Tender Document

for

Rate Contract

for

Piping, Flowlines & Mechanical Works

at

SunPetro's Oil & Gas Field in Gujarat

Tender No.: SunPetro/Gujarat/Piping Work/2025-26/SPPL-261

SUN PETROCHEMICALS PRIVATE LIMITED
8th, 9th & 10th Floor, ATL Corporate Park,
Opp. L&T Gate no. 7, Saki Vihar Road,
Chandivali, Powai, Mumbai- PIN - 400072
Tel: (022)-69325300

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SECTION- 1

INVITATION TO BID (ITB)

Sun Petrochemicals Private Limited
(SunPetro)
COMMERCIAL & SUPPLY CHAIN MANAGEMENT
8th, 09th & 10th Floor, ATL Corporate Park, Opp. L&T Gate no. 7,
Saki Vihar Road, Chandivali, Powai
Andheri (E), Mumbai - 400072, Maharashtra [INDIA]
www.sunpetro.com
CIN: U24219GJ1995PTC028519

Ref. No. : SunPetro/Gujarat/Piping Work/2025-26/SPPL-261 **Date: 07.01.2026**

INVITATION TO BID (ITB)

Sub: Rate Contract for Piping, Flowlines & Mechanical Works at SunPetro's Oil & Gas Field in Gujarat

Tender No :- SunPetro/Gujarat/Piping Work/2025-26/SPPL-261

Dear Sir / Madam,

1.0 Sun Petrochemicals Private Limited (hereinafter referred to as **SunPetro / Company / Owner**) is Operator of Baola Field in Ahmedabad Dist, Modhera Field in Mehsana Dist., Bhaskar Field in Anand Dist., & Hazira Field in Surat Dist., in Gujarat and is pleased to invite you to submit the Bid for the subject tender **in** accordance with the requirements & details as stated in the Tender Document, under TWO **ENVELOPE SINGLE STAGE BIDDING SYSTEM** in following two Envelopes:

ENVELOPE-I: Technical & Un-Priced Commercial Bid
ENVELOPE-II: Priced Commercial Bid

Bidders are requested to read the instructions and requirements in the Tender Document carefully and accordingly to submit the Technical & Un-Priced Commercial Bid in one envelop and Priced Commercial Bid in another envelop as stated above, each in a separate wax sealed envelopes. Both envelopes are required to be placed in one wax sealed envelope and be sent to the tendering office address. Bids should be complete in all respects, as per the requirements of the relevant Sections & ANNEXUREs.

1.1 **SALIENT FEATURES OF THE TENDER**

1]	Tender No.	SunPetro/Gujarat/Piping Work/2025-26/SPPL-261
2]	Title of Tender	Rate Contract for Piping, Flowlines & Mechanical Works at SunPetro's Oil & Gas Field in Gujarat
3]	Brief Scope of Work	Piping, Flowlines & Mechanical Works at SunPetro's Oil & Gas Field in Gujarat Detailed as per Section - 4 of Tender Document.
4]	Location of Work	All fields in Gujarat
5]	Type of work	Piping, Flowlines & Mechanical Works at SunPetro's Oil & Gas Field in Gujarat.
6]	Type of Tender	Open Tender
7]	System Of Bidding	Two Bid System (Single Stage) ENVELOPE-A Technical & Un-Priced Commercial Bid ENVELOPE-B Priced Commercial Bid
8]	Tender Fee	Not Applicable
9]	Bid Security / Bid Bond	Applicable
10]	Bid Validity	One Hundred and twenty (120) days

11]	Bid Bond Validity	Bidders are required to furnish Bid Bond along with Technical & Un-Priced-Commercial Bid in ENVELOPE-I in the format as attached herewith at Annexure # 2 drawn from a Nationalised/Scheduled bank as listed at Annexure-9 for an amount as specified below: (A)Amount: Indian Rupees: 10,00,000 (B) Validity: Bid validity + 30 days
12]	Last Date & Time for Seeking Clarification by Bidders	Within 15 days of date of ITB
13]	Date Of Pre-Bid Conference & Venue	Date, Time & Venue shall be informed to the bidder, if organized.
14]	Tender Closing / Submission Date & Time	**28/01/2026 at 1500 Hrs. IST**
15]	Address For Correspondence /Tendering Office/ Tender Submission	**Office of Head –Commercial & Supply Chain Management (SCM),** **SUN PETROCHEMICALS PVT. LTD.** 8th, 09th, 10th Floor, ATL Corporate Park, Opp. L&T Gate no. 7, Saki Vihar Road, Chandivali, Powai, Andheri (E), Mumbai – 400072, Maharashtra [INDIA]. Tel: (022)-69325300, *e-mail:* saurav.chamoli@sunpetro.com; cc: dheeraj.paroch@sunpetro.com; allan.nunes@sunpetro.com
16]	Terms & Conditions of Contract	As per Section-3 of this tender Document
17]	Validity of Contract period	3 Years + 2 Years Extension at discussion of the SunPetro on same rates, terms & conditions.
18]	Special Mention	Receiving the Tender Document tender from Company does not qualify the bidder automatically for their bid consideration. The bidder has to qualify tender terms & conditions including Bid Evaluation Criteria (BEC) described in the tender.
19]	**Alternate option for Submission of Bid Documents**	Bidders alternatively can submit the bid over email as per following procedure. 1) Email-1: "Technical & Un-Priced Commercial Bid" to be submitted on following e-mail address, on or before RFQ closing date and time: saurav.chamoli@sunpetro.com; with cc to Dheeraj.Paroch@sunpetro.com; allan.nunes@sunpetro.com; 2) Email-2: Password protected Priced Commercial Bid to be submitted on following e-mail address, on or before RFQ closing date and time: saurav.chamoli@sunpetro.com with cc to: allan.nunes@sunpetro.com; Dheeraj.Paroch@sunpetro.com Notes: 1. *Bidder is required to submit the hard copy of bid. The alternate option of the bid submission over email is provided only to facilitate the bidder to submit the bid package on time.*

		2. *Partial bid submitted online and offline shall not qualify the bidder and partial submission shall reckon bid disqualified.* 3. *Failing to submit the hard copy of bid and any of the email, in case of alternate option, shall be considered non submission of bid.*

NOTE:
Receiving the tender from Company does not qualify the bidder automatically for their bid consideration. The bidder has to qualify tender terms & conditions including Bid Evaluation Criteria (BEC) described in the tender.

1.2 Acknowledgement of Tender Document
Bidder(s) receiving this 'Invitation To Bid' are required to confirm in writing whether they intend to bid or not within two days from electronic issue of this document, stating the reasons if declining to bid in this instance. Bidders not conforming to this requirement risk being barred from future inquiries.

1.3 Pricing Strategy
Bidder is to quote strictly as per the 'Price Schedule' (Section-7) of this Tender document.

1.4 Evaluation Strategy
Evaluation of Bids for awarding will be based on the most advantageous offer to SunPetro reflecting a combination of technical acceptance, qualification as per Bid Evaluation Criteria (BEC) as per Section-6 and Cost. Evaluation of the bid shall be carried out based on the Total Cost of the project at SunPetro's Oil & Gas Field in Gujarat.
However, Company reserves the right to reject or accept, in whole or in part, any Bid; waive formalities in the bidding processor to negotiate Contract terms with any individual bidder when such is deemed fit by Company to be in their best interest. Company will be under no obligation to provide reasons for accepting or rejecting any Bid.

1.5 Award Strategy
Single Award or Multiple awards will rest with SunPetro's discretion.

1.6 Check List
Bidders should review and submit the check list (as per format at ANNEXURE-3) along with bid in the ENVELOPE-I (**Technical & Un-Priced Commercial Bid)**.

1.7 Submission of Bids
The wax sealed bid (ENVELOPE-I and ENVELOPE-II), complete in every respect & strictly in accordance with the Terms & condition in the Tender Documents, is to be submitted through one waxed envelope containing both envelops as described above, at the reception of "Tendering Office" as detailed above, on or before Due date of Submission.

1.8 Bidders to note that Non-compliance with the bidding instructions, except as permitted in the Bid and/or late arrival of Bid shall result in Bid not being considered.

1.9 Only bids submitted by bidders who have been issued bid document by the Company shall be considered whereas unsolicited bid shall not be considered.
Further details are available in the Tender Document for the compliance.
Please acknowledge receipt of the tender document per ANNEXURE-1 within 3 days from date of this ITB.
We look forward to receive your bid complete in all respect on or before due date and time of bid submission.

Regards,

Dheeraj Paroch
Head-SCM & Commercial

SECTION – 2

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

2.1 General Instructions

2.1.1 Bidders must review the General Conditions of the Contract (GCC) and Detailed Scope of Work /Supply and specifications as per Tender, besides Bid Evaluation Criteria, Responsibility matrix, Commercial aspect, Schedule of Rates /Bill of quantity and other information in the Tender document.

2.1.2 Bidders shall be deemed to have understood and taken into account all the terms and conditions prescribed in the Tender Document. Any exceptions/deviations, including those pertaining to Clauses affecting prices must be clearly stated ONLY in the format provided in *Annexure#4*. However, in case no exceptions/deviations are made / taken by the bidder, Bidder must return the form marked "Not Applicable".

2.1.3 Bids from agent / agent's representatives will not be accepted, unless backed by valid Letter of Authorization from the bidder's Company.

2.1.4 Bids submitted by fax / email shall be summarily rejected. Bids submitted by email shall be accepted only where expressly permitted under Clause 1.1.19 of the Invitation to Bid (ITB) and subject to strict compliance with the procedure and conditions specified therein, including submission of hard copies of the bid within the stipulated time. Responsibility for the timely delivery of the Bid package before the Bid Due Date rests solely with the Bidder.

2.1.5 All prices and terms and conditions should be valid for entire period of Contract Period as well as Delivery period and installation & commissioning.

2.1.6 SunPetro may further place repeat/change order for any or all the material/services/ equipment at the same rates, terms and conditions for the other fields and offices which SunPetro may acquire or associates in future.

2.1.7 The complete bid along with price Bid shall be duly signed and sealed by the Authorized Representative of the Bidder.

2.2 Joint Venture / Consortium Bidder's Bid

a. In case of a joint venture / consortium bid, the members / partners of joint venture / consortium must meet the qualification criteria jointly as specified.

b. The overall responsibility of the Contract Management shall be of Lead member / partner of Joint Venture / Consortium.

c. In case of Joint venture / Consortium Bid, following additional requirement must also be satisfied:

i) Indian bidders whose proposal for technical collaboration / Joint Venture / consortium involves foreign equity participation / or payment of royalty and / or a lump-sum for technical know-how and wherever Govt. approval is necessary on their application submitted to SIA (Secretariat for Industrial Assistance), are required to submit:

- A copy of Govt. approval, along with techno-commercial bid (if already granted).

OR

- Furnish an undertaking to submit a copy of the required approval prior to the date of price bid opening.

ii) Bidders should submit a Memorandum of Understanding (MOU) / Agreement with their technical collaborator / joint venture / consortium partner (in case of Joint venture) clearly indicating their roles and responsibility under the scope of work.

iii) MOU / Agreement concluded by the bidder with technical collaborator / joint venture / Consortium partner (in case of joint venture), should also be addressed to Sun Petro, clearly stating that the MOU / Agreement is applicable to this tender and shall be binding on them for the entire currency of period of Contract / PO. Notwithstanding the roles and responsibilities

of each partner defined in the MOU / Agreement, all the partners will be jointly and severally responsible for completion of job under this contract.

A statement to this effect shall be included in the authorization / nomination/ MOU / Agreement by all members / partners of JV / consortium.

2.3 Use of English Language

All correspondence, documentation and drawings shall be in the English Language.

2.4 Late Bids

Company reserves the Right to reject / accept the bid submitted after the deadline for submission of bids prescribed by the Company.

2.5 Clarifications

Bidders must seek any clarifications with respect to the Tender Document after tender issue date up to the date mentioned in the schedule of tendering. Any clarifications required to be sent to the following email:
saurav.chamoli@sunpetro.com; **with copy to** dheeraj.paroch@sunpetro.com; allan.nunes@sunpetro.com;

2.6 Submission of Bids

2.6.1 A two-Envelope single stage International Completive Bidding (ICB) system, i.e "Technical & Commercial Un-priced Bid" and "Commercial Priced Bid", shall be followed.

2.6.2 Bids are to be submitted in duplicate i.e. two (2 copies each) of "Technical & Un-Priced Commercial Bid" and "Priced Commercial Bid" in the separate sealed envelopes as follows.

ENVELOPE-I: Technical & Un-Priced Commercial Bid
ENVELOPE-II: Priced Commercial Bid

2.6.3 The Technical & Un-Priced Commercial Bid shall contain all details but with the price column of the Price Schedule Format blanked out. However, a Tick mark (√) shall be provided against each item of the Price Schedule Format to indicate that there is a quote against that item in the Commercial Priced Bid. The Priced Commercial Bid shall contain only prices duly filled in as per the price schedule format. Bids which Technical & -commercial Un-Priced Bid"" is containing prices shall be rejected.

