Security Deposit refundable to them) under this or any other contract may be appropriated by Oil India Limited and set-off against any claim of Oil India Limited (or such other person or persons contracting through Oil India Limited) for payment of sum of money arising out of this contract or under any other contract made by the contractor with Oil India Limited (or such other person or persons contracting through Oil India Limited.

11.0All corrigenda, addenda, amendments, time extension, clarifications etc. To the tender will be hoisted on OIL's website (www.oil-india.com) and in the e-portal (https://etenders.srm.oilindia.in/irj/portal) only and no separate notification shall be issued in the press. Prospective bidders are requested to regularly visit the website and e-portal to keep themselves updated.

12.0 Bidder shall accept and comply with the following clauses as given in the Bid Document, failing which bid shall be liable for rejection:

i) Firm Price
ii) Bid Security
iii) Specifications / Scope of Work
iv) Price Schedule
v) Delivery Schedule
vi) Period of Bid Validity
vii) Liquidated Damages
viii) Performance Security
ix) Guarantee of material
x) Arbitration / Resolution of Dispute
xi) Force Majeure
xii) Applicable Laws
xiii) Integrity Pact

13.0 A bid shall be rejected straightway if it does not conform to any one of the following clauses:

(a) Validity of bid shorter than the validity indicated in the Tender.

(b) Original Bid Security not received within the stipulated date & time mentioned in the Tender.

(c) Bid Security with (i) validity shorter than the validity indicated in Tender and/or Bid Security amount lesser than the amount indicated in the Tender.

(d) In case the Party refuses to sign Integrity Pact.

14.0 PURCHASE PREFERENCE : Purchase Preference will be applicable as per latest Govt. Guidelines. Bidders to take note of the same and quote accordingly. It is the bidder's responsibility to submit necessary documents from the Competent Authority to establish that they are eligible for purchase preference against this tender.

15.0 PRICE PREFERENCE : Price Preference will be applicable as per latest Govt. Guidelines. Bidders to take note of the same and quote accordingly. It is the bidder's responsibility to submit necessary documents from the Competent Authority to establish that they are eligible for price preference against this tender.

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ANNEXURE – II

SECTION-I

SCOPE OF WORK/TERMS OF REFERENCE/TECHNICAL SPECIFICATIONS

1. INTRODUCTION

OIL INDIA LIMITED (OIL), a premier National Oil Company, is engaged in the business of exploration, production and transportation of crude oil and natural gas for over five decades. It is a Navratna Company under Ministry of Petroleum and Natural Gas, Government of India and the second largest National Oil Company in the country.

Rajasthan Project, one of the projects of OIL, is engaged in exploration and production of Natural Gas from Jaisalmer Basin and exploration of Heavy oil in Bikaner-Nagaur basin within Jodhpur Sandstone of Infracambrian age of Western Rajasthan in India. OIL intends to exploit heavy oil from Baghewala structures with state of the art technology. This document addresses the requirement of equipment & services from a reputed contractor having adequate knowledge base and past experience in the field of Heavy Oil production.

2. DEFINITIONS:

COMPANY	Oil India Limited
CONTRACTOR	Organization that supplies the equipment and provides the service according to the Functional Specification.
COUNTRY OF OPERATION	India.
OPERATING AREA	Means the onshore area defined as Baghewala.
MINING LEASE	A legal contract for the right to work in a mine and extract the mineral or other valuable deposits from it under prescribed conditions of time, price, rental, or royalties
NELP	New Exploration Licensing Policy, conceptualized by the Government of India, during 1997-98 to provide an equal platform to both Public and Private sector companies in exploration and production of hydrocarbons with Directorate General of Hydrocarbons (DGH) as a nodal agency for its implementation.
OPERATING ENVIRONMENT	Operating environment is the set of conditions, which the SYSTEM / SERVICE PACKAGE is exposed to during its full life cycle.
FUNCTIONAL SPECIFICATION	Features, characteristics, process conditions, boundaries and exclusions defining the performance of a product or service, including the quality assurance requirements.
SYSTEM PACKAGE	The equipment and the related services identified under the term Electrical Down Hole Heater at the head of the functional specification document and as listed under

	'Annex-A' and 'Annex-B' of the same document.

FULL LIFE CYCLE	The period of time in which the device is fully functional in the well, including its installation and retrieval.
STANDARD OPEARTING PROCEDURE	Step-by-step written procedure that guides personnel to perform an activity safely in a consistent manner.
SCOPE	State scope of document as intention, i.e. what the document intended to achieve.
SHALL	Is used to indicate requirements that MUST be satisfied in order to comply with the Scope of Work.
SHOULD	Is used to indicate requirements that are preferred. CONTRACTOR proposes alternatives shall clearly identify as such and shall be supported with objective evidence.
MAY	Is used to indicate that a provision is OPTIONAL.

3. ABBREVIATED TERMS:

Term	**Definition**
ML	Mining Lease
NELP	New Exploration Licensing Policy
LOA	Letter of Award
LOT	Leak off Test
DST	Drilling Stem Testing
BGW	Baghewala
NW	North West
ENE	East North East
WSW	West South West
BHA	Bottom Hole Assembly
ASTM	American Society for Testing and Materials
API	American Petroleum Institute
bbls	Barrels
BHP	Bottom Hole Pressure
BHT	Bottom Hole Temperature
BOD	Basis of Design
PEP	Project Execution Plan
SOP	Standard Operating Procedure
cp	Centipoise
Deg F	Degree Fahrenheit
IEEE	Institute of Electrical and Electronics Engineers
ISO	International Organization for Standardization

Term	Definition
ALARP	As Low As Reasonably Practicable
NACE	National Association of Corrosion Engineers
NEMA	National Electrical Manufacturers Association
PCP	Progressive Cavity Pump
OD	Outside Diameter
ID	Inside Diameter

4. SCOPE:

Scope of this document is to provide COMPANY's functional specification minimum requirements for the engineering design of **Electrical Down hole heater** (EDHH) including 'Thermal-Modeling' nodal analysis and 'Tubing-Force Analysis', equipment supply, installation, commissioning and start-up of one (1) EDHH systems and all the related accessories as specified under 'Annexure-A' and 'Annexure-B' of the document.

The scope of supply is broadly divided into three (3) modules:

- **Module 1:** Design of Electrical Down hole heating (EDHH) system;
- **Module 2:** Material supply and transportation to COMPANY's designated locations;
- **Module 3:** Equipment preparation, installation, commissioning and start-up;

5. APPLICABLE DOCUMENTS:

CONTRACTOR should follow the industry recognized standards, specifications, codes, regulations and recommended practices listed in the following table. CONTRACTOR shall comply with the latest edition of the listed documents unless otherwise stated.

5.1. RECOMMENDED PRACTICES AND INTERNATIONAL STANDARD:

Reference (API Standard)	Description
API Spec 5CT	Specification For Casing and Tubing
API Spec 5D	Specification For Drill Pipe
API Spec 4F	Specification For Drilling and Well Servicing Structures
API Bull 5C2	Bulletin On Performance Properties of Casing, Tubing and Drill Pipe
API Spec 7	Specification For Rotary Drilling Equipment
API Spec 8	Specification For Drilling and Production Hoisting Equipment
API Spec 6A	Specifications for valves and wellhead equipment

API Spec 5L	Specification For Line Pipe
Reference (API)	**Description**
API Spec 5 B	Specification for Threading Gauging
API Bull 5A2	Bulletin On Thread Compounds For Casing, Tubing and Line Pipe
API Spec 13	Specification For Oil Well Drilling Fluid Materials
API Q1	Specification for Quality Program
API Spec 11D2 &D3	Design, design validation, manufacturing and data control, performance ratings, functional evaluation, repair, handling and storage of Progressive cavity pump.
API 11 B	Rod type, Grade and Chemical Properties, Mechanical Properties and Heat Treatment of Sucker Rods and Pony Rods
API Spec RP 17B	Recommended practice for flexible pipes
API 505	Recommended Practice For Classification of Locations For Electrical Installations at Petroleum Facilities Classified as Class 1, Zone 0, Zone 1 and Zone 2

Reference (API-RP)	**Description**
API RP 5A&D3	Recommended Practice For Field Inspection of New Casing, Tubing and Plain End Drill Pipe cavity pump.
API RP 5C/C1	Recommended Practice For Care and Use of Casing and Tubing
API RP 11S5/API RP 11 S6	TEC line Cable
API RP 13F	Bulletin On Oil Gas Well Drilling Fluid Chemicals
API RP 54	Recommended Practices For Safety and Health For Oil and Gas Well Drilling and
API RP 59	Recommended Practices For Well Control Operations
API RP 44	Recommended practice for sampling petroleum reservoir fluids
API RP 520	Recommended practice for sizing, selection and installation of pressure relieving devices.
API RP 521	Recommended practice for pressure relieving and depressurizing systems

Reference (ASTM)	ASTM Specifications
ASTM A370	Standard Method and Definitions for Mechanical Testing of Steel
ASTM E18	Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of
ASTM E317	Practice for Evaluating Performance Characteristics of Ultrasonic Pulse-Echo Testing
ASTM E428	Standard Practice for Fabrication and Control of Metal, Other than Aluminum Reference, Blocks used in Ultrasonic Examination
ASTM D1418	Standard Practice for Rubber and Rubber Lattices
ASTM A 751	Methods, Practices and Definitions fo Chemical Analysis of Steel
ASTM D 395	Test Methods for Rubber Property- Compression Set
ASTM D 471	Standard Test Method for Rubber Property – Effect of Liquids
ASTM D 412	Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers.
ASTM D 2240	Test Methods for Rubber Property- Durometer Hardness

Reference (NACE)	Description
NACE TM-01-77	Laboratory Testing of Metals for Resistance to Specific Forms of Environmental
NACE MR-01-75	Sulphide Stress Cracking Resistance Metallic Material for Oilfield

Reference (IS)	Description
ISO 14310	Petroleum and gas Industries – Down hole Equipment – Packers and bridge plugs
ISO 11960	Specification for Casing & Tubing
ISO TS29001	Petroleum, petrochemical and natural gas industries Sector-specific, Quality Management systems Requirements for product and service supply organizations
ISO 15156 part 1,2 and 3	Petroleum and natural gas industries - Materials for use in H2S-containing environments in oil and gas production
ISO 15136 Part 1	Petroleum and natural gas industries – Progressive Cavity Pumps Systems for Artificial Lift – Part 1: Pumps
ISO 15136-2 Part 2	Petroleum and natural gas industries – Progressive Cavity Pumps Systems for Artificial Lift – Part 2: Surface Drive Systems

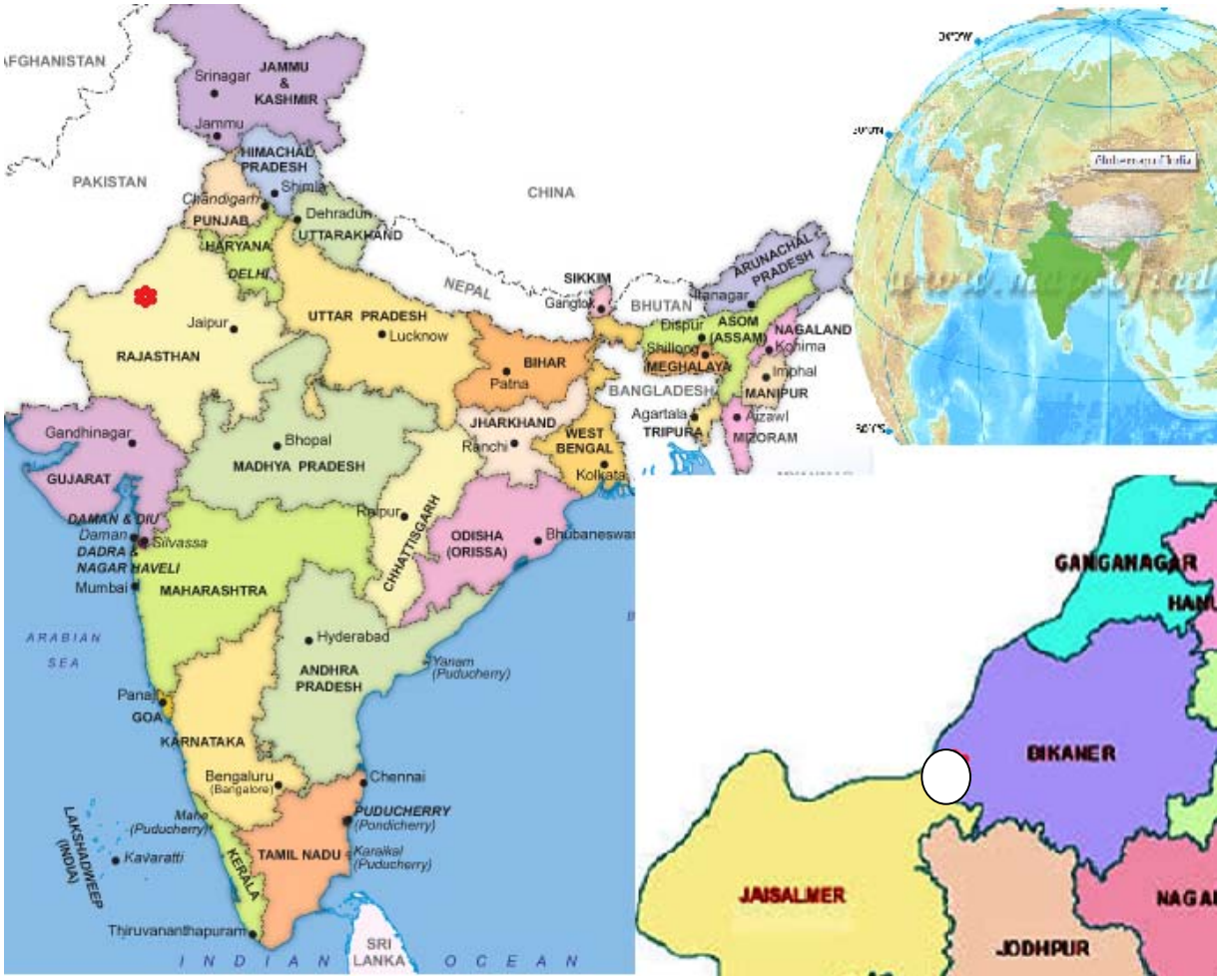
NOTE: The above list is not intended as being fully exhaustive and as such the CONTRACTOR shall comply with any other applicable Specifications, Standards or Codes in consultation with COMPANY.

6. OPERATING AREA:

6.1. GEOGRAPHIC LOCATION:

Baghewala, the area of operation, is located at the western part of the country India and in the States of Rajasthan. Rajasthan encompasses most of the area of Great Indian Desert (Thar Desert), which has an edge paralleling the Sutlej-Indus river valley along its border with Pakistan. The region borders Pakistan to the west, Gujarat to the southwest, Madhya Pradesh to the southeast, Uttar Pradesh and Haryana to the northeast and Punjab to the north.

The nearest airport to the operating area is Jodhpur Airport and is located at a distance of around 350 km.



6.2. ENVIRONMRNTAL CONDITIONS:

Components	International System (SI)
Ambient Temperature (Max. / Min.)	**50 / -1 Deg C**
Humidity (Max.)	**40%**
Average Rainfall	**25 mm/year**
Wind velocity(Max.)	**128 KM/Hr**
Frequecy of Sand strom	**March to September and occasional during the remaining period.**
Seismic	**Zone III, Moderate**
Weather	**Four distinct seasons - Pre monsoon, monsoon, post-monsoon and Winter**
Topography of Site	**Part of Thar Desert**

6.3. LOCATION OF THE STUDY AREA:

The coordinate of the study area are as under:

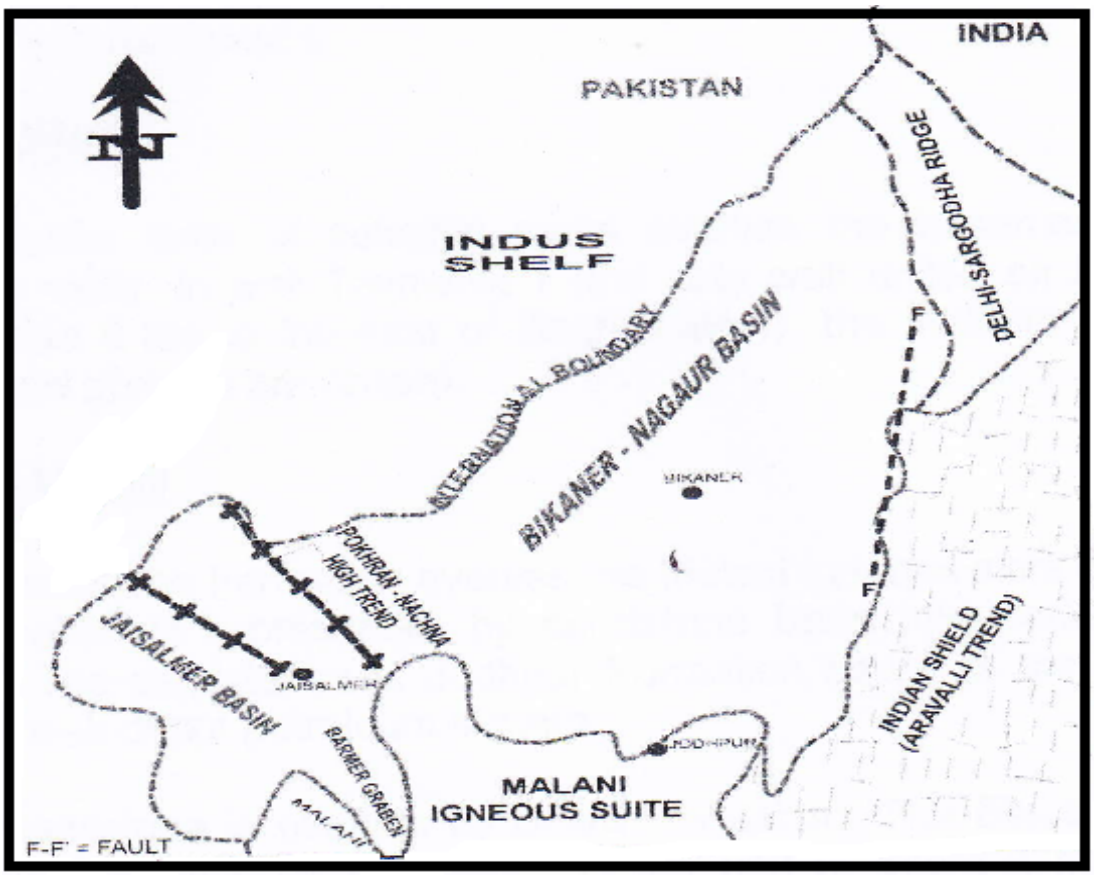
Pt.	Coordinates					
	Latitude(N)			Longitude(E)		
	degree	minute	second	degree	minute	second
BAGHEWALA PML						
A	**27**	**43**	**41**	**71**	**57**	**33**
B	**27**	**48**	**08**	**71**	**52**	**49**
C	**27**	**52**	**08**	**71**	**58**	**24**
D	**27**	**52**	**28**	**72**	**09**	**48**
NELP-VI Block						
a	**27**	**55**	**00**	**72**	**00**	**18.27**
b	**27**	**55**	**20.76**	**72**	**12**	**04**
c	**27**	**46**	**46**	**72**	**12**	**37**
d	**27**	**46**	**25.56**	**72**	**07**	**51.36**
e	**27**	**49**	**00**	**72**	**04**	**59.62**
D	**27**	**52**	**28**	**72**	**09**	**48**
f	**27**	**52**	**90.6**	**72**	**00**	**29**

7. REGIONAL STRATIGRAPHIC:

7.1. REGIONAL GEOLOGY:

Baghewala Mining Lease (ML) is located in the Bikaner-Nagaur basin of west Rajsthan. The Bikaner-Nagaur basin constitutes a Late Proterozoic-Early Paleozoic basin in the north western part of peninsular Indian shield. Structurally, Bikaner-Nagaur basin is bounded by the Aravalli ranges to the southeast, Delhi-Sargoda ridge to the northeast, and the pokhran-Nachna High to

the southwest which separates it from Jaisalmer basin. To the northwest, the Bikaner-Nagaur basin extends to the Salt Range of the Upper Indus basin of Pakistan.