2.6.4 Each of the "Technical & Un-Priced Commercial Bid" and "Priced Commercial Bid" shall be properly identified as "Original Technical & Un -Priced Un-priced commercial Bid" & "Copy Technical & Un-Priced Commercial Bid" and "Original Priced Commercial Bid" & "Copy Priced Commercial Bid".

2.6.5 The "Original Technical & Un-Priced Commercial Bid" along with one more "Copy of Technical & Un-Priced Commercial Bid" with price deleted commercial copy shall be submitted in a separate sealed envelope (ENVELOPE-I) by pasting "cut out slip as per ***Annexure #5***". The same procedure shall be adopted for submission of the "Original Priced Commercial Priced Bid" and "Copy of Priced Commercial Bid" in separate envelope (ENVELOPE-II) by pasting "cut out slip as per ***Annexure #6***". Each Bidder will submit two soft copies of complete signed and stamped "Technical & Un-Priced Commercial bid in the **Flash Drive**, **in PDF format** along with **"Technical & Un-Priced Commercial Bid"** in the sealed cover i.e. ENVELOPE-I. Also **Bid Security / Bid Bond** should be submitted in the ENVELOPE-I with "**Original Technical & Un-priced commercial Bid** "

2.6.6 The entire Bid i.e ENVELPOE –I and ENVELOPE –II should be then placed in a cloth-lined outer envelope duly sealed by pasting "cut out slip as per ***Annexure #7***" and superscripted as prescribed.

2.6.7 The Bids shall be submitted to the following address:

Head – Commercial & Supply Chain Management
SUN PETROCHEMICALS PRIVATE LIMITED (SunPetro)
8th, 9th and 10th Floor, ATL Corporate Park, Opp. L&T Gate no. 7,
Saki Vihar Road, Chandivali, Powai
Andheri (E), Mumbai – 400072, Maharashtra [INDIA]
Tel: (022)-69325300.

2.6.8 The Technical & Un-priced Commercial Bid of the Bidder will be opened and evaluated first. If the offer is technically & commercially acceptable or acceptable alternatives to the minimum requirements specified in the Tender; and conforms to technical and commercial requirement or as may be decided by the Company, then the "Commercial Priced Bid" will be opened and evaluated.

2.6.9 In the Technical & Un-Priced Commercial Bid all the technical annexures should be submitted which would include compliance with Technical Specifications and all Price information should be left blank. The Commercial part should be a comprehensive package which should include all Price information as well as "Technical" bid information.

2.6.10 Bidder will provide the Delivery Period / Mobilisation Period / Completion Period, as required in tender document from the date of LOI/LOA.

2.7 Validity Period

The Bids shall be valid for acceptance for a period of **One Hundred & twenty (120) days** from the Bid Due Date of submission. Company, however, reserves the right to seek extensions of the validity period as may be required. In the event of extension of the validity period of the Bid, all other terms and conditions including the provisions relating to Bank Guarantee shall also continue to be valid for the period of such extension.

2.8 Technical Proposal Requirement

The Bidder must adhere to the Technical Specification requirements as mentioned in the Tender.

2.9 Certificate & Inspection

At any time prior to supply / execution of the contract or during the course of delivery/completion and thereafter, Company shall have the right to access materials and Supplier shall assist in the verification of certificates & inspections. The Company shall exercise reasonable judgement in acceptance or rejection of such verifications, but Company reserves all the rights conforming to the requirements of the contract.
It will be the Bidder's responsibility to correct any deviations from specifications found by inspection prior to mobilization of equipment. This will be at the cost of the Bidder / contractor.

2.10 Commercial Proposal Requirements

2.10.1 Currency

Prices quoted shall be in Indian Rupee (INR) for Indian Bidders or United States Dollars (USD) only or INR for Foreign Bidders. The foreign exchange rate shall be calculated on the date of bid closing date for evaluation of bids only, whereas the payment of invoices will be made based on the exchange rate as prevalent the previous day of the payment. Indian Bidders must quote in Indian Rupee only and will be paid in INR only. The foreign bidders will be paid in quoted currency only.

2.10.2 Price in Words & Figures

In case of discrepancy between words and figures, the advantage in favour of Company will apply.

2.11 Deadline for Submission of Bids

The due date mentioned in the "Invitation to Bid" (ITB) shall be deadline for submission of bids. In case of the unscheduled holiday in Mumbai, (India) being declared by Company on the

prescribed closing day of the tender, the next working day will be treated as the scheduled prescribed day of closing of the tender.

2.12 Splitting of work

The Company shall have a Right to split the work /supply between two or more bidders at its sole discretion.

2.13 Payment Terms

Compensation to the Bidder shall be made as per the prices quoted and in accordance with terms of the payments as may be finalized with Bidder and stipulated in the LOI / Contract. Invoices shall be raised & un-disputed invoice / items shall be paid based on approved ''Call out" orders for each Service. No payment will be due to the Contractor / Supplier prior to signing of the Contract.

2.14 Taxes, Duties and Approvals

2.14.1 The Bidders shall quote their prices inclusive of any or all taxes and duties that are applicable for supply & services portion including transport, insurance, installation, commissioning and complete in all aspect on FOR Site Location in India. Except Goods and Service tax (if applicable to supply & services provided under this Contract), the prices shall reflect delivery inclusive of all applicable fiscal charges including but not limited to taxes, fees, duties, cess, licenses, import duties, personal income tax, corporate tax, excise tax and similar rates and fees, freight, insurance, and similar expenses. The Goods and Services tax, if applicable, shall be paid by the Company at actual.

2.14.2 Bidder shall consider in their bid and shall be responsible to obtain at its own cost, all required Permits / Consents / Essentiality Certificates (EC) to avail concessional / Nil duties & taxes applicable for the field, wherever applicable and required for the performance of the Bidder's obligations under the Contract, from the Government of India/ concerned State Governments, authorities or agencies or political sub-division thereof including any for exemption of custom duties (as per ***Annexure #10***) and other duties on material / equipment imported into India. Company will provide reasonable assistance wherever required including obtaining all certificates including Essentiality Certificate for claiming Zero / Concessional - Custom Duty / GST as applicable under PSC, but all expenses related to obtaining all such Permits, Consents etc. shall be to the Bidder's account.

2.15 Performance Bank guarantee

The Successful bidder shall furnish to Company, a Performance Bank Guarantee of Ten (10) percent of estimated Contract value within 15 days of issue of the LOI / Contract (whichever is earlier) in the format as given in *Annexure #*8 from any of the nationalised or scheduled private banks as listed in the tender document in *Annexure #9*. If the bidder does not submit the Performance Bank Guarantee as stipulated above, SunPetro reserves the right to take appropriate measures to secure the interest of the Company and right to cancel the award of LOI without thereby holding / incurring any liability towards bidder for any work / material / services already done / provided by the bidder / supplier.

2.16 Change Orders & Rates:

2.16.1 Company shall have the right to make changes, including additions to or deletions from the quantities originally ordered or in the specifications. A checklist for post award of work is placed at A***nnexure #11***. The quoted and finally negotiated rates shall be valid & firm from issue date of LOI up to the completion of the contract.

2.16.2 Company will issue written orders to Bidder for any change or extra work, except in the event of an emergency which in the opinion of Company requires immediate attention, Company will also be entitled to issue oral orders to the Bidder for any work required by reason of such emergency. Company shall ensure that such oral orders shall be followed up with written communication.

2.16.3 All changes in quantities / specifications will be performed at a mutually agreed delivery Schedule in the Contract period and price of such works shall be finalised / derived in terms and rates elsewhere in the Contract documents.

2.16.4 For any additional goods/service, not specified herein, but needed for operations, the Bidder shall be required to provide, on agreed time, these additional goods & services, at agreed cost or actual costs + 5% handling fees.

2.17 Mobilization Period / Delivery Period / Completion Period

Time is essence of the Contract and Contractor shall Supply / perform the Work and Services diligently in accordance with the Bidder's **promised delivery dates / Mobilisation period / Installation period / Completion Period as set forth in Delivery schedule or agreed for any additional work / services / Supplies**. In the event it becomes apparent that the delivery date cannot be met, the Contractor shall, at its own cost, take all necessary steps to expedite the process, failing which the provisions of Liquidated Damages as specified in the Contract shall be applicable. The Company may also terminate the LOI or Contract immediately invoking the available remedies for protecting the interest of the Company. Company will have the right to reject any bid not meeting the delivery schedule / Mobilization time.

2.18 Bid Bond

Bid Bond shall be returned to all unsuccessful bidders within one month after completion of tendering process (however, in case of the successful bidder, Bid Bond will be returned after submission of Performance Bond and failure to submit Performance Bond will lead to forfeiture of Bid bond)

2.19 Annexures

Please note that ***all Annexures are placed at the end of this document.***

SECTION-3

MODEL CONTRACT

- **Preamble of the Contract**
- **General Conditions of the Contract (GCC)**

PREAMBLE OF THE CONTRACT

THIS AGREEMENT, is made this _____ day of _____ 202x

BY AND BETWEEN

Sun Petrochemicals Pvt. Ltd. a company organised and existing under the laws of India and having its office at 08th, 09th & 10th floor, ATL Corporate Park, Opp. L&T Gate no. 7, Saki Vihar Road, Chandivali, Powai, Andheri (E), Mumbai – 400072, Maharashtra [INDIA] (hereinafter referred to as "**Company"** or "**SunPetro**")

AND

[NAME OF CONTRACTOR], a company organised and existing under the laws of [.....] and having its head office at [.....] (Hereinafter referred to as "**Contractor"**)

RECITALS

WHEREAS, Company desires to have certain Services as hereinafter specified

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WHEREAS, Contractor represents that it possesses the necessary premises, equipment, personnel and capability to carry out such Services and is willing to do so on the terms and conditions hereinafter contained;

Hereafter both Company and Contractor shall be called jointly as Parties.

WHEREAS, Company desires to engage Contractor to design, supply, perform and complete the Services and

WHEREAS, Contractor has agreed to such engagement upon and subject to the terms and conditions hereinafter contained.

NOW, THEREFORE, in consideration of the mutual covenants herein contained, it is hereby agreed between the Parties as follows:

This Contract witness that in consideration of the premises and the payment to be made by the Company to the Contractor provided for herein the Contractor shall supply all equipment and /or materials and execute and perform all Services /Supply strictly according to the SCOPE OF WORK (SECTION-4) various provision in tender schedule and upon such supply, execution and performance of services to the satisfaction of the Company, the Company shall pay to the Contractor at the rates accepted as per the said tender schedule (Attached at SECTION-7) and in terms of the provisions therein.

The following documents, in order of precedence descending, comprise the entire Contract between the parties:

1] This Preamble of Contract

2] Articles of Contract (General Terms and Conditions)

3] Special Terms & Condition of Contract

4] Scope of Work (Specifications and Scope of services)

5] Annexures

The salient features of the Contracts as detailed herewith highlighted for ready reference:

Note 1 : Title of the Contract : .....

Note 2 : Contract No.: .....

Note 3 : Point of Delivery/Site address: .....::.....

Note 4 : Project/Block Number: .....

Note 5 : Effective Date of the Contract: ……..

Note 6 : Due Date of Mobilization: ……..

Note 7 : Duration /Validity of the Contract ……..

Note 8 : Tentative Value Of The Contract: ……..

Note 9 : Company's Representative: ……..:

Note 10 : Contractor's Representative: ……..

IN WITNESS WHEREOF, the parties have hereinto set and subscribed their respective hands and seals the day, month and year respectively set forth

.

Sun Petrochemicals Pvt. Ltd. _____

(COMPANY) (CONTRACTOR)

Signature _____ Signature _____

Name: Name:

Title: Title:

In presence of witness

1)Name
Title
Signature/Initials

2)Name
Title
Signature/Initials

1)Name
Title
Signature/Initials

2)Name
Title
Signature/Initials

GENERAL CONDITIONS OF THE CONTRACT (GCC)

Index

GENERAL CONDITIONS OF THE CONTRACT (GCC)

3.1 DEFINITIONS AND INTERPRETATION

The following definitions and interpretation shall apply and shall have the meanings assigned to them in this Contract except where the context otherwise requires:

3.1.1 "Affiliate" of a Party means any Person, whether directly or indirectly, controlling, controlled by, or under common control with, such Party or Person, as applicable. For the purposes of this definition, the term "control" means (i) direct or indirect ownership of more than fifty percent (50%) of the equity (or such lesser percentage which is the maximum allowed to be owned by a foreign corporation in a particular jurisdiction) having the power to vote on or direct the affairs of such Party or Person, as applicable, or (ii) the power to direct decisions of such Party or Person, as applicable, including the power to direct management and policies of such Party or Person, as applicable, whether by reason of ownership, by contract or otherwise.