Tectonic Map of Bikaner Nagaur Basin

The Bikaner-Nagaur Basin of northwest Rajasthan is the remnant of a continental rim basin with sediments deposited in an epiric sea. The continental rim basin was developed on the margin of Gondwanaland during the late Neoproterozoic through Permian time. The generally accepted plate tectonic reconstruction for the end of Neoproterozoic time shows the relationship of the Arabian Salt basins with the Indian salt basin (Allen, 2007). The Bikaner-Nachna basin is bounded on the south-southeast by outcrops of the constituent formations. The western boundary is the Jaisalmer-Sulaiman basins that form the northward extension of the West India Rift-basin trend. The north and eastern margins are formed by the Salt Range thrust belt and the Lahore-Delhi arch. Only the outcrop belt has any resemblance to the edges of the original basin. The Pokhran- Nachna Arch is a basement high initiating from the outcrop of the Jalor Granite member of the Malani Group southwest of the town of Pokhran (Roy, 2001), plunges northward west of Nachna and through the area of the Baghewala ML. This structural high originated in the Neoproterozoic, and it has been reactivated several times through geologic history.

At Baghewala ML, the Pokhran-Nachna Arch is expressed as a structural high where the Jodhpur Sandstone is absent or present as a thin layer over the crests of local highs. Seismic data near these wells show dipping beds of the Malani Rhyolite in nonconformity with a dacite intrusive body.

7.2. STRUCTURE:

The Baghewala anticline is interpreted as a ramp anticline formed by the offset of a fault in the basement. Seismic data also suggest that a younger phase of deformation was super imposed. It is characterized by normal faulting which is considered to be Jurassic-Cretaceous or younger in age. Seismic lines and cross sections show that the post-Jurassic sedimentary sequences become thicker and deeper towards the Himalayan Mountain Front. They also show that the folded post-Infra cambrian sequences are eroded on the crest of the structures by the Permian unconformity.

7.3. STRATIGRAPHIC SUCCESSION

The Stratigraphic Sucession of Bikaner Nagaur basin as under:

AGE			FORMATION	THICKNESS(m)	LITHOLOGY
QUARTERNARY	RECENT		Alluvium / Shumar	70-95	Fine to Medium Grained Sand
	PLEISTOCENE				
TERTIARY	EOCENE		Palana and Marh	20 - 110	Clayey limestone and dark grey claystone
	PALEOCENE				
MESOZOIC	CRETACEOUS		Parh Equivalent	30 - 35	Dark grey claystone and sandstone
	JURASSIC		Jaisalmer + Lathi	290 - 380	Red claystone and ferruginous sandstone with minor coal
	TRIASSIC				
	PERMIAN		Bap and Badhaura	58 - 70	Red yellow and grey claystone and silts with conglomerate
PALEOZOIC	MARWAR SUPERGROUP	INFRA CAMBRIAN	Upper Carbonate	250 - 600	Laminated dolostone and limestone with red claystone interbeds and occasional marl
			Nagaur	150 - 300	Mottled claystone with siltstone, fine grained sandstone and minor dolostone
			Hanseran Evaporite Group	140 - 150	Anhydrite, Halite, claystone and dolostone
			Bilara	50 - 120	Dolostone, fine grained sandstone & reddish brown claystone
			Jodhpur	25 - 30	Coarse to fine grained, well sorted sandstone (pinkish), with siltstone and claystone
PROTEROZOIC	PRE-CAMBRIAN		Malani Suits	120 - 350	Volcanoclastics with basalt and Rhyolitic flows
			Crystalline Basement	--	Granitoid Rocks

8. HYDROCARBON PROSPECT:

8.1. WELL EVIDENCE:

A total of Six (6) wells have been drilled in the Baghewala ML area. The outcomes of Drilling of these wells are outlined as under:

8.1.1 The presence of heavy oil in Baghewala structure has been established during 1991 through drilling of the first exploratory well BGW-1 in the structure. The well BGW-1, drilled down to the basement (TD – 1375 m), encountered heavy oil (17 – 19 Deg API) in the deeper Infracambrian formations viz., Jodhpur and Bilara.

8.1.2 The well BGW-2 was drilled at the same plinth of BGW-1 in order to test the Upper Carbonate. The well BGW-2, drilled down to 675m within the Upper Carbonate formation, conventional production testing of the Upper Carbonate through perforations showed water only.

8.1.3 To assess the northward extent of heavy oil within Jodhpur Sandstone, BGW-3 was drilled at a distance of about 1.3 km NW of well BGW-1 as an appraisal well. Well BGW-3 was drilled down to a final depth of 1350 m within Malani Volcanics. Initial production testing was carried out in this well in Jodhpur sandstone. On testing, through DST, the well showed inflow of only formation water with traces of asphaltic materials.

8.1.4 The fourth well, BGW-4, is located at a distance of about 2.4 km towards ENE from well BGW-1. This well was drilled as the second appraisal well of Baghewala structure and drilled down to 1152 m within Malani Volcanics. On conventional production testing of 1090 m Jodhpur Sand, the presence of high viscous heavy oil was established.

8.1.5 The well BGW-5 is located at a distance of about 2.6 km towards WSW from BGW-1. This is the third appraisal well drilled in Baghewala structure. The well was drilled down to a depth of 1252m within Malani Volcanics. On conventional production testing of 1181 m Jodhpur Sand, the presence of high viscous heavy oil was established.

8.1.6 The well BGW-6 was drilled as Pilot well for recovery of Bitumen from Upper Carbonate Formation using Steam Injection technology on experimental basis. The well was drilled down to a final depth of 857m and completed for cyclic steam injection. However, during injection of steam attempted twice in 2006 and 2007, operational problem related to elongation of casing with well head and leakage of steam were encountered and the project had to be suspended.

8.1.7 Two wells Punam-1 and Tavriwala-2 was drilled in two different structures (East of Baghewala Structure) in 2012 and encountered heavy oil in Jodhpur formation. The well Punam-1 was drilled in NELP area, is located around 15 km towards NE from BGW-1 and major part of the structure falls in Baghewala PML area. Tavriwala-2 was drilled in Tavriwala structure located around 10 km towards west from BGW-1.

8.2. PRODUCTION EFFORT:

8.2.1 Experimental Production Testing of BGW-1 and BGW-4 was carried out in the year 1995 with Progressive Cavity Pump and Bottom Hole Heater Completion and achieved a maximum production rate of 3-4 KLPD (18-25 BOPD).

8.2.2 In the year 2009-10, another Experimental Cold Production of Heavy Oil was carried out with Chemical Stimulation and Sucker Rod Pump Artificial lift assistance in BGW-1 and BGW-4. An intermittent production rate of 4.5-5.5 KLPD (25-30 BOPD) was achieved.

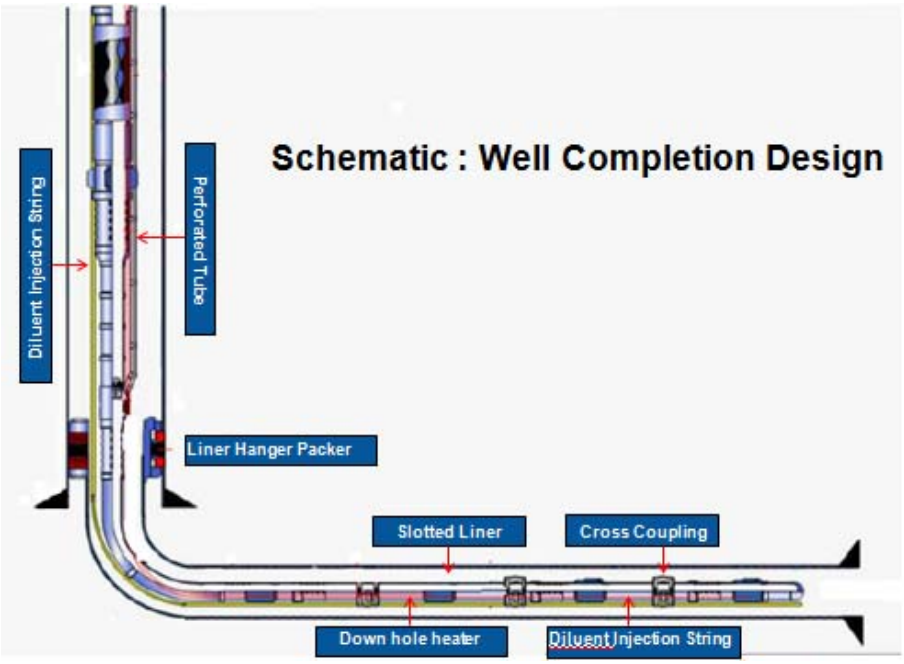
8.2.3 In the year 2012, production testing was carried out in Punam-1 with Chemical Stimulation and Sucker Rod Pump Artificial lift assistance and an intermittent production rate of 1.4 KLPD (7.7 BOPD) was achieved.