3.1.2 "Agreement" or "Contract" or "Contract Document" shall mean the instructions to the bidders mentioned in the tender document, the preamble, these contract definitions, General Contract Conditions, Special Contract Conditions, Schedule of Rates, Responsibility Matrix etc., Specifications, Scope of work, all the exhibits, annexures appendices, schedules etc. hereto along with any amendments agreed and issued subsequently.

3.1.3 "Applicable law" shall mean any Indian law, regulation, bylaws, rule, directive, ordinance, judicial or quasi-judicial decree, order or notification enacted, issued or modified by any Government Agency in India.

3.1.4 "Approved and Approval" shall mean approved or approval in writing by the Company.

3.1.5 "Contract Administrator" shall mean the contract administrator so appointed by SunPetro.

3.1.6 "Contract Price" shall mean the lump sum prices and/or rates of payment specified in Price Schedule in S*ection 7* and as may be indicated in the Price schedule, which SunPetro shall compensate, Contractor for the actual work executed and certified by SunPetro's Representative subject to any additions/deletions thereto which may be made through the application of relevant provisions of the Contract.

"Contract Value" shall mean the estimated value of the payments that would be made to the Contractor for the duration of the Contract for the supply & services to be provided under the Contract including but not limited to the Mobilisation Charges, Demobilization Charges, Unit rates, cost of consumables, day rates, monthly rates, standby rates etc as applicable. This Contract Value will be the basis for calculation of Performance Bank Guarantee and other values referred to in the Contract or linked to contract value. The actual Contract Value (based on actual payment) is likely to differ from originally calculated Contract Value, however the originally calculated Contract Value will be the basis for various provisions under this Contract.

3.1.7 "Contract Area" shall mean various Exploration & Production Blocks and Fields as awarded to the Operator by Government of India and/or any other Block awarded to Company from time to time and as identified as "Contract Area" or where company has participatory interest.

3.1.8 "Certificate of Release and Final Payment" is the certificate issued by SunPetro as per the terms of Clauses mentioned herewith.

3.1.9 "Contractor" shall mean M/s._____ and includes, its consortium partners, sub-contractors and vendors and the officers, directors, commissioners, employees, servants, representatives and agents of any of them as applicable.

3.1.10 "Contractor Administrator" shall mean the contract administrator so appointed by the Contractor and informed to SunPetro.

3.1.11 “Contractor’s Equipment” shall mean all the equipment(s), units etc. along with auxiliary, plant, machines, spares, facilities, miscellaneous materials /services and consumables etc., provided by the Contractor or its Sub-contractors in connection with the Scope of Work specified in *Section 4*.

3.1.12 Contractor’s Personnel” shall mean each individual and / or the collective group of Contractor’s employees, Contractor’s subcontractors, and their respective employees, subcontractors, licensees, invitees, agents and representatives, who are provided and/or utilized by Contractor for the performance of the Work.

3.1.13 “Commencement Date” shall mean the date when the Contractor’s equipment / services are tested, rigged up and ready to commence operations on the designated site for working as intimated by SunPetro to Contractor.

3.1.14 “Completion Date” shall mean the time and date when the work is completed by the Contractor as per the Scope of Work.

3.1.15 “Commissioning” means commissioning of the facilities or any part thereof by the Contractor as specified in the Scope of Work / tender document. Commissioning shall be certified by the Company/Consultant and TPIA as applicable.

3.1.16 “Consultant” means consultant deployed by Company for project management and action as Company’s engineer.

3.1.17 "Company" means the Company or Operator which is a party to this Contract, and any other party for whom Company is acting in executing this Contract, including but not limited to, other members of the consortium owning an interest in the Block, their or their officers, directors, agents and employees.

3.1.18 “Company’s Equipment” shall mean all equipment, appliances, tools, parts and supplies provided by Company and / or its associates.

3.1.19 “Company Group” shall mean the Company, its affiliates their contractors, subcontractors and equipment vendors of any tier, its Co-ventures, their personnel, officers, directors, employees and agents but excluding Contractor Group;

3.1.20 “Contract”, "Agreement" or "Contract Document" (as per par 3.1.2 above)

3.1.21 ‘‘Daily Operation Report” shall mean the daily report submitted by the Contractor to SunPetro as per the requirements of contract.

3.1.22 "Days” shall indicate consecutive calendar days, it being understood that all dates and time periods referred to in the Contract are expressed in terms of the Gregorian calendar. “Day” means a calendar day of twenty hours as referred to local time at the Site.

3.1.23 “Defect Liability Period” means the period of validity of the warranties and guarantees given by the Contractor commencing at Operational Acceptance of the facilities or a part thereof by the Company, during which the Contractor would be responsible for defects with respect to the facilities (or the relevant part thereof) as per the term of the Contract.

3.1.24 **“**Demobilization” shall mean the actual demobilization of contractor’s equipment and contractor’s personnel including disassembly, removal, and site cleanup & restoration of all facilities assembled on site, repair of access roads to the full satisfaction of the Company. SunPetro, will issue the de-mobilization letter for the services as and when requirement ends.

3.1.25 “Effective Date” shall be the date of issue of NOA(Notification of Award) /LOI(letter of Intent) / LOA(Letter of Award) / Work Order or as specified by Company.

3.1.26 “Exhibits” are those documents attached hereto and form an integral part of this Contract for all purposes and consisting of all the exhibits and annexures.

3.1.27 “Facilities” means the Plant and Equipment, Installation and Construction Services and related equipment and other associated works, to be carried out by the Contractor under the Contract for completion of the entire scope of work and the Contract documents, which are to be designed, engineered, procured, developed, constructed, tested, pre-

commissioned, commissioned and handed over at the site to and for the Company in accordance with the terms and conditions of this Contract.

3.1.28 "GIPIP" shall mean specific guidelines in conformance with the Good international practices/norms and applicable standards / legislations and prevalent regulatory regime as specified by the Government of India.

3.1.29 "Good Oilfield Practices" means good international petroleum industry practices with such degree of diligence and prudence reasonably and ordinarily exercised by experienced parties engaged in a similar activity under similar circumstances and conditions.

3.1.30 "Government" shall mean Government of India or Government of State, or any political subdivision or administrative agency thereof, as the case may be, and/or their respective representatives having jurisdiction over the Work performed under this Contract.

3.1.31 "Gross negligence" shall mean (i) the intentional failure to perform a manifest duty, in reckless disregard of or wanton indifference to the consequences to the life, health, safety or property of others; or (ii) any act or failure to act which, in addition to constituting negligence, was in reckless disregard of or wanton indifference to the consequences to the life, health, safety or property of others.

3.1.32 Interpretation

a. Reference to "Section", " Para " "Clause" "Article" and "Provision" shall have the same meaning.
b. The headings and sub-titles in these Conditions of Contract are included solely for convenience and shall not be deemed to be part thereof and shall not affect the meaning or operation of the Contract.
c. Words imparting the singular meaning only also include the plural and vice versa except where the context otherwise requires.
d. Any reference to statute, statutory provision or statutory instrument shall include any re-enactment or amendment thereof for the time being in force.
e. Reference to Applicable Laws shall also include amendments and extensions thereto.

3.1.33 "Installation and Construction Services" shall mean all such services necessary for construction of facility using the plant and equipment and including without limitations Mechanical erection, piping fabrication, welding, testing, coating and related services.e.

3.1.34 "Letter of Intent / Letter of Award / Notification of Award /Work Order" or "LOI / LOA / NOA/ WO" shall mean the letter of Intent or Letter of Award or Work Order issued to the Contractor by Company.

3.1.35 "Mobilization" shall mean the actual mobilization of the Contractor's equipment which are fit for operational requirements, along with auxiliary equipment and contractor's personnel during contract period and shall include any demurrage incurred during the period up to and including the date the Work begins at the Work Site of this Project except if such delay or demurrage has occurred due to acts or omissions of the Operator. SunPetro, will issue the mobilization letter for the services as and when requirement comes.

3.1.36 "Operational Acceptance" means the acceptance by the Company of the facilities (or any part of the facilities where the Contract provides for acceptance of the facilities in parts), which certifies the Contractor's fulfilment of the Contract in respect of Functional Guarantees of the facilities (or the relevant part thereof) in accordance with the technical specifications, related provisions in GCC and related provisions in the SCC.

3.1.37 "Operator" shall mean Sun Petrochemicals Private Limited(SunPetro) / Company

3.1.38 "PSC" shall mean the production-sharing contract entered into between the Government of India and SUNPETRO consortium as its consortium.

3.1.39 "Project" shall mean the work and other related activities as may be indicated in the LOI/ Contract as per the Scope of Work.

3.1.40 "Provisional Completion/Acceptance" shall mean the certificate so issued by the Owner, subject to the fulfillment of the terms described under the SOW/tender document.

3.1.41 "Services" shall mean the services to be provided by the Contractor under the Contract as more particularly described in Scope of Work, to this Contract and shall include such other services as may from time to time be agreed in writing between the Contractor and SunPetro.

3.1.42 "Sun Petro " / "SPPL" shall mean Sun Petrochemicals Private Limited .

3.1.43 "SunPetro's s Representative" or "Company Representative" shall mean the person or persons expressly designated in writing by Company, who shall be Company's representative and shall be empowered to act, monitor and direct the performance of the Work required under this Contract on behalf of Company.

3.1.44 "SunPetro Supply Item" shall mean a supply item, which is expressly identified in the Contract as being for supply by SUNPETRO or its contractors.

3.1.45 "Sub-Contractors" shall mean those persons or companies engaged by the Contractor in connection with the Services / contracts approved by SunPetro.

3.1.46 "SunPetro Designated Base" shall mean well site as informed by Company. However, the contractor shall store/warehouse its equipment and materials at its own costs & risks.

3.1.47 "Performance Bank Guarantee" shall mean the unconditional, irrevocable bank guarantee required to be submitted by the Contractor to the Company in accordance with the terms of the contract and in the form of which bank guarantee is set forth in *Annexure* #8 hereof.

3.1.48 "Rates" or "Rate" shall mean the applicable rates of compensation to be paid to Contractor for work hereunder as set forth in the Price Schedule.

3.1.49 "Termination Date" shall mean the time of day and date when the Term defined in contract hereof expires or when this Contract is terminated by Company, in accordance with its terms, whichever occurs later.

3.1.50 "Willful Misconduct" means Intentional disregard of Good Oilfield Practice or proper conduct under the Contract with knowledge that it is likely to result in any injury to any person or persons or loss or damage of property.

3.1.51 "Work" shall mean the Work provided by Contractor which includes providing but not limited to tools & tackles, auxiliary equipment, spares, consumables, supplying the necessary equipment, materials, personnel and technical support etc. necessary for the performance of Services on the Work Site / Work Location or base in accordance with the scope of the work defined in the Contract.

3.1.52 "Work Site / Work Location" shall mean the lands and waters and other places on, under, in or through which the Works are to be carried out and any other lands, waters or places approved by the Company for the purposes of the Contract together with any other places designated in the Contract as forming part of the Site.

3.1.53 "Third Party" shall mean a person / entity which is not included in Company Group or Contractor Group.

3.2 **DURATION OF CONTRACT:**

3.2.1 Primary term of this contract will be 3 of (three) year from the date of award with a provision to extend for 2(two) more years on same rates, terms and conditions at discretion of Company. The Contract shall be valid for all the blocks of SunPetro in Gujarat.

3.2.2 **Commencement Date, Completion Date and Termination Date for rate applicability**:

- Commencement date : Date of Mobilization
- Completion date : Completion of individual call-out jobs shall be as per Work Order schedule
- Termination Date : Expiry of the Contract

3.3 **Materials, Supplies, Equipment, Services And Personnel**

Any item supply / services requested by Company during contract period to complete the work shall be provided by Contractor.

3.3.1 Additional Services, Materials, Supplies and Equipment

If it is not a part of contract, Company will pay based on agreed cost or actual cost plus 5% handling / service charges. The proof of item prices shall be submitted in original by the contractor to the Company.

3.3.2 The Company has full right to delete any item (s) / service(s) from the contract. The pay will only affect for the quantities of item(s) / Service(s) as certified by the company's representative.

3.3.3 Any additional items or associated services not covered under the Schedule of Rates shall be executed only after written approval of the Company and shall be paid as per mutually agreed rates or as specified in the Special Conditions of Contract.

3.3.4 The Company reserves the right to reduce quantities or delete any item from the Contract. Payment shall be made only for quantities actually supplied and accepted.

3.4 **INSPECTION OF MATERIALS**

3.4.1 **Inspection of Company Equipment**

Contractor shall have right to inspect and get satisfied on the company equipment, company will provide the full access to the contractor.

3.4.2 **Inspection of Contractor Equipment**

Company shall have the right at any time to inspect and reject for valid cause any items of equipment furnished by the Contractor for performance of the Services and Contractor shall replace, at no additional cost to Company, such items so rejected with items free from defects or if Company agrees, repair such items at Contractor's cost. All supplied shall be new & unused & shall not be more than one year old from the date of manufacture. Documentary proof shall be provided for the same. Any substandard material received/delivered at site shall be rejected outright.

3.4.3 INSPECTION AND TESTING

a) The Contractor shall, at its own cost, carry out all inspections and tests required as per the Contract, applicable standards and statutory requirements.
b) The Contractor shall provide reasonable advance notice to the Company for inspection and testing.
c) The Company or its authorized inspection agency shall have the right to witness such inspections.
d) Inspection by the Company shall not relieve the Contractor of its obligations or warranty under the Contract.
e) Goods found non-conforming shall be rejected and replaced by the Contractor at no additional cost within the stipulated time

3.4.4 DOCUMENTATION

3.4.4.1 The Contractor shall submit all required documents including, but not limited to:

- Mill Test Certificates
- Inspection / Test Reports
- Packing List
- Delivery Challans
- Tax Invoices

3.4.4.2 All documents related to supply under this Contract shall become the property of the Company.

3.4.5 **REPRESENTATIVES AND CORRESPONDENCE**

a) The Company and the Contractor shall each appoint a Contract Administrator for coordination and administration of the Contract.

b) All correspondence under this Contract shall be routed through the respective Contract Administrators unless otherwise specified.

3.4.6 EXPEDITING AND DELAYS

The Contractor shall be responsible for expediting procurement and delivery of Goods to meet delivery schedules

3.5 **COMPANY'S WORK /COMPLETION PROGRAMME**

3.5.1 **Work Programme:**

3.5.2 Contractor to Comply with Company's Work / Completion/supply Programme. Contractor shall use all reasonable care and attention to ensure all aspects of the requirements set forth in Company's Work / Completion / supply programme which are to be provided by Contractor are complied with and to ensure that Company's other contractors are afforded all reasonable facilities to similarly comply as appropriate. Contractor shall carry out checks on any of the requirements of the Work / Completion / supply programme, as directed by Company and record and report the results of such checks to Company.

3.5.3 Not Applicable.

3.5.4 Work shall be completed as directed by SunPetro.

3.6 **PERFORMANCE OF THE WORK/SERVICES/SUPPLIES**

3.6.1 **Conduct of Services /supplies**

The Services shall be performed by Contractor in accordance with Best international petroleum industry practices. The Contractor shall be responsible for all interface issues, related to providing multiple services under the umbrella of Integrated Services as required as per scope of work / services / supplies.

3.6.2 All correspondence from either party to the other party shall be addressed to its Contract Administrator, unless provided otherwise in the Contract.

3.6.3 **Discipline**

3.6.3.1 Contractor shall maintain at all times strict discipline and good order among its employees and subcontractors and shall abide by and conform to all reasonable rules and regulations promulgated by Company governing the scope of work/supplies.

3.6.3.2 Contractor shall, and shall ensure that its employees and subcontractors are qualified, experienced & trained and shall, comply with the all Conditions set forth in scope of work /supplies. Contractor agrees to all provisions set forth in this tender and further agrees that failure to comply with the requirements of scope of work/supplies shall constitute grounds for termination of this Contract.

3.6.3.3 Company have the right to ask contractor to change / replace its personnel for misbehaving / indiscipline during contract period. Contractor will replace person, within 5 working days without affecting the work progress.

3.6.4 **Legal Requirements**

Contractor shall apply for and obtain all necessary certifications, permits, licenses and authorizations for personnel, equipment and technology required in India, including any authorizations or licenses from any governmental body for use of Contractor's Personnel or technology in the Services or the export of such technology to India.

Provident Fund Act:

No dues of Payment of PF Contribution from the Employer & Employees in respect of Contractor working for Onshore Block under Contract along with monthly Returns and remittance particulars of Challans and Statement of workmen.

ESI Act:
No dues of Payment of ESI Contribution from the Employer & Employees in respect of Contractor working for Onshore Block under Contract along with their Half-yearly Returns and remittance particulars of Challans and Statement of workmen.

As per the Labour enactments:
Regular compliance to Minimum Wage Act, No Dues to the Employees who have resigned or whose services are terminated, engaged by the contractors regarding payment of Wages, service compensation, Bonus, Gratuity, Un-availed Leave salary, Notice pay etc.

Labour Welfare Cess:
All prices are inclusive of all taxes including Labor welfare cess. The Goods and Service tax shall be extra at actual. Each bidder has to provide the proof of deposit of Labor welfare cess to SUNPETRO duly signed by CA of the firm.

The Contractor shall indemnify the Company in case of his failure in meeting the statutory requirements as mentioned above. Submission of the above documents shall not relieve the Contractor of any liability to comply with the Applicable Laws.

3.7 **TERMINATION BY COMPANY**

3.7.1 Unless otherwise provided, the Contract shall terminate upon expiry of the Term of the Contract. The Contractor shall be paid for the Work successfully completed and certified by Company Representative along with demobilization charges, if any.

A. Termination for Non- Mobilization or Non-commencement of Work

If the Contractor fails to timely mobilize the Materials or Equipment required to perform the work or having mobilized, fails to timely commence the work in accordance with the terms of the Contract, it would amount to material breach under the Contract and in such event, the Company shall have right to terminate the Contract immediately upon expiry of such specified time, unless otherwise provided or agreed by the Company.

Consequences of Termination:
Upon termination of Contract by Company under this sub-clause, the Contractor shall not be entitled to any payment whatsoever. The Contractor shall immediately refund any sum which the Company might have paid to the Contractor under this Contract. Unless, otherwise provided in the Contract, the Contractor shall compensate the Company for all losses, expenses etc. which the Company shall sustain on account of such breach by the Contractor.

B. Termination for events specified below:

Occurrence of any of events as specified below shall be construed as Event of Default. The Company shall inform the Contractor of the same by issuing a notice of default (hereinafter referred to as "Notice of Default"). If the Contractor, upon receipt of such notice, fails to remedy such default with Seven (7) days, then the Company shall have the right to terminate this contract forthwith. Event of default shall occur if the Contractor:

a) Makes a general assignment for the benefit of its creditors; or
b) Refuses or fails to supply enough properly skilled workmen or proper equipment, or materials or services to accomplish the Work in accordance with the original work schedule and the contract; or
c) Fails to make prompt payment to Sub-contractors or materials, equipment or labour; or
d) Is in breach of Applicable Law; or
e) Otherwise breaches the provisions of the contract or part thereof; or
f) Suspends or abandons activities in the Work site; or Is wound up (not being a member's winding up for the purpose of reconstruction or amalgamation only) or if any deed or action substantially equivalent to any of the foregoing deeds or actions either in Indian law or applicable law shall occur; or

g) Fails to provide uninterrupted services/perform work.

Consequences of Termination:
Upon termination of Contract by Company under this sub-clause B, the Contractor shall be entitled to payment for the work successfully completed and certified by the Company Representative till the date of Termination. Further, the Company shall be entitled to take possession of the Work and finish the Work at the risk and cost of the Contractor by whatever method Company deems just and expedient. Unless otherwise provided in the Contract, the Contractor shall compensate the Company for all losses, expenses etc. and additional expenses which the Company shall sustain, to get the work executed, on account of such breach by the Contractor.

C. Termination in the event of Force Majeure
In the event that a condition of Force Majeure exists at the Site for a period of fifteen (15) consecutive days, Company shall have the right to terminate this Contract by giving two (2) days advance notice to Contractor.

Consequences of Termination:
Upon termination of Contract by Company under this sub-clause, the Contractor shall be entitled to payment for the work successfully completed and certified by the Company Representative till the date of Termination and demob charges, if applicable as per Contract. No Party shall be obligated to pay the other Party for losses (including consequential losses), expenses, damages etc. sustained on account of event of Force Majeure.

D. Termination for Convenience
Company shall have a right to terminate the Contract in whole or in part, at any time with fifteen (15) days prior written notice thereof to the Contractor. Upon any such termination the Contractor irrevocably agrees to waive any and all claims for damages, compensations, including loss of anticipated profits, on account thereof, and as the sole right and remedy of the Contractor, Company shall pay the Contractor in accordance with Price Schedule mentioned in the Contract for the work / services performed by the Contractor till the date of such termination.

E. Termination for non-performance or non-satisfactory performance
The Contractor shall perform the work in accordance with GIPIP and the terms and conditions of the Contract. If the Contractor does not perform the Work or any part thereof or its performance is non-satisfactory, then Company shall issue a notice (**"Remedy Notice"**) to the Contractor to remedy such non-performance or non-satisfactory performance. Upon receipt of such Remedy Notice, the Contractor shall remedy such default within Seven (7) days. The Company may ask the Contractor to re-perform any of such services, at sole risk and cost of Contractor. In the event, the Contractor fails to remedy such default within the specified period or the performance of the Contractor is non-satisfactory repeatedly; the Company shall have a right to terminate the Contract immediately without any further notice.

Consequences of Termination:
Upon termination of Contract by Company under this sub-clause, the Contractor shall be entitled to payment for the work successfully completed and certified by the Company Representative till the date of Termination. Further, the Company shall be entitled to take possession of the Work and finish the Work at the risk and cost of the Contractor by whatever method Company deems just and expedient. Unless otherwise provided in the Contract, the Contractor shall compensate the Company for all losses, expenses etc. the additional expenses which the Company shall sustain on account of such breach by the Contractor.

3.7.2 Upon receipt of Notice of Termination, the Contractor shall, unless a notice directs otherwise:
a) Immediately discontinue the work from that date and to the extent specified in the notice;
b) Place no further orders or agreements for materials, equipment, services or facilities except as may be necessary for the completion of such portion of the work which is directed to be continued;

c) Do only such work as may be necessary to preserve and protect Work already in progress and protect materials, facilities and equipment on the work site or in transit thereto.

3.7.3 **Payment upon Termination**

If the unpaid balance of the Contract Price exceeds the cost incurred by the Company on finishing the work as provided in the Contract, such excess shall be paid to Contractor upon completion of the Work. If the unpaid balance of the Contract Price is lower than the cost incurred by the Company on finishing the work as provided in the Contract, the Contractor shall promptly pay the difference to the Company upon receipt from the Company of the certificate certifying the amount of such difference. Obligations arising under this article shall survive the termination of the contract.

3.7.4 **De-hiring:**

3.7.5 Company may, at its option, de-hire the services of the Contractor due to interruption in the work / unit programme, by giving three (3) days written notice to the Contractor and during this period no charges for equipment and personnel etc. shall be payable by Company. However, contractor will take immediate action to demobilize the personnel, machines and other equipment immediately. SunPetro may call the Contractor along with the whole setup by issuing fifteen days' notice to mobilize again.

3.8 **HEALTH, SAFETY & ENVIRONMENT (HSE)**

General

Contractor shall perform all the work complying to HSE standards as applicable to Oil & Gas fields.

Contractor warrants that it shall perform all such services in a Good and Workmanlike Manner and as per the guidelines issued by, DGMS, DGH and OISD from time to time. Contractor warrants to Company that Contractor's Personnel who are skilled, experienced and competent in their respective positions, and who are fit for duty shall perform all Services. Contractor undertakes to ensure that its personnel comply with Company's regulations regarding health, safety and training which are in force at such time and at such place.

Before the commencement of work, Contractor is required to submit the Safety Management Plan including details of Risk Management related to nature of job. To ensure the safe operations at site, Contractor is required to submit the written safe procedures related to work and comply with DGMS / OMR-2017 and OISD requirements including amendments / modifications issued by DGMS from time to time.

Contractor to provide Health, Safety & Welfare Policy Manual which should be aligned with Company's HSE Policy

3.8.1 **Safety**

3.8.1.1 In performing the Services hereunder, Contractor and its officers, directors and employees and any subcontractors and their officers, directors and employees shall comply with the provisions of and/or meet the Health, Safety and Environment best Industry standards and requirements set forth in:

a) the safety management system (hereinafter referred to as "the Safety Management System") established by Contractor;
b) Onshore safety, health, training and protective clothing requirements; and
c) All applicable laws, rules and regulations of India.
d) Proper safety kits liveries and uniform for all employees / subcontractors working at site.

3.8.1.2 Prior to commencement of operations, Contractor shall ensure that all Contractor's personnel and the personnel of its subcontractors are familiar with the provisions of ***Contractor's Safety Management System***.

3.8.1.3 Contractor is responsible for the supervision, monitoring and compliance of and with the requirements and shall take prompt and appropriate action to correct any unsafe work practices by its personnel and those of its subcontractors.

3.8.1.4 Company shall, at its complete discretion, monitor and audit Contractor and its subcontractors in respect of compliance with the requirements of this Clause. Contractor shall co-operate fully with, and rectify any deficiencies in compliance pointed out by the Company.

3.8.1.5 If during performance of the Services, Company's Representative is of the opinion that the Contractor is not conducting the Services in compliance with the Safety Case and/or Safety Management System or is conducting the work in such a way as to endanger the safety of Contractor's Personnel or Company's personnel, Company Equipment or any of Company's other contractors' plant, equipment or materials, then Company's Representative shall notify Contractor of the breach of safety involved and suspend operations, and the related provisions of the contract shall apply as if the operations had been suspended due to breakdown of equipment.