8.3. RESERVOIR/ROCK MATRIX/PETROPHYSICAL CHARACTERISTICS:

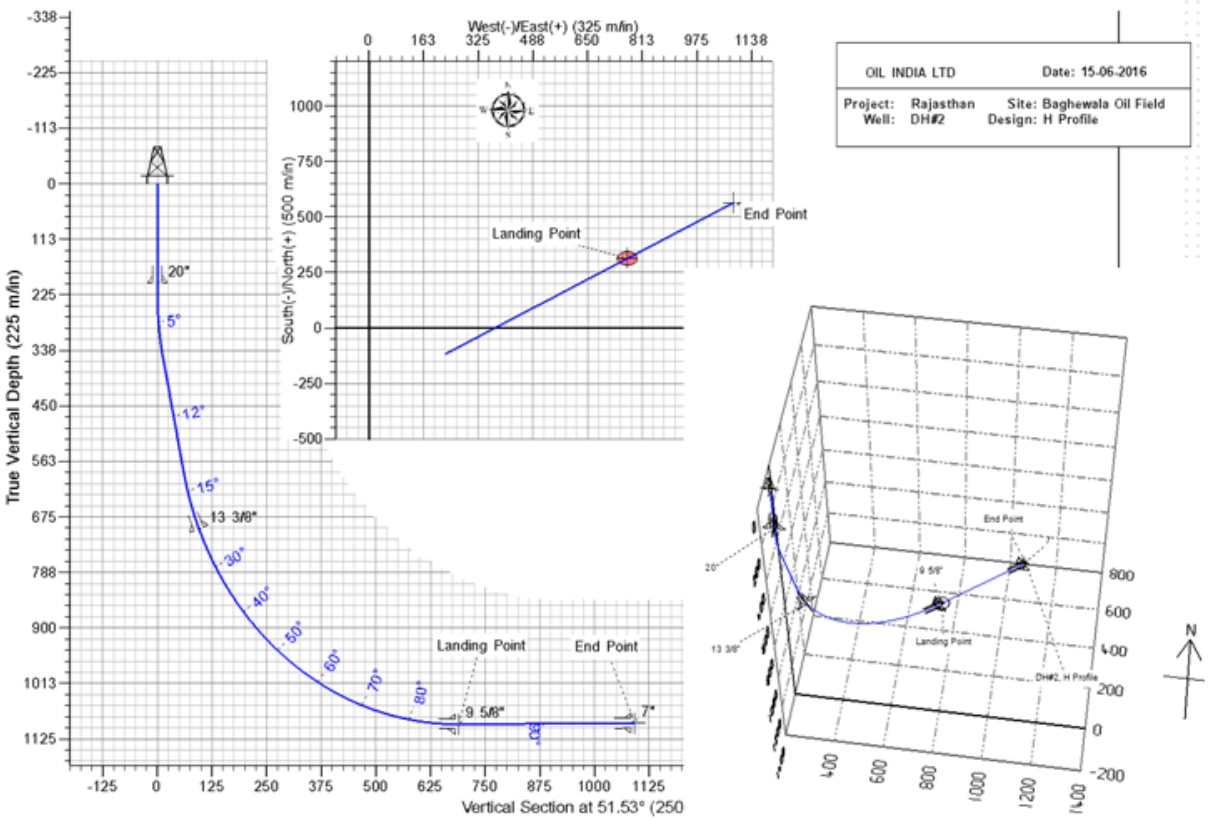
Description	Parameters	Value
Reservoir Parameters	**Reservoir Depth**	**1050 – 1300 m**
	Pay Thickness	**5 – 23 m**
	Bottom Hole Pressure	**1600 psi @ 1100m at BGW structure and 1044 psi @ 1190m in neighboring Punam Structure**
	Bottom Hole Temperature	**50^0C – 52^0C**
Rock Matrix Characteristics	**Porosity**	**18 – 20%**
	Permeabilty	**<1000 MD**
Petro-physical Characteristics	**°API**	**14^0 – 18^0API**
	Pour Point(°C)	**21^0 – 27^0**
	Sp. Gravity	**0.9679 – 0.9229**
	Viscosity (cp)	**13650 at 50^0C**

8.4. WELL COMPLETION OUTLINE:

The well profile will be of four stage casing policy: Conductor, Isolation, Intermediate Isolation and Horizontal Casing. The intermediate Isolation section will land horizontally in the reservoir segment. The horizontal section will be of 400m and cased with Slotted Liner for sand control purposes. Thermal well completion is planned aiming Cyclic Steam Injection in near future. The well will be completed with Progressive Cavity Pump as an Artificial lift assistance and continuous chemical injection, at toe of the liner, hardware. Schematic view of the well completion is as under:



Well Profile:



9. HSE DESIGN GUIDELINE:

The design shall follow a process in which significant risks to Health, Safety and the Environment are identified and assessed in the initial design phase.

Inherent safety, control and recovery measures, necessary to reduce risks to ALARP levels, shall be determined and thereafter incorporated in the design, The measures chosen to achieve ALARP HSE risk levels shall be suitable for implementation during the detailed design phase and capable of being maintained during the operational phase.

Hazards and effects studies shall be carried out during the initial phase to provide early design input information. This approach aims to maximize the opportunities for risk reduction offered by a pro-active HSE consideration in design rather than by retrospective HSE review and subsequent design changes. Adopting this approach will create opportunities to minimize and / or eliminate HSE related cost and schedule impacts.

HSE activities during the design process shall focus on the identification of HSE risks and the hazards and effects that generate them. Risk management shall be by control (threat barriers) and recovery (mitigation and emergency response) measures, to ALARP risk levels.

The design, as well as being pro-active in the use of outputs from hazards and effects studies (HAZIDs and HAZOPs), shall use the application of appropriate engineering experience, judgment and applicable codes and standards to achieve the highest practicable reductions in risks to health, safety and the environment.

10. RESPONSIBILITY:

10.1 GENERAL:

CONTRACTOR is responsible for the compliance with the requirements set forth in this document. In no way does this specification relieve the CONTRACTOR from his obligation to meet all the relevant DGMS Standards, Industry recognized Recommended Practices, practical rules and local authority regulations wherever applicable.

Nothing in this COMPANY's functional specification shall relieve the CONTRACTOR from the responsibility of performing, in addition to the requirements of this specification, such analysis, tests, inspections, and other activities that he considers necessary to ensure that the product, material and workmanship are fully satisfactory for the service intended.

CONTRACTOR shall provide a written warranty for the equipment, its components and all the related accessories / miscellaneous equipment required to perform the job as per the scope of this NIT (Notice Inviting Tender).

The warranty shall cover a minimum of 18 (Eighteen) months from the date of shipment or Twelve (12) months from the date of commissioning the equipment, whichever is later. The warranty shall fully cover against any manufacturing, handling, installation and commissioning

defects and / or malfunctioning. Defective equipment shall be repaired by CONTRACTOR within maximum one (1) month. If the defective equipment can't be repaired, CONTRACTOR shall replace said equipment free of cost with a device of the same specifications free from any defects within one (1) month of detection of malfunctioning / defects.

11. DELIVERY CONDITIONS:

The Equipment shall be packed in robust boxes. On the package outside surface the following information shall be clearly indicated:

- Supplier's name;
- Assembly Part Number;
- Product name / type / model;
- Purchase Order number;
- Material description (i.e. steel grade and metallurgy);
- Assembly drawings reference number;
- Instructions / Manual / Technical Data Sheets reference number (these documents shall be handed over to the appointed COMPANY representative);

Equipment shall be suitably protected against corrosion during transit and storage for a period of two (2) years under standard storage conditions.

12. DELIVERY PERIOD:

CONTRACTOR shall deliver all the equipments within six months from the date of issue of letter of award (LOA) or opening of Letter of Credit whichever is later.

13. TECHNICAL TENDER PROPOSAL:

Section	CONTRACTOR Technical Tender Proposal Documentation
A.01	CONTRACTOR shall compile the 'CONTRACTOR's data' column (4) of '**Annexure-A**' and '**Annexure-B**' in every part and may add any additional items which are not listed, but required to perform the Scope of Work.
A.02	Using the 'Annexure-A' and 'Annexure-B' Table format, CONTRACTOR shall provide the detailed technical / functional specifications of each individual item / assembly and of any additional items / assembly as indicated under Section A.01.
A.03	Technical drawings (colour coding is recommended) of each components of the EDHH system.
A.04	CONTRACTOR shall provide the detailed EDHH system 'as-run' Completion drawing / schematic, indicating for each EDHH component the OD, ID (wherever applicable), thread connection, material grade, metallurgy and length.
A.05	CONTRACTOR shall demonstrate the ability to perform the 'Tubing Force Analysis' (TFA) (i.e. Torque & Drag) software modelling. This is to ensure that the 2.875" nom. OD supporting Tubing string and the Heater Cable complete with the Cable

	Protector Centralizers hardware can safely be run and retrieved from the well bore without damages.
A.06	CONTRACTOR shall own and demonstrate the ability to perform (i.e. by CONTRACTOR) reliable heat transfer software modelling, both under static and dynamic reservoir fluid flow conditions. CONTRACTOR shall provide a preliminary COMPANY's pilot testing heat transfer study.
A.07	CONTRACTOR shall submit COMPANY's system specific EDHH installation, start-up, retrieving and operating procedures in English' language.
A.08	CONTRACTOR shall present copy of worldwide 'Case History' record. The 'Case History' shall indicate the installed systems current status (i.e. active, non-active, failed and / or retrieved). CONTRACTOR shall provide the operating dynamic temperature and power density delivered down hole vs. the unheated static and flowing temperature, the produced fluids API gravity and viscosity of few successful projects. For those systems that have suffered a failure, a detailed root-cause shall be reported.
A.09	CONTRACTOR shall present the overall and Project specific supporting organization chart and shall submit the 'Curriculum-Vitae' of the proposed individuals for the intended work.
A.10	CONTRACTOR shall present a detailed Risk Assessment (HAZID) of the proposed working practices as detailed in the procedures provided as per Section A.07 above.

14. BROAD SCOPE OF WORK:

14.1. MODULE - I: DESIGN OF ELECTRICAL DOWN HOLE HEATING SYSTEM:

CONTRACTOR shall design the Down hole heating system to provide minimum 300^0 F temperature in the horizontal section. Multiple heating zones, preferably at least two are expected. Engineering design shall include 'Thermal-Modeling' nodal analysis and the 'Tubing-Force-Analysis' also. Required information for the necessary analysis shall be provided by the COMPANY, on request.

CONTRACTOR shall submit 'Thermal-Modeling' nodal analysis and the 'Tubing-Force-Analysis' report along with the bid.

14.2. MODULE – II : MATERIAL SUPPLY AND TRANSPORTATION TO COMPANY'S DESIGNATED LOCATIONS:

Down Hole Heating System package shall include, but not limited to the following:

a) Heater Unit;
b) Well Head Penetrator System (Eccentric/concentric);
c) Cable splice Kit;
d) Well head;
e) Cable Protector Centralizers (Cross Coupling type);
f) Step Up Transformer;
g) Thermocouple;
h) Control Panel;

i) Required Electrical Power pack ;
j) Surface Electrical power cable (3 Cores x Size 2 AWG + 3 Cores Size 10 AWG Grounding Conductors, Armored (XLPE-PVC 90 °C Jacket) and accessories for electrical hook-up.

Details of the materials are annexed as annexure A and B.

14.3. MODULE – III : EQUIPMENT PREPARATION, INSTALLATION, COMMISSIONING AND START-UP:

CONTRACTOR shall unpack, clean, prepare, carryout all the necessary test before installation, commissioning and Start-up. Applicable Charges during installation and commissioning are as under:

14.3.1 APPLICABLE CHARGES:

Installation, commissioning and start-up charges shall be paid on lump-sum basis. The charge shall include cost of manpower, material and equipment, including conveyance, required for preparation, installation and commissioning of Equipments. Required Rig service shall be provided by the COMPANY.

70% payment of the materials cost will be made on receipt of all the materials free from any defects against certification from Company (OIL)'s authorised personnel. Remaining 30% of material cost and Installation & Commissioning charges will be paid after successful Installation and Commissioning of the equipment.

CONTRACTOR shall submit a detailed 'step-by-step' preparation and installation procedures of EDHH system.

CONTRACTOR undertakes the responsibility to install, commissioning and start-up the EDHH system at the COMPANY designated wells.

The CONTRACTOR's Supervisor will be fully responsible for the onsite equipment preparation and installation in full compliance with the agreed and accepted Standard Operating Procedure (SOP) in liaison with COMPANY and drilling contractor representatives. Upon job completion the CONTRACTOR Supervisor shall prepare a complete post installation report in the format previously agreed and accepted by COMPANY.

CONTRACTOR's personnel are required to carry out the assigned activities and shall mobilize their personnel for Installation and Commissioning of the equipment on receipt of 'call out' notice from the COMPANY. COMPANY shall issue 'Call Out' notice to the CONTRACTOR with a Fifteen (15) days notice time.

No additional cost shall be paid by the COMPANY in the event of re-installation of the EDHH system due to fault of the equipment. CONTRACTOR shall install and start-up the equipment to the satisfaction of the COMPANY.

14.3.2 CONTRACTOR PERSONNEL FOOD AND ACCOMODATION:

COMPANY shall provide food and accommodation to CONTRACTOR Personnel at COMPANY Well site during installation and commissioning of the equipment (Module-III) without any charge.

15. CONTRACTOR PERSONNEL:

The Contractor shall provide competent personnel to ensure trouble free operation, as appropriate, but without limitation to the following on round the clock basis.

CONTRACTOR Project Coordinator:

Project Coordinator is responsible for the coordination, support, skilled advice / supervision and quality control (QC) review throughout the design, planning, preparation and execution phase of the activities performed by CONTRACTOR as specified within the Scope of Work.

CONTRACTOR Installation and Commissioning Supervisor and Team:

The CONTRACTOR's position holder is responsible for the EDHH system preparation, installation and commissioning in compliance with the agreed COMPANY Installation and Commissioning Procedures.

The CONTRACTOR's Installation and Commissioning Supervisor and the team member should have minimum two (2) years of experience in the relevant field.

CONTRACTOR shall provide competent personnel to ensure trouble free operation as appropriate on round the clock basis.

CONTRACTOR shall be responsible for all the activities carried out under their respective domain. However, single point responsibility shall be entrusted to the Project Coordinator.

The CONTRACTOR must furnish along with the bid the bio-data and supporting documents regarding the experience of all the crew members to be deployed under the contract.

CONTRACTOR personnel should be conversant with the relevant safety practices.

If the Contractor is unable to provide the personnel initially identified in their offer and seek for deployment of alternate personnel having requisite qualification and experience set forth in the bid documents, CONTRACTOR shall have to obtain prior approval from COMPANY for the same.

Transportation to and fro from COMPANY well site to CONTRACTOR Base office shall be responsibility of the CONTRACTOR.

16. SAFETY, HEALTH AND ENVIRONMENT:

CONTRACTOR shall comply with all the applicable environmental laws, statutory regulations as applicable to Oil Mines in India.

The CONTRACTOR shall provide all its personnel to be deployed during installation and commissioning of the equipment (Module-II), with Personal Protective Equipment as per international practice, which may include, as appropriate, but without limitation the following:

- Safety Helmet
- 100% cotton or fire proof overalls
- Safety Foot ware
- Safety Goggles
- Other PPE, including gloves, hearing protection etc.

Annexure-A

DOWN HOLE HEATER CABLE SYSTEM TECHNICAL SPECIFICATIONS

Item (1)	GOODS DESCRIPTION (on a per Well basis) (2)	COMPANY'S Minimum Requirement (3)	CONTRACTOR'S Data (4)
A	**Surface Control Equipment: Step Up Transformer**		
A.01	Make	CONTRACTOR to specify	
A.02	Type	Dry Type	
A.03	Primary Voltage	440 V(+/- 10%), 50 Hz +/- 5 Hz	
A.04	Secondary Voltage	As Required by the Heater Design CONTRACTOR to specify	
A.05	Protection	NEMA 3R (IP14)	
A.06	Temperature Rating	300ºF	
A.07	Power	As required by the Heater Design CONTRACTOR to specify	
	Quantity (each)	**1**	
B	**Electrical Power Source along with accessories**		
B.01	Generator set	Contractor to specify	
B.02	Control Panel	Contractor to specify	
C	**Surface Control Equipment: Surface Electrical Power Cable**		
C.01	Make and Type	Contractor to specify	
C.02	Configuration	3 Cores x Size 2 AWG + 3 Cores Size 10 AWG Grounding Conductors, Armored (XLPE-PVC 90ºC Jacket)	
	Quantity (ft)	**700**	
D	**Well Head Penetrator System OPTION-A: Eccentric Tubing Hanger Mandrel Application**		
D.01	Make and Type	Contractor to specify	
D.02	Model	Contractor to specify	
D.03	Voltage Rating	As per the maximum rating of the Power Cable	
D.04	Amperage Rating	As per the maximum rating of the Power Cable	
D.05	Pressure Rating	3000 psi WP	
D.06	Temperature Rating	300 ºF	
D.07	Working Environment	Class 1 Div.1 & 2 Group D	
D.08	Accessories	Vented Junction Box attached on the Well head with Bracket	
	Quantity (each)	**1**	
E	**Well Head Penetrator System OPTION-B: Concentric Tubing Hanger Mandrel Application**		
E.01	Make and Type	Contractor to specify	
E.02	Model	Contractor to specify	
E.03	Voltage Rating	As per the maximum rating of the Power Cable	
E.04	Amperage Rating	As per the maximum rating of the Power Cable	
E.05	Pressure Rating	3000 psi WP	

Item (1)	GOODS DESCRIPTION (on a per Well basis) (2)	COMPANY'S Minimum Requirement (3)	CONTRACTOR'S Data (4)
E.06	Temperature Rating	300 ºF	
E.07	Working Environment	Class 1 Div.1 & 2 Group D	
E.08	Accessories	Vented Junction Box attached on the Well head with Bracket	
	Quantity (each)	**1**	
F	**Well Head**		
F.01	Tubing Hanger	Tubing hanger 7" Nom. OD single completion, suspension mandrel type with extended seal necks to install in 7.1/16"-5K x 11"-5K tubing head spool. The hanger shall be complete with additional upper seal rings to be energized by pack off adapter flange and lower seal rings to be energized by the tubing weight. The hanger shall be threaded with 2.7/8" EUE box threads at both top & bottom for lifting & hanging 73 mm (2.875 inch) OD, 9.52 kg/m (6.4ppf) tubing. The hanger shall be provisioned for the following: (i) Arrangements for EDHH Wellhead penetrator arrangement. (ii) Two, 1/4" Continuous Control Lines Ports w/1/2" NPT Box connection on top and bottom of the Tubing-Hanger, delivered complete with the ½" NPT x ¼" anti-vibrating Swage lock tube Adapters and 100% back-up; Continuous Control Line chambers test ports are required; (iii) Two, 3/8" Continuous Control Lines Ports w/3/4" NPT Box connection on top and bottom of the Tubing-Hanger, delivered complete with the 3/8" NPT x 3/4" anti-vibrating Swage lock tube Adapters and 100% back-up; Continuous Control Line chambers test ports are required;	
F.02	Bonnet	3.1/8" x 7.1/16", with 1/2" ports, 5000 psi Pack-off Adapter Flange, API monogrammed, to fit over extended seal neck tubing hanger to provide a secondary seal and to be fitted on 7.1/16"-5K x 11""-5K tubing head spool. The adapter flange shall have the provision for EDHH power cables and other control lines as mentioned above.	
	Quantity (each)	**1**	