3.8.1.6 Incompetent person shall be at RISK to carry out critical operation. Hence all contractor personnel need to be competent & trained to carry out assigned job. Training need for all contractor's Employee shall be identified & accordingly shall be trained by the contractor.

3.8.1.7 Required PPE to be identified & sufficient stock shall be maintained at all time. Also the Contractor's Employee shall be trained for uses of PPE.

3.8.1.8 Contractor shall provide certificates for but not limited to Lifting Equipment like Crane, Slings, D-Shackles, Chain pulley Blocks. Lifting Equipment shall be color coded & numbered.

3.8.1.9 Contractor shall provide Test certificate for Equipment, Materials including Cylinder, High pressure Hoses, & Electrical appliances or as specified in the contract.

3.8.1.10 Contractor has to develop ERP jointly with Company & shall ensure awareness Training imparted to all concerned personnel. Mock drill (Table top) for critical scenario need to be conducted before operation. Records to be maintained.

3.8.1.11 Contractor shall ensure PTW developed by Company and shall be followed.

3.8.1.12 Contractor shall maintain following Records:

1. Employee detail
2. Pre medical check-up record
3. Competency Record
4. Training & awareness Record
5. PPE record
6. Accident / Incident Record
7. Mock drill Record
8. Audit Observation & compliance record.
9. Accident / Near miss Report.

3.8.1.13 In case an item or activity is not covered by any HSE standard, or if the standard is considered to be inadequate, Contractor shall immediately notify the Company of such absence or inadequacy of defined standards. Company & Contractor shall then jointly develop & agree on additional standards to cover the item or activity and reduce the associated risk to as low as reasonably practical (ALARP) before the item or the activity is included or continued in the performance of the Work.

3.8.2 **Environment**

3.8.2.1 Contractor hereby acknowledges Company's commitment to conduct its operations in a manner that not only complies with all relevant environmental protection and pollution control legislation of India but also that, such operations do not cause environmental damage or pollution. In recognition of the aforementioned commitment, Contractor shall perform the Services in an environmentally acceptable and safe manner consistent with GIPIP and shall ensure that its performance of the Services is properly monitored

3.8.2.2 Contractor shall prepare Aspect & Impact document related to their Job scope and shall submit to Company.

3.8.2.3 Valid Pollution under control Certificate for Engine above 150 KVA

3.8.2.4 Contractor shall have Waste Management Plan for their scope of work.

3.8.2.5 Hazardous Waste shall be sorted out & disposed as per the Pollution Control Board norm as applicable.

3.8.2.6 Contractor shall display MSDS for Chemicals, Reaction Matrix for Chemicals and High noise area.

3.8.2.7 Eye wash station shall be provided at suitable place.

3.8.2.8 Working area is to be illuminated as per Lux standard.

In particular, the Contractor shall:-

a) employ generally accepted industry standards, including, as required, advanced techniques, practices and methods of operation then available for prevention of environmental damage;

b) take necessary and adequate steps to prevent environmental damage and, where some adverse impact on the environment is unavoidable, to minimise such damage and the consequential effects thereof on people and property; and

c) adhere to the guidelines, limitations or restrictions, if any, imposed by the Environmental Clearance referred to in this clause as applicable on the date of this Contract and as such Environmental Clearance may be revised, expanded or replaced.

3.8.2.9 Without limiting the generality of the provisions of this Clause hereof, Contractor shall comply with, and ensure that its employees, agents and subcontractors comply with, all applicable environmental protection and pollution control laws, regulations, rules and ordinances of all relevant state, central and local Government of India.

3.8.2.10 If during Contractor's performance of the Services, Company is of the opinion that Contractor is either not conducting the Services in compliance with any one or more of the provisions of Clause, all applicable environmental protection laws, rules and regulations imposed by state, central or local governments and all environmental guidelines and procedures furnished by Company to Contractor from time to time, or is conducting the Services in such a way as to endanger the environment or as to risk being in breach of any laws, rules or regulations of any such bodies, then Company shall notify Contractor of the breach involved and suspend all operations whereupon the provisions of clauses mentioned herewith in the contract apply as if the Well Operations had been suspended due to equipment breakdown.

3.8.3 Contractor has to submit Monthly Compliance Reports to the company on all aspects as listed above or as decided by the company.

3.9 **SETTLEMENT OF DISPUTE/ ARBITRATION**

3.9.1 The Company and the contractor undertake that all disputes, differences or questions at any time between the parties as to the construction to this Contract or as to any matter or thing arising out of it or in any way connected therewith ("Disputes") shall be resolved between the parties in good faith by having the discussion between the Project Manager / Contract Manager level and if required may be taken up to the Company -Head level to resolve the issues / disputes in the interest of the work and at least three attempts shall be made by the both the parties in this direction.

3.9.2 In the event the disputes arising out of / connected with this Contract, which cannot be amicably resolved by Arbitration. The arbitration shall be conducted in accordance with the provisions of the Arbitration and Conciliation Act, 1996, (including any statutory modifications or re-enactments thereof) and rules there under excluding any laws, opinions, or regulations that would require application of the laws of any other jurisdiction). The Arbitral Tribunal shall consist of three arbitrators. The Party raising the Dispute shall give a Notice to that effect to the other party and shall nominate the first Arbitrator in such Notice. The other Party shall respond to such Notice within 30 days of receipt thereof and nominate the Second Arbitrator. The two arbitrators so nominated shall appoint the third arbitrator within 30 days of appointment of the Second arbitrator. The Third Arbitrator so appointed shall be the Presiding Arbitrator. The arbitrators to be appointed shall be retired Judges of any of the High Courts or Supreme Court of India. Unless otherwise agreed in writing, the arbitration shall be held at Mumbai, India.

3.9.3 It is also a term of the Contract that the Contractor shall not stop the Work under this Contract and the Work shall continue as expected regardless of whether the arbitration proceeding have commenced or not. Notwithstanding any disagreement, dispute, protest, request for or pendency of arbitration or court proceedings relating directly or indirectly to the Work, at all times, Contractor shall proceed with the Work in accordance with the determinations, instructions and clarifications of Company in accordance with the terms and conditions of this Contract. If the Contractor fails to proceed with the Work, he shall be considered to be in default and shall be held liable for direct, indirect and consequential costs and expenses arising from such default. During the period Contractor is proceeding with the Work, he shall be paid the undisputed portion of his claims which are due under the Contract.

3.9.4 The right to arbitrate disputes and claims under this Contract shall survive the termination or invalidity of this Contract or any term hereof.

3.9.5 Any award rendered by the arbitrators shall be final and binding upon the parties. Any judgment upon such award may be entered in any court having jurisdiction or application may be made to such court for a judicial confirmation of such award and judgment or order of enforcement, as the case may be.

3.10 **ENTIRE AGREEMENT/ WAIVERS**

3.10.1 This Contract sets forth the entire CONTRACT between Company and Contractor which shall supersede all previous communication/ agreements either oral or written. No terms, conditions, understandings or agreements purporting to modify or vary the terms of the Contract (whether written or oral) of the parties made prior to the date of this Contract shall apply except where Company and Contractor have expressly varied the same in writing under the terms of this Contract.

3.10.2 None of the provisions of this Contract shall be considered waived by Company unless Company gives such waiver in writing. No such waiver shall be of any past or future default, breach or modification of any terms, provisions or conditions of this Contract unless expressly set forth in such waiver.

3.10.3 None of the following shall release Contractor from any of the warranties or obligations of this Contract or be deemed a waiver of any right or remedies as to any prior or subsequent default in accordance with the Contract:

i) Failure by Company to insist upon strict performance of any terms or conditions of this Contract,

ii) Failure or delay to exercise any rights or remedies provided herein or by law,

iii) Failure to properly notify Contractor in the event of breach, except for any breach which according to provisions of Contract has to be notified,

iv) Acceptance of or payment for any Service or review of any design, or

v) Warranty on the Equipment if sold to Company by the Contractor will continue upto the expiry of the warranty period even if the Contract is expired or terminated.

3.11 LIQUIDATED DAMAGES

3.11.1 Liquidated damage

If Contractor for any reason other than Force Majeure, fails to timely mobilize all the material ,equipment (fit for purpose) and/or personnel with requisite experience at designated location as per the mobilization schedule mentioned in the relevant Call-Out Order / Work Order, or fails to complete the work under any individual Call-Out Order / Work Order within the agreed time schedule, the Company may without prejudice to any other right or remedy available to the Company, shall have a right to seek payment from the Contractor as ascertained and agreed liquidated damages, and not by way of penalty, One percent (1%) for each week of late completion of work / delayed delivery of work up to a maximum of Ten percent (10%) of affected Callout Order / Work Order

The payment of liquidated damages pursuant to this section shall not affect the rights of Company as per Contract or Applicable laws including the following rights:

a. Terminate the Contractor or a portion or part of the Work thereof at any time during the term of the Contract and / or,

b. Recover damages resulting from Contractor's breach of any of the provisions hereof from any kind of dues and / or,

c. Get the Work done by any other contractor at the risk and cost of the Contractor and/or,

d. Invoke bank guarantee or any other security provided by the Contractor and/or,

3.11.2 The Parties agree that the liquidated damages indicated hereinabove are genuine pre-estimate of the minimum loss/ damage which COMPANY can suffer on account of delay / breach on the part of the Contractor and the said amount shall be payable without any requirement of proof of the actual loss or damage caused by such delay / breach.

3.12 NOTICES

All notices and other communications provided for in this Contract shall be in writing and shall be delivered at the addresses for notices given in the Contract. A party may notify the other from time to time of changes in the address for notices. E -mails and facsimile transmissions shall be held to have been received at the time of transmission report.

3.13 APPLICABLE LAW

All questions, disputes or differences arising under, out of or in connection with this Contract and the relationship of the parties hereunder shall be governed by and interpreted in accordance with the laws of India (both procedural and substantive) and parties hereby agree to submit to the jurisdiction of the Courts in Mumbai / Mumbai, India.

3.14 ACTS AND REGULATIONS, GUIDELINES

THE MINES ACT, 1952 along with the OIL MINES REGULATIONS, 1984 and all their amendments issued including requirements of Good International Petroleum Industry Practice (GIPIP) for all services are to be followed till validity of contract.

3.15 **CONFIDENTIALITY**

3.15.1 "Confidential Information" shall be deemed to include all information including but not limited to any technical, commercial and financial information, improvement, inventions, know how, innovation , technology, trade secrets, professional secrets, copyrights and any other intellectual property, discoveries, ideas, concepts, papers, software in various stages of development, techniques, models, data, source code, object code, documentation, manuals, flow charts, research, process, procedures, functions, customer names and other information related to customers, price lists and pricing policies. However, the Parties hereto acknowledge that Confidential Information shall not include any information that:-

a) is now or subsequently becomes publicly known or available without breach of this Contract;

b) was previously in the possession of the Receiving Party without any obligation of confidentiality and which was not acquired from, provided, given, sold or otherwise disclosed (directly or indirectly) by the Disclosing Party not through this Contract.

c) is required to be disclosed under any Applicable Law (subject however to the party who is required to disclose the information as such is providing reasonable notice of the same to the other party, prior to making any such disclosure).

3.15.2 The Contractor shall hold the information confidential and shall not divulge or disclose the information, or make the information available to any person or entity, other than its representatives and ensure that only such authorized Representatives who are expressly authorized by it to and whose duties require them to possess the Confidential Information shall have access to the Confidential Information on a need-to-know basis. In case of any breach of these terms or any act or omission by any of its authorized Representatives, then damages alone may not be an adequate remedy and that the remedies of injunction and specific performance or any other equitable relief may imposed.

3.16 **ASSIGNMENT AND SUBCONTRACTING**

3.16.1 Company shall be entitled to freely assign its rights, obligations and duties under this Contract to its Affiliate or other Participant or JV, for any Blocks by giving written notice. Company shall be entitled to assign by novation its rights and obligations under this Contract to any third party with prior written consent of the Contractor, which shall not be unreasonably withheld.

3.16.2 Contractor shall not sublet or subcontract in part or in whole the Services to any third party without prior written consent of Company. If the Contractor sub contracts part of the Contract to a sub-contractor, Contractor shall ensure that sub order's reflect the requirements under this Contract and the Contractor shall furnish to the Company within one month from the dated of signing of the Agreement, a signed copy of the complete Agreement. Further in case of any change in the Contract with the Sub Contractors, the same shall be notified to the Company with in a period of one (1) month.

3.16.3 However, no such approval for sub-contracting shall relieve Contractor from any obligation or liability under the Contract and Contractor shall be fully responsible for acts and omissions of any sub-contractor or supplier and its employees and agents as though they were the acts and omissions of Contractor or its employees or agents. Also in no case sub-Contractors shall pass on any claim/ liability to Company.