Item (1)	GOODS DESCRIPTION (on a per Well basis) (2)	COMPANY'S Minimum Requirement (3)	CONTRACTOR'S Data (4)
G	**Down hole Electrical Power Cable**		
G.01	Make, Type and size (AWG)	CONTRACTOR to specify	
G.02	Construction Type	Flat Galvanized Armoured	
G.03	Temperature Rating	300 ºF	
G.04	Resistance	CONTRACTOR to specify	
G.05	Power Density	As Required by the Heater Design	
G.06	Working Voltage	As Required by the Heater Design	
G.07	Estimate Cable Length (ft)	5,000	
	Quantity (ft)	**5,000**	
H	**Down hole Electrical COLD (ESP Cable) to HOT (Heater Cable) Cables Splice Kit**		
H.01	Make and Type	Quick Connectors Incorporated (QCI)	
H.02	Amperage and Voltage Rating	As per the maximum rating of the Power Cable	
H.03	Temperature Rating	300 ºF	
H.04	Pressure Rating	3000 psi	
	Quantity (each)	**1 complete set**	
I	**Down hole Electrical Power Cable (Heater Cable Cold Lead)**		
I.01	Temperature Rating	300 ºF	
I.02	Length	Xx ft with ½" NPT Connector	
	Quantity (ft)	**CONTRACTOR to specify**	
J	**Down hole Electrical COLD (Heater Cable) & HOT (Heater Cable) Cables Splice Kit**		
J.01	Make and Type	CONTRACTOR to specify	
J.02	Temperature Rating	300 ºF	
	Quantity (each)	**2**	
K	**Down hole Electrical Heater Cable**		
K.01	Make and Type	CONTRACTOR to specify	
K.02	Insulation	CONTRACTOR to specify	
K.03	Cable Sheath Material	Flat Galvanized Armoured or Nickel Alloy UNS-NO-8825 pipe	
K.04	Power Density (minimum requirement)	As per design	
K.05	Conductor Material	Copper	
K.06	Heavy Oil Flowing in Casing ID Estimated Temperature	152 to 160 ºF	
K.08	Minimum Cable Conductor spacing	25 mm	
	Quantity (ft)	**5,000**	
L	**Down hole Completion Equipment: 2.7/8" EUE Cross Coupling Cable Protector Clamp**		
L.01	Make and Type	Cannon Services Ltd.	
L.02	Cross Coupling Cable Protector Clamp to fit COMPANY's 2.7/8" EUE N80 Completion Tubing String (Note: Provision of the AutoCad scaled technical drawing is a mandatory requirement)	To fit COMPANY'S 7,000" 23 PPF L80-1 Slotted Liner drift	
L.03	Number and dimensions of Slots required for the Heater Cable guidance and protection	CONTRACTOR to specify	
Item (1)	**GOODS DESCRIPTION (on a per Well basis) (2)**	**COMPANY'S Minimum Requirement (3)**	**CONTRACTOR'S Data (4)**

L.04	Number and dimensions of Slots required for the Heater Cable guidance and protection	CONTRACTOR to specify	
L.05	Slots to accommodate 3/8" Chemical Injection string	CONTRACTOR to specify	
L.06	Slots to accommodate 11mm X 11mm TEC line	CONTRACTOR to specify	
L.07	Material Grade and Metallurgy	NACE MR-01-75 compliant, HRC≤22	
	Quantity (each)	**Approx. 150**	
M	**Down hole Completion Equipment: Modified PCP's Torque-Anchor**		
M.01	Make and Type (self-setting and unsetting)	CONTRACTOR to specify	
M.02	Material Grade and Metallurgy	L80-1	
M.03	Size (Note: Provision of the AutoCad scaled technical drawing is a mandatory requirement)	To fit COMPANY's Production Casing 9 5/8" 43.5 ppf L80-1	
M.04	Torque Anchor Thread Connections (Box x Pin)	2.7/8" API EUE (8 round) Box x 2.7/8" API EUE (8 round) Pin	
M.05	Number and dimensions of Slots required for the Heater Cable guidance and protection		
M.06	Slots to accommodate 3/8" Chemical Injection string		
M.07	Slots to accommodate 11mm X 11mm TEC line		
	Quantity (each)	**1**	
N	**Any other equipment for compliance of intended Scope of work**		

Annexure-B

DOWN HOLE HEATER CABLE SYSTEM SERVICE EQUIPMENT SPECIFICATIONS

Item (1)	SERVICE EQUIPMENT Description (on a per Well basis) (2)	COMPANY'S Minimum Requirement (3)	CONTRACTOR'S Data (3)
A	**Down hole Completion Equipment: ESP Cable and / or Heater RUNNING / RETRIEVING SPOOLING UNIT**		
A.01	Make and Type	CONTRACTOR to specify	
A.02	Skid Mounted and driven by an hydraulic Motor remote controlled by an Operator	Required	
A.03	Hydraulically operated level window to ensure a proper unspooling and spooling of the Cable	Required	
A.04	Easy insertion/removal at Well location of the Cable Spool Reel or of an empty Reel	Required	
A.05	Spooling Unit Skid must be shipped complete with pad eyes, slinks and chuckles with copy of the up to date NDE certification.	Required	
A.06	Spooling Unit dimensions, weight and maximum length of Cable that can be loaded	Required	
	Quantity (each)	**CONTRACTOR to specify**	
B	**Down hole Completion Equipment: ESP Cable and / or Heater RUNNING / RETRIEVING Sheave**		
B.01	Make and Type	CONTRACTOR to specify	
B.02	Complete of mechanical locking mechanism	Required	
B.03	Sheave must be supplied complete with pad eyes, slinks and chuckles for it installation were appropriate on the Mast and with copy of the up to date NDE certification	Required	
	Quantity (each)	**CONTRACTOR to specify**	
C	**Down hole Completion Equipment: Cross Coupling Cable Protector Clamps Installation Unit**		
C.01	Make and Type	CONTRACTOR to specify	
C.02	Hydraulic Clamp Closing SYSTEM PACKAGE	Required	
C.03	Hydraulic Installation of the Clamp locking pin	Required	
	Quantity (each)	**1 + 1 (Back Up)**	
D	**Measuring SYSTEM PACKAGEs: Handheld type Megger**		
D.01	Portable, rugged field-proven CFL and HV test module 0 to 20 kV dc testing	CONTRACTOR to specify	
D.02	Ergonomically designed control panel with large XGA integrated display	CONTRACTOR to specify	
	Quantity (each)	**CONTRACTOR to specify**	
E	**Measuring SYSTEM PACKAGEs: Clamp-on type Megger**		
E.01	Portable, rugged field-proven CFL and HV test module 0 to 20 kV dc testing	CONTRACTOR to specify	
E.02	Ergonomically designed control panel with large XGA integrated display	CONTRACTOR to specify	
	Quantity (each)	**CONTRACTOR to specify**	
Item (1)	**SERVICE EQUIPMENT Description (on a per Well basis) (2)**	**COMPANY'S Minimum Requirement (3)**	**CONTRACTOR'S Data (3)**

F	**Miscellaneous Service Equipment**		
F.01	Oil, lubricants including hydraulic fluids required by CONTRACTOR Equipment	CONTRACTOR to specify	
F.02	Toolbox o/w all the required tooling to perform the Scope of Work	CONTRACTOR to specify	
G	**Any other tools required for Installation/commissioning and start-up of EDHH**		

Section-II
SPECIAL CONDITIONS OF CONTRACT

1.0 Payment Terms :

1.1 Advance payment shall not be made by Company to the Contractor against this contract. Company shall release payment to the Contractor as per the following schedule after deducting income tax and liquidated damages etc., as applicable, within 30 days from the date of receipt of undisputed invoices.

(a) Payment shall be released activity wise (Ref. PROFORMA-II of Section-III).

(b) After successful completion of each activity, 80% payment shall be released by Company against invoice from Contractor. 15% payment of each completed activities shall be released after completion of the phase to which the activity belongs and rest of the payment (5%) of each activity shall be released after completion of all phases.

1.2 All payments due to the Contractor shall be made at Contractor's designated bank through RTGS or e-payment mode. Bank charges, if any, shall be to the Contractor's account.

1.3 Payment of any invoice shall not prejudice the right of Company to question the validity of any charges therein provided Company within one year after the date of receipt of any such invoice, shall make and deliver to Contractor written notice of objection to any item or items, the validity of which the Company questions.

2.0 Invoicing Procedure:

2.1 Contractor shall submit four sets of invoice(s) to the HOD-Production at its office at Jodhpur for processing of payment duly highlighting the Tax components and their bank particulars.

2.2 Company shall within 30 days of receipt of invoice (s) notify the Contractor of any item (s) under dispute, specifying the reasons thereof, in which event, payment of the disputed amount may be withheld until settlement of the dispute, but payment shall be made of any undisputed portion on or before the due date. This will not prejudice the Company's right to question the validity of the charges at a later date as envisaged in clause No. 1.3.

2.3 Income Tax will be deducted at source from the invoice(s) at the applicable rates as per Indian Law.

2.4 Contractor shall maintain complete and correct records of all information on which Contractor's invoices are based on for two years from the date of invoice. Such records shall be required for making appropriate adjustment or payments by either party in case of subsequent audit query/objection.

3.0 Taxes and Duties:

3.1 Tax leviable as per the provisions of Indian Income Tax Act 1961 and any other enactment/rules on income derived/payment received against this agreement will be on Contractor's account. The rates agreed and entered in to herein are inclusive of all such taxes, duties and levies, except "Service Tax.

Responsibility to pay service tax lies with foreign service provider/contractor if they are registered in India under service tax provisions & responsibility of service tax payment lies with Company if foreign bidder is not registered in India under service tax provisions.

3.2 Tax will be deducted at source from all payments released to the Contractor, at the specified rate of income tax as per provision of Indian Income Tax Act 1961.

3.3 Contractor shall be responsible for and pay the personnel taxes and Service Tax, as applicable.

3.4 Contractor shall furnish the Company, if and when called upon to do so, relevant statements of accounts or any other information pertaining to work done under this agreement for submitting the same to the tax authorities, on specific request by them. Contractor shall be responsible for preparing and filing relevant returns within the stipulated time to the appropriate authority.

3.5 Tax clearance certificates shall be obtained by the Contractor from appropriate authorities and shall furnish the same to Company if sought for.

4.0 Subsequently Enacted Laws :

Subsequent to the date of submission of bid, if there is a change in or enactment of any Indian law which results in an additional cost or reduction in cost against this contract to Contractor, such additional cost shall be reimbursed by Company to Contractor on submission of documentary evidence that the Contractor has duly borne the additional implication as envisaged under the said law or such reduction in cost shall be refunded by Contractor to the Company as the case may be.

5.0 Applicable Laws:

5.1 The contract shall be deemed to be an agreement made under, governed by and construed in accordance with the laws of India.

5.2 Contractor shall ensure full compliance of various Indian Laws and statutory regulations as stated below, but not limited to, in force from time to time and obtain necessary permits/licenses etc. from appropriate authorities for conducting operations under the agreement.

(a) Mines Act 1952 – as applicable to safety and employment conditions.
(b) Oil Mines Regulations, 1984
(c) Workmen's compensation Act, 1923
(d) Payment of wages Act, 1963
(e) Payment of bonus Act, 1965
(f) Contract labour (Regulation & abolition) Act, 1970
(g) Employees Provident Fund and Family Pension Scheme
(h) Interstate migrant workmen Act, 1979
(i) Income Tax Act
(j) Customs and Excise Act & Rules
(k) Insurance Act
(l) Minimum Wages Act, 1948
(m) Service Tax Act

6.0 Insurance: Contractor must cover all their equipment and manpower with adequate insurance coverage as deemed fit. Company will not assume any responsibility whatsoever in the event of any eventuality to the Contractor's resources during job execution against the contract. Company reserve the right to demand a copy of such insurance coverage/policy for record.

7.0 Liquidated Damages :

7.1 The Contractor shall be liable to pay liquidated damages at the rate of 0.5% of the total evaluated contract value for delay of each week or part thereof, subject to maximum of 7.5%, in the event of default by the Contractor as under;

(a) Delay in timely mobilization of requisite Personnel within the stipulated period as mentioned under Scope of Work/Terms of Reference/Technical Specifications (Section I).

(b) Delay in completion/execution of the Activity within the scheduled time frame as mentioned under Annexure-II.

NOTE: However, under no circumstance, the total quantum of Liquidated Damages against Sl. No. (a) and (b) above combined together will not exceed 7.5% of the total contract value.

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Section-III

BID EVALUATION CRITERIA/BID REJECTION CRITERIA

A) BID REJECTION CRITERIA (BRC):
The Bid shall conform generally to the specifications and terms and conditions including the scope of work/supply given in the bidding document. Bids will be rejected in case services offered do not conform to the required parameters stipulated in the technical specifications/scope of work/terms of reference. Notwithstanding the general conformity of the bid to the stipulated specifications/terms, the following requirements will have to be particularly met by the bidders without which the same will be considered as non-responsive and rejected.

1.0 TECHNICAL

1.1 The bidder should have experience of Design, manufacturing, supply and installation of equipment/material as specified in Broad scope work of the tender document.

1.2 The Bidder must have experience of successfully executing similar order for not less than INR1.42Crores(=US$ 206,148) in preceding 5 (five) years to be reckoned from the original stipulated bid closing date of the tender.

(Note: Documents establishing successful execution as above must be submitted along with the techno-commercial bid. These documents should be in the form of duly attested copies of Purchase order/contracts/work order/completion certificate/payment certificate etc. issued by clients, failing which offer will be rejected.)

1.3 The Bidder should be able to provide services of adequately qualified and trained/experienced key-manpower for intended work as specified under clause 15 of SECTION – I(Scope of Work/Supply). Technical bid should include bio-data of the personnel proposed to be deployed which shall comply with the requirements, failing which the offer will not be accepted.

1.4 Bids which do not include all the jobs/services mentioned in the tender document will be considered as incomplete and rejected.

1.5 FINANCIAL: The bidder shall have an annual financial turnover of minimum INR1.42Crores(=US$ 206,148) during any of the preceding 03(three) financial years reckoned from the original bid closing date.

1.5.1 In case of Consortium, the leader of the consortium shall have an annual financial turnover as mentioned in clause 1.5 above and the other members of the consortium should meet minimum turnover of INR0.71Crores (=US$ 103,074) during any of the preceding 03(three) financial years reckoned from the original bid closing date.

1.5.2 "Net Worth" of the bidder should be **positive** for the preceding financial/ accounting year.

1.5.3 Documentary evidence in the form of Audited Balance Sheet and Profit & Loss Account for the preceding 03(three) financial/accounting years should be submitted along with the technical bid.

1.5.4 In case the Audited Balance sheet and Profit Loss Account submitted along with the bid are in currencies other than INR or US$, the bidder shall have to convert the figures in equivalent INR or US$ considering the prevailing conversion rate on the date on which the Audited Balance Sheet and Profit & Loss Account is signed. A CA Certificate is to be submitted by the bidder regarding converted figures in equivalent INR or US$.

1.6 Bid from Indian Company / India Joint Venture Company with Technical Collaboration/ Joint Venture Partner:

a) In case, the bidder is an Indian Company / Indian Joint Venture Company, who meets the Financial Turnover criteria as per clause No.1.5 but do not meet criterion as per clause Nos. 1.1 and 1.2 above, may also bid on the strength of Technical Collaborator / Joint Venture Partner who meets the criteria laid down at clause No. 1.2.

b) Indian bidders quoting based on technical collaboration/ joint venture, shall submit a Memorandum of Understanding (MOU) / Agreement with their technical collaborator/ joint venture partner clearly indicating their roles under the scope of work which shall be addressed to OIL and shall remain valid and binding for the entire duration period under this tender/order/contract.

1.7 Bid from Consortium of companies:

In case, the bidder is a consortium of companies, the following requirement should be satisfied by the bidder:

a) The Leader of the consortium (Principal Bidder) shall have experience of Design, Manufacturing, supply and installation of Down-hole heater and satisfy the minimum experience requirement as per clause No. 1.1 and/or 1.2 above.

b) If the Leader of the consortium (Principal Bidder) does not fully meet the requirement as per clause No. either 1.1 or 1.2 above, then the shortfall shall be individually met by any of the consortium members. In case, the leader satisfies only Clause No. 1.1 above, then any of the consortium members individually shall meet clause No. 1.2 mentioned above. Or in case, the leader satisfies only Clause No. 1.2 then any of the consortium members individually shall meet clause No. 1.1 above.

c) The LEADER or any of the other consortium members individually shall have to meet the financial criterion mentioned in Clause No. 1.5 above.

d) Consortium bids shall be submitted with a Memorandum of Understanding between the consortium members duly signed by the authorized Executives of the consortium members clearly defining the role/scope of work of each partner/member, binding the members jointly and severally to the responsibility for discharging all obligations under the contract and identifying the Leader of Consortium. Unconditional acceptance of full responsibility for executing the 'Scope of Work' of this bid document by the Leader of the Consortium shall be submitted along with the Techno-commercial bid.

e) Only the Leader of the consortium shall buy the bid document, submit bid and sign the order/contract agreement (in the event of award of order/contract) on behalf of the consortium.

f) The Bid Security shall be in the name of the Leader of the consortium on behalf of consortium with specific reference to consortium bid and name & address of consortium members. Similarly the Performance Security shall be submitted by the Leader on behalf of the consortium.

1.8 Bidder(s) quoting in Collaboration / joint venture Partnership/ Consortium with any firm are not allowed to quote separately/independently against this tender. The collaborator is also not allowed to quote separately/independently against this tender. All the bids received in such case will be summarily rejected.