3.17 **INVOICING AND PAYMENT**

3.17.1 Invoices shall be itemized with a full break down of the Service performed /supplies made and shall be complete with all back-up details, documentation, information, receipts, packing list, ocean bills of lading, certificate of origin, etc. and shall set forth the facts relating to all activities and transactions handled for Company's account and shall be verified and signed by an authorized signatory designated by the Contractor to show the basis for Contractor's application of the Contract payments and the resultant value of the invoice.

3.17.2 Contractor shall invoice to Company for payments hereunder on Completion of Services. Unless and otherwise mentioned anywhere else in this Contract, Company shall make payment, of the correct/ undisputed / Certified invoice supported with job sheet / field ticket / any other relevant document, which is jointly signed by Engineer In-charge / Company representative along with the Contractor representative, within Thirty (30) working days period after receipt of invoice unless the Company disputes the invoice or a part thereof. Prices negotiated and finalized shall be firm and binding for the agreed Contract period as per Clause 3.2. (General Instructions) i.e. three (3) years and one (1) year extension period. No interest shall be payable on delayed payments by the Company. Exchange Rate used for payment will be the average of SBI Selling and Buying rate prevailing one day prior to the date of release of payment.

The invoice should be submitted to Company only after having submitted the following documents at Mumbai, if applicable. The Contractor shall indemnify the Company at all times for the damages caused or losses incurred by the company due to non-compliance with the existing laws and regulations by the Contractor.

3.17.3 The settlement of any invoices shall not be deemed acceptance of the Services or any part thereof and shall not prejudice the right of Company to question the propriety of any such charge at any time thereafter. A written response to Company's claim for omission corrections or errors in charges and credits for Company's account shall be made by Contractor as soon as practicable and in no event later than sixty (60) days from the date of such claims.

3.17.4 Contractor shall support all invoices with any data and/or information reasonably requested by Company. Contractor agrees to retain all applicable documentation and records for a period of not less than Four (4) years from the end of the calendar year in which this Contract terminates. Company or any party nominated by Company shall be entitled to audit and examine all documents and/or records necessary to verify the correctness of charges contained in any invoice. The payment of an invoice shall not preclude Company's right to audit any charge during said three-year period. Any discrepancies found in such audit shall be paid or reimbursed forthwith. Company shall have the right to reproduce any such documents which have been inspected.

Invoices shall be endorsed with the Contract number and title and shall be submitted in tri-plicate with one original and two Copies (clearly marked "Original" or "Copy") once in each month and shall be forward

Head – Commercial & Supply Chain Management
Sun Petrochemicals Private Limited
8th, 9th & 10th Floor, ATL, Corporate Park, Opp. L&T Gate no. 7,
Saki Vihar Road, Chandivali, Powai, Andheri (E),
Mumbai – 400072, Maharashtra [INDIA]

3.17.5 All payments to the Contractor under this Contract shall be made in the currency quoted by them or Indian Rupees to the Indian Bidders or United States Dollars to the Foreign Bidders. The currency of price schedule shall not be allowed to be changed during the term of the Contract.

3.17.6 The Contractor shall not claim any charges under any head during the period the equipment or tools are damaged, damaged beyond repair, un-operational, or declared dangerous for operation and cannot be operated / used for the said services. No payment shall be made for either the Standby rate, Stack Rate or under any other head till the tools / equipment are redressed, replaced or declared safe for operation & fit for purpose. No payment for either standby rate or operational rate shall be made for the personnel associated with the operation of the said tools/equipment.

3.17.7 **Audit**

The Company and its authorized representatives shall have access to, and the right to audit and obtain copies of any of Contractor's and its subcontractors' or agents' documents of whatsoever nature (except the confidential information of pricing formulate of the Contractor) relating to or in connection with the performance of the Work, including books, vouchers, receipts, invoices, correspondence, government correspondence, contracts, representations before statutory authorities, tribunals, courts and any other records. The Contractor will preserve and will cause its subcontractors and agents to preserve all such records for a period of four (4) years from the end of the calendar year in which this Contract terminates and will, upon written request, make them available to Company and its representatives. The Contractor shall provide photocopies of any documents within a reasonable period whenever demanded by the Company, Audits referred in this Clause will be made during Contractor's normal working hours. Any payment made by the Company shall not imply acceptance of liability on the part of the Company. Company shall have the right to notify Contractor of any matters arising in an audit which may necessitate making an adjustment; and such adjustment, whether by reimbursement to Company or otherwise, shall then promptly be made. Company shall also have the right to obtain assistance and statements from any of Contractor's Personnel to the extent it deems necessary, and Contractor and its subcontractors shall make such personnel available at their assigned locations if still under employment with Contractor or its subcontractors.

3.18 **TAXES AND DUTIES**

3.18.1 **Taxes:**

All rates and the Contract Price shall be inclusive of all concessional Taxes & duties and such other payments as may be payable under any Applicable Laws (except GST). Except as stated, Contractor shall bear all income, corporate, property, GST, work contract taxes and all other taxes, duties, levies, surcharges, imports and similar taxes and duties duly levied or imposed on Contractor on account of the payments received by Contractor from Company for the Services as may be payable under the Applicable Laws and any amendments thereto. GST if applicable shall be charged over and above the quoted prices and shall be paid by Company along with the invoice on submission of proof.

Company shall withhold from the payments to Contractor such amounts as determined by the prevailing taxation laws in respect of Contractor's Services. Company shall deposit these tax withholdings at source with the Indian revenue authorities and provide Contractor all appropriate tax receipts and forms evidencing the deposit of these tax withholdings. Contractor shall be responsible for filing returns of income to Indian revenue authorities for payments made by the Company pursuant to this Contract in accordance with the prevailing taxation laws.

3.18.2 **Personnel Taxes**

All employment taxes and contributions imposed by any law, regulations or by trade unions with respect to or measured by the compensation, wages, salaries or other compensation paid to employees of the Contractor, including without limitation, taxes and contribution or unemployment compensation insurance, medical and health insurance, welfare funds, pensions and annuities and disability insurance shall be paid by Contractor. In the event that Contractor fails to do so and Company is liable to any interest or any penalty arising out of such personnel taxes, Company shall have the right to recover all such amounts from Contractor.

3.18.3 **Custom Duty, Entry taxes, etc.**

Equipment, materials and supplies imported for use solely and exclusively on matters (inter alia) related to petroleum operations. Company and Contractor agree to cooperate and to use all reasonable endeavors to obtain any exemption to which Company and/or Contractor is entitled in accordance with such notifications. Contractor expressly agrees to furnish necessary documentation, bonds or undertakings to Government authorities and / or to Company, which may be required for availing such concessional exemption. It is expressly

understood that Contractor shall be required to re-export any of its Equipment (unless consumed during performance of Services) and left-over chemicals / additives imported under this Contract to enable Company to avail exemption of custom duties. Contractor undertakes to re-export Equipment at the earliest but not later than within fifteen (15) days of completion or termination of Services and shall be solely responsible for all customs formalities for importation and exportation of Contractors Equipment and materials at the port of entry or the port of exportation as the case may be.

3.18.4 Contractor shall protect, indemnify and hold harmless Company, its Co-ventures, their directors, officers, and employees from any and all claims or liability for incorrect or under valuation of tax payable on income excess profits, customs duties, royalty or other taxes assessed or levied by any government agency including any tax assessed or levied on account of property or equipment of contractor, wages salaries or other benefits paid to Contractors employees or employees of sub-contractors, on Company its Co-ventures, their directors, officers and employees' including from any and all claims or on account of any payment made to or earned by contractor.

3.18.5 **Change in Law**

3.18.5.1 In the event of any change or amendment of any Act or law, Rules or Regulations of Government of India or Public Body, which becomes effective after the effective date of this Contract and which results in increased / decrease cost of the works under the Contract though increased / decreased liability of taxes, (other than personnel and Corporate taxes), duties, the Contractor shall be indemnified for any such increased cost by the Company subject to the production of documentation proof provided the rates and all applicable taxes along with the tax rate, were clearly indicated at the time of Bid submission by contractor.

3.18.5.2 Company shall not bear any liability in respect of (i) Personnel taxes on the employees of Contractor and the employees of all its sub-Contractors etc. (ii) Corporate taxes in respect of the Contractor and its sub-Contractors." (iii) Any taxes for which the Contractor or any or all of his sub-contractors are directly assessable i.e. Corporate taxes and Fringe benefit tax in respect of Contractors and all of their sub-contractors, agents etc.

3.19 **INSURANCE**

3.19.1 For its risks and liabilities assumed hereunder, the Contractor shall, at its own expense procure and maintain as a minimum, the insurances set out in this Clause and ensure that they are in full force and effect throughout the life of the Contract. All such insurances (including insurances provided by Sub-Contractors) other than Employers Liability Insurance / Workmen's Compensation to the extent of the liabilities assumed by the Contractor under the Contract,

3.19.2 The provisions of this Clause shall in no way limit the liability of the Contractor under the Contract. All such insurances shall be placed with reputable and substantial insurers acceptable to the Company.

Contractors Insurances shall be primary to, and receive no contribution from Company insurances. If the Contractors neglects, fails, or refuses to obtain or maintain insurances required to be effected, or fails to provide certification etc., the COMPANY has the right to procure and maintain policies at Contractors risks and 5% more expense.

3.19.3 The Contractor shall be responsible for and shall save, indemnify, defend and hold harmless SunPetro , Joint Venture partners of SunPetro, the Government of India, their respective officers, directors employees, agents and other persons with whom Company may be associated (the COMPANY) from and against all claims, losses, damages, costs (including legal costs) expenses and liabilities in respect of:

a. loss of or damage to property of the Contractor whether owned, hired, leased or otherwise provided by the Contractor arising from or relating to the performance of the Contract,

b. personal injury including death or disease to any person employed by the Contractor arising from or relating to the performance of the Contract.

3.19.4 Prior to commencement of services / delivery / work hereunder or within 7 days of signing of Contract, whichever is later, Contractor shall deliver to Company the following certificate(s)

a) evidencing the issuance of insurance containing the coverage required herein and
b) providing that insurance shall not be cancelled or materially change without thirty (30) days prior written notice to the Company. Commencement or performance of services/work without delivering the certificates of insurance shall not constitute a waiver of contractor's obligation to provide the required coverage.

3.19.5 The insurance shall cover for the following:

1. All consequences of occupational accidents or illness Employer's Liability Insurance, in such amounts as may be required by the laws of India or any other country or political subdivision thereof applicable to any employee engaged in performance of the work; as per regulations, extended to cover benefits provided under maritime law, if applicable. Contractor has the obligation to comply with Indian Social Security laws and regulations.

2. Commercial or comprehensive General Liability Insurance, including coverage for contractual Liability to cover liability under this contract and cross liability Sudden and Accidental pollution, in the amount equal to the contract value combined single limit each occurrence with an aggregate limit of contract value for bodily injury and property damage provided that there will not be any excess/deductibles in the policy to be taken by the contractor. The coverage should provide insurance for any incident or series of incidents covering the operations of the Contractor in the performance of the Contract. If Contractor's Liability Insurance is written on a "claims made" form it must provide for (I) a retroactive date prior to, or coincident with, the commencement of service under this contract and (ii) a minimum extended claims reporting period of one (1) year. This policy shall include Company and its directors, officers, employees and agents as additional insured.

3. Comprehensive Automobile Liability Insurance, covering owned, non-owned and hired motor vehicles, with a limit of liability as per regulations/ laws including passenger liability.

4. Personal Accident and Medical Insurance for each of Contractor's Personnel valid for the area(s) in which Work is to be performed and for any travel for any period(s) during which Work is being performed. This insurance should include cover for all hospital and medical costs, and all costs for repatriation.

5. Contractor shall carry or cause to be carried insurance covering all Contractor's Equipment against loss or damage at all times including during transportation to/from the site and at the site. However, Contractor reserves the right to self insure its own assets.

6. The Contractor will be required to have insurance coverage for "Oil Industries Endorsement" in its insurance policy.

General Conditions for Insurance

A. Contractor hereby waives its right of subrogation against the additional insured and shall cause its insurers to waive their rights of subrogation against the additional insured.

B. No form of contractor liability self-insurance, including but not limited to insuring with a parent, subsidiary, or affiliate organisation, is acceptable or allowable under the terms of this contract, unless agreed to by Company prior to commencement of services hereunder.

C. Contractor assumes full responsibility for the insurance or self-insurance over his personnel, assets, machinery and equipment, including third party to be used in the performance of this contract. Therefore, except as otherwise provided herein, any damage or injury suffered due to a total or partial loss to such assets, machinery and equipment will be at Contractor's

expense. Contractor must insure for full replacement value of any and all equipment used in performing the Work.

D. All exclusions and indemnities given under this Contract shall apply irrespective of cause and notwithstanding the negligence, breach of duty (whether statutory or otherwise) or other failure of any nature of the indemnified party or any other entity or party and shall apply irrespective of any claim in tort, under contract or otherwise at law.