1.9 DOCUMENTS:

Bidders must furnish documentary evidences, in support of fulfilling the entire above requirement as under along with the Techno-Commercial Bid:

a) Copies of relevant pages of order/contract & Completion Certificate issued by the clients in support of successful execution as per above clause Nos.1.1 & 1.2 must be submitted along with the techno-commercial bid. These documents should be in the form of duly attested copies of order/contract/work order/completion certificate/payment certificates etc. issued by clients.
b) Audited balance sheets and profit and loss accounts for last 3(three) years in equivalent INR or US$ as mentioned in clause No. 1.5 above.
c) MOU or legally acceptable documents (wherever applicable) in support of collaboration/JV/ consortium arrangement (Documents for in Clause Nos. 1.6b, 1.7d).
d) All documents submitted with bid must be self certified by the bidder's authorized person signing the bid. However, OIL reserves the right to ask for any Original document for verification.
e) Bidder while submitting the documents in support of their experience vide Clause Nos. 1.1 & 1.2 above shall also submit details of experience and past performance of the collaborator (in case of collaborator) or of joint venture partner (in case of a joint venture), or Leader of the consortium (in case of Consortium bid) on works/jobs done of

similar nature in the past along with the Techno-Commercial Bid. Also, details of current work in hand and other contractual commitments of the bidder (indicating areas and clients) are to be submitted along with documentary experience in the Techno-Commercial Bid in support of the experience laid down in Clause Nos. 1.1 & 1.2 above.

NOTE:
Required Certificates/Confirmation document as indicated above should be submitted along with the un-priced Techno-Commercial bid; absence of which will render the offers Non responsive.

1.10 OIL shall be entering into an Integrity Pact with the bidders as per format enclosed vide PROFORMA-III of the tender document. Each page of this Integrity Pact Proforma has been duly signed by OIL's competent signatory. The Proforma has to be returned by the bidder duly signed (along with Technical Bid) by the same signatory who signed the bid i.e. who is duly authorized to sign the bid. Any bid, not accompanied by Integrity Pact Proforma duly signed by the bidder shall be rejected straightway. All the pages of the Integrity Pact to be signed by bidders' authorized signatory who sign the bid.

2.0 COMMERCIAL

2.1 Bids are invited from reputed capable Bidders under Single Stage Two Bid System i.e. Technical Bid (Un-priced) and Commercial Bid (Priced) separately. Bidders must submit both "Technical" and "Commercial" Bids in electronic form through online OIL's e-Tender portal accordingly within the Bid Closing Date and time stipulated in the e-Tender. The technical Bid is to be submitted as per Scope of Work & Technical Specifications of the tender in Technical RFx Response Tab and the Price Bid as per the Price Bid Format under Notes & attachments Tab. Any offer not complying with the above will be rejected straightway.

2.2 In Technical Bid opening, only the Technical RFx Response Tab will be opened. Therefore, the bidder should ensure that Technical Bid is uploaded in the Technical RFx Response->User->Technical Bid Tab Page only. No price should be given in above C-folder; otherwise the offer will be rejected. Please go through the help document provided in OIL's e-Portal, in details before uploading the documents.

2.3 Prices/Rates should be maintained in the " Price Bid Format" under Notes & attachments Tab. Bidders should specify the currency in their offer which can either be Indian Rupees or any foreign currency freely convertible.

2.4 Rates quoted in the Price Bid Format in the form of MS-Excel/Word sheet uploaded in the e-Tender shall only prevail.

2.5 Prices and rates quoted by Bidders must be held firm during the term of the contract and not be subject to any variation. Bids with adjustable price terms will be rejected.

2.6 Bid Security in original must reach the office of Chief Manager (M & C), Oil India Limited, Rajasthan Project, 02 A Saraswati Nagar, Jodhpur – 342 005, Rajasthan, India,

before the bid opening date and time, otherwise, bid will be rejected. The amount of Bid Security shall be as specified in the "Forwarding Letter". Scanned copy of this Bid Security should also be submitted /uploaded online along with the un-priced (Technical) Bid. Public Sector Undertakings and Firms registered with NSIC/Directorate of Industries in India are exempted from submission of bid security against this tender. Bid security must be valid for minimum 180 days from Scheduled Bid Closing Date. Bids with Bid security not having above minimum validity will be rejected.

2.7 Bids received in physical form, but not uploaded in OIL's e-Tender Portal will be rejected.

2.8 Bidders must quote rates in accordance with the price schedule outlined in PRICE BID FORMAT (PROFORMA-II), otherwise the Bid will be rejected. The Bids in which the rates for any part of the work are not quoted shall be rejected. However, if no charge is involved for any of the work/item, 'NIL' should be mentioned against such part of work.

2.9 Bids received by Company after the bid closing date and time will be rejected

2.10 User ID & Password are not transferable. Offers made by bidders who have not been issued /permitted to download the bid document by the Company will be rejected.

2.11 Bid received in the E-procurement portal only l will be accepted.

2.12 Bids must be kept valid for a minimum period of 120 days from the date of scheduled bid closing. Bids with inadequate validity will be rejected.

2.13 The Bids and all uploaded documents must be digitally signed using "Class 3" digital certificate [e-commerce application (Certificate with personal verification and Organization name)] as per Indian IT Act obtained from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India.

2.14 There must be no exception to the following Clauses including sub-clauses, otherwise the Bid will be rejected:

- Performance Guarantee Bond Clause
- Tax liabilities Clause
- Insurance Clause
- Force Majeure Clause
- Termination Clause
- Arbitration Clause
- Liability Clause
- Applicable Law Clause

3.0 GENERAL:

3.1 The compliance statement (enclosed PROFORMA – I) should be digitally signed and uploaded along with the technical bid (un-priced). In case bidder takes exception to any clause of tender document not covered under BEC/BRC, then the Company has the discretion to load or reject the offer on account of such exception if the bidder does not withdraw/modify the deviation when/as advised by the Company. The loading so done by the Company will be final and binding on the bidders.

3.2 To ascertain the substantial responsiveness of the bids, Company reserves the right to ask the bidder for clarification in respect of clauses covered under BRC also and such clarification fulfilling the BRC clauses in Toto must be received on or before the deadline given by the Company, failing which the offer will be summarily rejected.

3.3 If any of the clauses in the BRC contradicts with other clauses of bidding document elsewhere, then the clauses in the BRC shall prevail.

3.4 Any exception or deviation to the tender requirements must be tabulated in PROFORMA-I of this Section by the Bidder in their Technical Bid only. Any additional information, terms or conditions included in the Commercial (Priced) Bid will not be considered by OIL for evaluation of the Tender.

3.5 The Company reserves the right to cancel/withdraw the tender or annul the bidding process at any time prior to award of contract, without thereby incurring any liability to the bidders or any obligation to inform the bidders of the grounds of Company's action.

B. BID EVALUATION CRITERIA (BEC):

1.0 The bids conforming to the technical specifications, terms and conditions stipulated in the bidding document and considered to be responsive after subjecting to Bid Rejection Criteria will only be considered for further evaluation as per the Bid Evaluation Criteria given below.

1.1 The bids shall be technically evaluated based on the requirements provided in Tender document.

1.2 In the event of computational error between unit price and total price, unit price shall prevail.

1.3 Evaluation of Bids will be as per enclosed Proforma – II for arriving at the total estimated cost of the contract. The headings(s) mentioned in Proforma-II are summarized one for which the details are provided in Section-I of the tender document.

NOTE: If any of the clauses in the BRC/BEC contradict with other clauses of bidding document elsewhere, then the clauses in the BRC/BEC shall prevail.

******END OF BRC/BEC******

SECTION-III

PROFORMA - I

STATEMENT OF COMPLIANCE

(Only exceptions/deviations to be rendered)

SECTION NO. (PAGE NO.)	CLAUSE NO. SUB-CLAUSE NO.	COMPLIANCE/ NON COMPLIANCE	REMARKS

(Authorised Signatory)

Name of the bidder_____

NOTE : OIL INDIA LIMITED expects the bidders to fully accept the terms and conditions of the bid document. However, should the bidders still envisage

some exceptions/ deviations to the terms and conditions of the bid document, the same should be highlighted as per format provided above and to be submitted as part of their Technical Bid. If the proforma is left blank, then it would be presumed that the bidder has not taken any exception/deviation to the terms and conditions of the bid document.

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SECTION-III

PROFORMA-II

PRICE SCHEDULE FORMAT FOR COMMERCIAL EVALUATION

Sl no.	Material	Unit	Quantity	Unit Rate		Total	
				USD	INR	USD	INR
1.0	Design of Electrical Down hole heating system	Lump sum					
2.0	Electrical Down hole heating system along with accessories (Well Head Penetrator System, Cable splice Kit, Cable Protector Centralizers etc.)	No.	1				
3.0	Well head	No.	1				
4.0	Step Up Transformer	No.	1				
5.0	Generator Set along with control panel and accessories	No.	1				
6.0	Surface Electrical power cable	m	50				
7.0	Equipment preparation, installation, commissioning and start-up	Lump sum (per well basis)	1				

TOTAL CALCULATED CONTRACT VALUE: SUM OF TOTAL OF ALL ABOVE

NOTE: 1. Bidder shall note that no other charges apart from above shall be paid by COMPANY for providing the services mentioned under 14.0 BROAD SCOPE OF WORK of Section-I. Therefore, charges apart from above, if any, Bidder shall load in the above rates.

2. The Bidder shall quote the price inclusive of all taxes and duties including but not limited to corporate/personal taxes etc., but excluding service tax. However, R & D Cess, applicable if any against this contract will be to OIL account.

3. Service Tax: The quoted price shall be exclusive of Service Tax. Service Tax as applicable shall be on OIL's account**.**

OTHER TERMS & REQUIREMENTS:

i. In the event of finalization of the contract, whenever any foreign national is engaged for the job, the Visa as well as other statutory permits required for visit of such personnel to site shall be arranged by the bidder at their cost and effort. Necessary invitation letter/certification will be issued by OIL on request.

ii. The work site, i.e., Baghewala oil field is located close to international border in the western part of India. As such, for visit by foreign national, a special permit from Ministry of Home Affairs will be required to be obtained by expatriates visiting the locations. Necessary assistance to this effect will be extended by OIL).

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