3.20 **CONTRACTOR'S OBLIGATIONS AND WARRANTIES**

3.20.1 The general allocation of responsibilities between Company and Contractor are set out in responsibility matrix and other clauses mentioned in this documents and the Exhibits.

3.20.2 Contractor represents that it is engaged in such specialized operations and represents that it has adequate resources and personnel in accordance with Good international Petroleum Industry Practices and shall perform the Work strictly in accordance with this Contract and shall comply with and adhere strictly to Company's instructions and directives on any matter concerning the Work. Contractor warrants that it is aware of all the Well Locations environment, zoning and other regulations legal description prescribed in this Contract.

3.20.3 At all times Contractor shall respond promptly and shall accurately furnish to Company information about the Work as requested.

3.20.4 Contractor shall take full responsibility for the protection and security of Man, materials and equipment while such materials and equipment are temporarily stored in Contractor's facility awaiting for transportation or otherwise in Contractors custody.

3.20.5 Contractor shall advise Company immediately in writing of any labour dispute or anticipated labour dispute, which may be expected to affect the performance of the Work.

3.20.6 Contractor shall use all reasonable care to ensure that the equipment is delivered and maintained in a fit condition for the intended Work and shall at its cost and expense man operate replace supply, repair and maintain the equipment.

3.20.7 **Contractor Personnel**

Contractor shall use all reasonable care to provide, at Contractors sole risk and cost, competent, skilled personnel to perform Work and shall take responsibility for their actions. Contractor shall ensure that the necessary personnel are available at the Work Site / Location when required by SunPetro for commencement of the Work and shall continuously be available during the duration of the Contract. Contractor shall be solely responsible throughout the period of this Contract for providing all the requirements of its personnel, including but not limited to, accommodation, transportation, meals, medical attention, vacations and time-off allowance, travel and any other benefits due to such employees under any law or otherwise. SunPetro shall have no responsibilities or liability whatsoever in this regard.

3.20.8 SUNPETRO shall be entitled, without prejudice to any other rights or remedies available to SunPetro under this Contract or otherwise in law to object to and require Contractor to remove from the Work any person who in the reasonable opinion of SunPetro is incompetent, misconduct's himself, is negligent in the proper performance of his duties or is otherwise considered to be undesirable. In such an event, Contractor shall forthwith remove such person from the Work, and such person shall not be again employed upon the Work without the written permission of Company. Contractor shall forthwith replace within 5 working days, at Contractor's sole expense, any such discharged person with a suitable qualified and experienced person satisfactory to Company without affecting the work.

3.20.9 **Permits and Instructions**

Contractor shall obtain all requisite permits and approvals under Applicable Law for the performance of the Scope of Work / supplies. In the event of Contractor receiving

instructions from Company to stop Work/supplies operations, Contractor shall comply with the same with immediate effect.

3.21 **FORCE MAJEURE**

3.21.1 "Force Majeure" shall mean any act which is insurmountable and outside the reasonable control of the parties Events of Force Majeure shall include, but shall not be limited to, acts of God, lightning, earthquake, flood, fire, explosion, major storm (hurricane, typhoon, cyclone, etc.) or tidal wave, act of war (declared or undeclared) or public enemy, riots (otherwise than amongst Contractor's personnel), strike (excluding strikes, lockouts or other industrial disputes or action solely among employees of Contractor or its subcontractors), act or omission of sovereign states or those purporting to represent sovereign states, blockade, embargo, quarantine, public disorder, sabotage or any other events beyond the control of the parties or either of them., Strikes shall only be considered as Force Majeure if they are officially declared/ accepted strikes. However, Force Majeure shall not include occurrences as follows:

3.21.1.1 Late delivery of materials caused by congestion at supplier's plant or elsewhere, an oversold condition of the market, inefficiencies, or similar occurrences

3.21.1.2 Late performance by Contractor and/or a sub-contractor caused by unavailability of equipment, supervisors or labor, inefficiencies or similar occurrences;

3.21.1.3 Mechanical breakdown of any item of Contractor's or its Sub-contractor's equipment, plant or machinery; or

3.21.1.4 Delays due to ordinary storm, inclement weather, seasonal rains or monsoon; or

3.21.1.5 Non-conformance by Sub-contractors;

3.21.1.6 Financial distress of Contractor or any Sub-contractor

3.21.1.7 Failure to carry out operations in accordance with the instructions of the Company on account of any accident, breakdown or non-performance or unsatisfactory performance of the Rig or any rig equipment(s) or on account of any reason within the control of the Contractor.

Neither Party hereto shall be liable to the other, for the payment of money, for failure to perform any obligations hereunder when performance is hindered or prevented by Force Majeure. The affected party shall inform the other party immediately in writing (within 24 hours) of its inability to meet its obligations hereunder, specifying the cause of Force Majeure, and shall do all that is reasonably within its power to remove the Force Majeure conditions. Such party shall advise the other party when such Force Majeure ceases (within 24 hours of ceasing of Force Majeure) and shall resume performance of its obligations hereunder as soon as reasonably possible thereafter. No payment will be due to the Contractor between the commencement of Force Majeure and commencement of Normal operations by the affected party.

3.21.2 The affected party shall make every reasonable effort to. Should any act or acts of Force Majeure cause the suspension or artificial suspension of operations there under for all or part of the Work for a continuous period of more than seven (7) days, the parties shall meet and determine the appropriate measures to be taken. In the event that a condition of Force Majeure exists at the Site for a period of at least fifteen (15) consecutive days, Company shall have the right to terminate this Contract by giving two (2) days advance notice to Contractor.

3.22 **WARRANTIES AND REMEDIES**

3.22.1 Contractor represents that is it is engaged in such specialized operations and represents that it has adequate resources, service capability and personnel in accordance with GIPIP

and shall perform the Work strictly in accordance with this Contract and shall comply with and adhere strictly to Company's instructions and directives on any matter concerning the Work. Contractor agrees to comply with, and shall ensure that its Personnel comply with, all Applicable laws, International /Indian codes, rules, regulations and specifications applicable to the Equipment and Services. Contractor warrants that all items rented to Company under this Contract shall meet specifications as set forth in the contract and shall be in good working condition throughout the Contract period (ordinary wear and tear excepted). All Equipment, materials, machinery and goods procured and supplied by Contractor under this contract, including, without limitation, service related materials (collectively items) shall be of good quality and workmanship, safe and free from defects in workmanship. Time is of the essence of the Contract and Contractor shall perform all Services in conformity with the time schedule, specifications and the obligations contained herein, unless the delay is due to Force Majeure or reasons wholly within Company's control. Any failure by Contractor to timely deliver the goods / materials work at the point of delivery and / or perform the services in timely manner shall attract the provisions of Clause indicated in Liquidated Damages.

3.22.2 The Service warranty applies to all services performed by Contractor as part of the Work. Contractor warrants that it shall perform all such services in a Good and Workman like Manner. Contractor may be required at Company's sole option (unless stated otherwise elsewhere in the Contract) to supervise the installation, running in or pulling out of the Equipment to enable it to be fully operational within the time specified in the Contract. Contractor warrants to Company that Contractor's Personnel who are skilled, experienced and competent in their respective positions, and who are fit for duty shall perform all Services. Contractor undertakes to ensure that its personnel comply with Company's regulations regarding health, safety and training which are in force at such time and at such place.

3.22.3 In the performance of the Services, if the Contractor fails to comply with the warranties and undertakings set forth, the Contractor shall as directed by the Company prior to demobilization, at Contractor's cost and without prejudice to any other right or remedy of Company under this Contract, re-perform the Services or correct such failure or furnish an alternative acceptable to Company in order to comply fully with the requirements of the Contract. Defects shall not be deemed waived by Company's failure to notify Contractor upon receipt of Services or by payment of invoice.

3.22.4 Contractor shall use all reasonable care to provide, at Contractors sole risk and cost, competent, experienced, skilled personnel to perform Work and shall take responsibility for their actions. Contractor shall ensure that the necessary personnel are available at the Work Site / Location when required by Company for commencement of the Work and shall continuously be available during the term of the Contract. Contractor shall be solely responsible throughout the period of this Contract for providing all the requirements of its personnel, including but not limited to, accommodation, transportation, meals, medical attention, necessary permits / licenses as per rules / laws, vacations and time-off allowance, travel and any other benefits due to such employees under any law or otherwise. Company shall have no responsibilities or liability whatsoever in this regard. Company shall provide boarding and lodging to the Contractor's personnel while at the work.

3.22.5 Day-rates or compensation of whatsoever nature shall not apply to time when the Contractor's Equipment/tool is unable to perform to the satisfaction of the Company in accordance with the Contract for any reason.

3.22.6 If Contractor shall fail in its obligations under this Contract and does not remedy such default after having received prior written notice thereof, Company may on its own initiative arrange for alternative means of performance of Services. Any direct and reasonable costs or expenses incurred by Company thereby, shall, together with an additional five per cent (5%) of such costs and expenses, be payable by Contractor and may be deducted and set off against any monies owed to Contractor by Company pursuant to the Contract. Should any

time be lost during any such alternative arrangements in the performance of the Services, the Equipment and Personnel shall be at zero Rates for the lost time for that particular tool/ service in default and no Rates of whatsoever nature shall be payable for the duration of such default. The above shall be without prejudice to any other rights available to the Company under the Contract or as per Applicable Laws

3.22.7 Contractor shall take all measures necessary and / or proper to protect personnel, Work Site and facilities as well as observe all safety rules and regulations of Company, given to Contractor in writing provided such rules do not conflict with those of any Governmental Agency having jurisdiction over operations conducted hereunder. No smoking or open flames shall be permitted on the drilling unit and nearby except in areas marked by Contractor and approved in writing by Company. Contractor shall use all reasonable means to prevent and control fires and blowouts, as well as protect the hole, the reservoir or any other underground formation from loss or damage.

3.22.8 Contractor shall have no authority to make any statements, representations or commitments of any kind or to take any action which shall be binding upon Company, except as provided for herein or otherwise authorized in writing by Company.

3.22.9 Contractor shall notify Company promptly, but no later than twenty four (24) hours, upon discovery of any instance where Contractor has not complied with the requirements of this Clause.

3.22.10 The Company reserves the right to purchase / replace specific tools / equipment at any time during the Contract and include them in the Contract.

3.23 **LIENS**

Contractor shall immediately pay and discharge any lien, claim or encumbrance, of any nature, (or shall provide security for payment thereof) attributable to Contractor. Contractor shall indemnify and hold Company harmless from and shall keep Company's equipment and property free and clear of all liens, claims, assessments, fines and levies incurred, created, caused or committed by Contractor. If Contractor fails to pay and discharge any such lien, claim or encumbrance, then Company may do so and charge Contractor for all costs, with an additional five per cent (5%) of such costs and expenses, be payable by Contractor and may be deducted and set off against any monies owed to Contractor by Company pursuant to the Contract. Company shall have the right to retain out of any payment to be made to, or to be reimbursed to, Contractor, an amount sufficient to indemnify it completely against any such lien, claim, assessment, fine or levy exercised or made and all associated costs.

3.24 **INDEMNITY AND LIABILITIES**

3.24.1 Indemnity by Contractor:

Contractor shall be responsible at all times, including time in storage, in transit, on the rig or at Company's well location and shall indemnify and keep the Company Group indemnified and harmless from all actions, proceedings, suits, claims, demands, liabilities, damages, losses, costs, charges, expenses or other obligations hereunder directly or indirectly associated herewith, judgments and fines arising out of or in the course of execution of work under the Contract or performance of obligations by the Contractor thereunder including but not limited to:

a) personal injury, illness or death of:

i) any of Contractor's Group's personnel (except if directly caused by the Gross Negligence or Willful Misconduct of Company Group).

b) loss or damage to:

i) any property owned, hired or supplied by Contractor Group (except if directly caused by the Gross Negligence or Willful Misconduct of Company Group).

3.24.2 **Indemnity by Company:**

Company shall indemnify and keep the Contractor Group indemnified and harmless from all actions, proceedings, suits, claims, demands, liabilities, damages, losses, costs, charges, expenses and fines arising from:

i) personal injury, illness or death of any Company Group's personnel (except if directly caused by the Gross Negligence or Willful Misconduct of Contractor Group);

ii) Any loss or damage to any property owned, hired or supplied by Company Group(except if directly caused by the Gross Negligence or Willful Misconduct of Contractor Group).

3.24.3 Third Parties:

A. Contractor shall defend, indemnify and hold Company Group harmless from and against any and all claims in respect of:

i. the personal injury, illness or death of a Third Party; and/or

ii. the loss of or damage to any facilities, tools, equipment and/or personal belongings of a Third Party; arising in connection with the CONTRACT to the extent caused by the negligence and/or breach of duty (statutory or otherwise) of Contractor Group.

B. Company shall defend, indemnify and hold Contractor Group harmless from and against any and all claims in respect of:

i. the personal injury, illness or death of a Third Party; and/or

ii. the loss of or damage to any facilities, tools, equipment and/or personal belongings of a Third Party; arising in connection with the CONTRACT to the extent caused by the negligence and/or breach of duty (statutory or otherwise) of Company Group.

"Third Party" shall mean a person/entity which is not included in Company Group or Contractor Group."

3.24.4 **Contractor's Material, Equipment, Services and Property**

The Unit / equipment / services / tools (herein referred to as Equipment) to be deployed by the Contractor under the Contract shall continue to remain Contractor's property and shall always remain in the possession / control of the Contractor with the exclusive right to use of such equipment by the Contractor for providing services under the Contract. Contractor shall be responsible at all times, including time in storage, in transit, on the rig or at Company's well location, for damage to or destruction of Equipment and any other property of Contractor or any of its subcontractors and their respective employees or agents, unless such loss, damage or destruction is caused by or contributed to by the Gross Negligence of Company Group.

3.24.5 **Liability for Radioactive sources**

The radioactive sources, which Contractor may use in performing the Services, are potentially dangerous. If any radioactive source is lost in a well, at the well site, while being transported by or on behalf of Company or by conveyance arranged by the Company or while under the custody or control of the Company or its representatives, Company shall be solely responsible for recovery or abandonment of the source and shall take special precautions in order to avoid breaking or damaging the source container. If the source cannot be recovered, or if the container is broken, Company shall immediately comply with all laws and regulations applicable to Company, as well as to Contractor as owner of the source, including the isolation and marking of the location of the source, and shall defend, indemnify and hold harmless Contractor from and against any and all liabilities arising with respect thereof, and shall keep Contractor informed of all related developments, except when it is caused due to Gross Negligence or Wilful Misconduct by Contractor Group.

3.24.6 **Limitation of Liability**

The total liability of the contractor shall be limited to 100% of the contractor value if no fault by contractor. In case intentional damages, it would be 200% of the contract value. The Company shall indemnify and hold harmless the Contractor against all claims and liabilities in excess of the above limits, provided that aforesaid cap for limitation of liability shall not apply and the Contractor shall continue to remain responsible for all liabilities which arise on account of:

- Breach of Applicable Laws by the Contractor Group.
- Liability for payment or non-payment of taxes and other statutory duties/ fees of any nature.
- Liability for breach of Intellectual Property Rights of any person.
- Breach of Confidentiality obligations.

3.24.7 **Consequential Damage**

Notwithstanding anything else contained herein to the contrary and subject to clause, neither party shall be liable to the other for indirect and consequential damage resulting from, or arising out of this Contract including but not limited to, loss of profit, loss of revenue, anticipated profits, loss of business opportunity or business interruption, suffered by such Party or its Group and each Party shall defend, indemnify and hold the other party harmless in respect thereof.

3.24.8 **Certain Restrictions on Indemnities:**

Unless otherwise expressly admitted elsewhere herein the Contract, no indemnity or hold harmless provision of this Contract shall apply in favour of a Party who shall have caused loss or damage through Gross Negligence or Wilful Misconduct.

3.25 **PERFORMANCE BANK GUARANTEE**

Within fifteen (15) days of the issue of Letter of Intent/ award, the Contractor shall present to the Company a Performance Bond / Bank Guarantee (As per format in accordance to ***Annexure #8***) in the form of an irrevocable, unconditional, payable on first demand by Company, divisible bank bond in the format of ***Annexure #8*** issued by an approved bank. Failure to comply with this condition will constitute grounds for termination of the award / Contract.

The Performance Bank Guarantee shall be of 10% of the contract value and shall be valid and be retained for Ninety (90) Days after the completion/termination of the Contract except where claims are outstanding there under or where previously drawn by the Company but not later than Thirty (30) days after the final settlement of such claims or Ninety (90) Days whichever is later If the Contractor does not submit the Performance Bank Guarantee as stipulated above, SunPetro reserves the right to cancel the award of LOI / LOA.

Company shall not be liable to pay any Bank Charges, Commissions or Interest on the amount of Performance Bank Guarantee. The performance bond provided by the Contractor is intended to operate as security for amounts (including damages where applicable) which becomes payable by the Contractor by virtue of this Contract and are not intended to be used as a penalty. Without prejudice to it's other rights under the Contract or at law, Company shall be entitled to forfeit the performance bond, should the Contractor fail to perform the Services in accordance with the provisions of the Contract or fail to comply with the provisions of this Contract. The Performance Bank Guarantee shall remain at the entire disposal of Company as Security for the satisfactory commencement, performance and completion of the Scope of Work under the conditions of the Contract / Contract including recovery of amounts due to the Company from the Contractor arising out of this Contract under whatever head.

Company reserves the right to invoke the performance bank guarantee for any of the following reasons including but without limitation to:

- Failure of contractor to start/commence the work as per LOA/LOI/Contract
- If Contractor fails to performs as per the terms and conditions of the contract.
- If contractor fails to perform as per prescribed scope of work.
- If contractor fails to work in work man like manner.
- If tools, machines, parts for the providing services are not fit for the performance of work.
- For breach of contract.

SunPetro will accept the bank guarantee from all public sector banks in India or any of the banks listed in the ***Annexure #9***.

3.26 **SEVERABILITY**

If any portion of this Contract is determined to be illegal, invalid or unenforceable, for any reason, then, insofar as is practical and feasible, the remaining portions of this Contract shall be deemed to be in full force and effect as if such invalid, illegal or unenforceable portions were not contained herein.

3.27 **NON-EXCLUSIVE CONTRACT**

This Contract is non-exclusive and Company reserves the right to engage other contractors to perform similar or identical work. Contractor shall afford such other contractors adequate opportunity to carry out their agreements and shall accomplish the work in cooperation with those contractors and with Company.

3.28 **EXPORT CONTROLS**

SunPetro confirms that the Equipment or Services to be provided under this Contract (Collectively 'Items') shall only be for use by it in India for the purpose of production of hydrocarbons. However, if for any reason whatsoever the end use or end user of these Items is required to be changed or if these items are to be taken for use in countries outside India to do any work associated with this Contract, then SunPetro would request the Contractor to obtain consent from the concerned authority in the Contractor's Country. The Contractor shall obtain such consent at its sole risk and costs.

3.29 SPECIAL CONDITION OF THE CONTRACT (SCC)

3.29.1 The job is to be performed in oil & gas installation, therefore, contractor to ensure all safety precautions as per Oil Mines Regulation Act but not limited to followings:

i. Contractor to submit initial Mobilization Plan which must include RCM, Engineers/Supervisors, Certified HSE Officer, Certified QA/QC Engineer, Material Manager, and other Man and Machinery.
ii. Contractor to ensure availability of required resources to meet the requirement of works.
iii. Contractor to obtain the SunPetro premises Entry Gate Pass for their Workmen and Machinery.
iv. Contractor to perform the work under valid work Permit only.
v. Material supplies shall have prior approval from SunPetro and from the SunPetro approved manufacturers refer clause No. 4.1 of Section-4 (Scope of Work) for material procurement and supplies practices.
vi. All material supplied at site shall have valid Material Test Certificates from accredited lab/ Test agency / TPI which shall be new & shall not be older than one year from the date of manufacture.
vii. At the time of Material supplies, SunPetro Inward Material Inspection shall be carried out and Reports in triplicate to be generated for original for billing, duplicate for material reconciliation and triplicate for contactor reference.
viii. Contractor shall submit detailed drawing for the work to be executed before start of work, for approval. After completion of work, 'As Built' drawings shall be submitted. In case of failure of submission of 'As Built' drawings, payment against the work shall not be released.
ix. Contractor shall deploy persons who are medically fit & furnish physical Fitness certificate from authorized medical practitioner and must have police verification and obtain the SunPetro premises Entry Gate Pass.
x. Contractor to ensure use of proper PPE, HC detector etc. as per requirement of work
xi. Vessel Entry Permits to be taken before entering into any Vessel
xii. Contractor to ensure Oxy Acetylene Cylinder Test Certificate, Hose & Gas cutter Test certificates etc. for undertaking fabrication of work.

xiii. Contractor to ensure Welding Generator Electrical Test Certificates, Cables Test Certificate are available before undertaking work.

xiv. All material handling equipment shall have valid fitness certificates, operator licences and load test certificates including valid test certificates of lifting accessories i.e. ceiling, shackles etc.

xv. Contractor to ensure transfer of Hazardous Waste / Waste generated during work to earmarked storage place for further disposal by self.

xvi. Contractor to ensure Earth moving / lifting Equipment etc. are deployed have valid certification.

xvii. Bidder shall provide adequate First Aid Kit at site. At least one personnel in Contractor's team shall have proper First Ait Training. Certification for the same shall be provided.

xviii. Contractor shall have tie up with nearby hospitals in case medical evacuation is required.

xix. The Contractor is responsible for implementing any regulations concerning the design, fabrication, inspection and testing of equipment which are mandatory by government of Gujarat.

xx. Contractor shall get all the drawings approved by the Company before procurement / execution of work. After completion of works, 'As Built" drawings shall be prepared, approved by Company & submitted to Company.

xxi. While laying the underground flow lines, in order to maintain cordial relation with the land owners, it will be necessary to excavate and back fill the trenches in the specified period of work. The Contractor shall deploy additional manpower, equipment, if required, to achieve the same, at their own cost and time.

xxii. Comply with all Central, State and Local Government Regulations applicable to the Work.

xxiii. Contract shall be for a period of three years with a provision for extension for one more year with the same rates, terms & conditions of the contract.

xxiv. Mobilization & Demobilisation charges are nil & are included in the rate.

xxv. Damage of equipment, if any, during mobilization Commissioning & De-mobilization shall be on account of Contractor.

xxvi. Any failure of elements of equipment or system during operation shall be on account of Contractor & the same shall be replaced within 24hrs. Day rate, for equipment during non-availability for Operations are not payable.

xxvii. Penalty Clause

i. Delay in Mobilisation of Equipment
ii. Breakdown of equipment for more than 24hrs.
iii. Violation of use of Personal Protection Equipment
iv. Unsafe disposal of waste
v. Premature failure of Construction work

HSE Consideration

- Contractor Employee Safety Management System implementation
- Calibration & Test certificate:
  1. Cylinder
  2. Hoses
  3. Lifting Equipment
  4. Cables
- Accident: No compensation
- Transportation: Contractor scope
- Mobilization/demobilization: Nil

3.29.2 Designing and Engineering:

i. Specifications and Drawings:

The Contractor shall execute the detailed design and the engineering work in compliance with the provisions of the Contract (including the Technical Specification as per SOW), or where not so specified, in accordance with applicable codes and standards as specified in Clause-3 of Sction-4 Scope Of Work) but not limited to, Good Industry Practice and shall be responsible for ensuring that the facilities are engineered and build to meet all guarantees and acceptance criterion stipulated in the Contract, if applicable. Contractor shall be responsible for any discrepancies, errors or omissions in the specifications including Technical Specifications, drawings and other technical documents whether such specifications, drawings and other documents have been prepared by or reviewed and approved the Company or not.

ii.Codes and Standards:

Wherever references are made in the tender / SOW to codes and standards in accordance with the tender / SOW shall be executed, the edition or the revised verson of such codes and standards current at the date of Bid submission shall apply unless otherwise specified. During Contract execution, any changes in such codes and standards shall be applied after approval by the Company and shall be treated in accordance with the tender/Contract.

3.29.3 Clearance of Goods:

i. The Contractor shall carryout prior route survey and take appropriate authorities' clearance as required for transportation of general cargo and over dimensioned consignments by road/rail wherever applicable.

ii. Contractor shall arrange for conduction inspection and other surveys with various agencies for all consignments landed in damaged / short supplied condition and corrective action for timely replacement of items.

iii. The Contractor shall always remain responsible for any loss or damage to the goods thus procured and supplied before these are incorporated in the facility and at all times prior to Operational Acceptance. The Contractor shall apart from its delivery obligations, immediately arrange to replace / repair the lost, defective or damaged goods and supplies entirely at its own cost and irrespective of whether any claim for insurance in respect of such loss or damage, is made by or not.

iv. Unless otherwise provided in the Contract, the Contractor shall be entitled to select any safe mode of transport for material / equipment of the Contractor.

3.29.4 Defect Liability:

i. The Contractor warrants that the facilities or any part thereof shall be free from defects or failure in the design, engineering, materials and workmanship of the plant and equipment supplied and of the work executed and services provided.

ii. The Defect Liability Period shall be twelve (12) months after Operational Acceptance or Provisional Acceptance of the facilities unless the Defect Liability Period has been extended or any part of the facilities pursuant to this sub-clause 3.29.4.v. hereof. Should any defect be found during intelligent pigging/pigging process or during Defect Liability Period related to the design, engineering, materials and workmanship of the material and equipment supplied or of the work executed and services provided by the Contractor, the Contractor shall promptly, in consultation and agreement with the Company regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good to the full satisfaction of the company such defect as well as any damage to the facilities caused by such defect. The burden of proof

of remedy of the defects shall be on the Contractor. Contractor shall reimburse Company all such costs including cost towards loss of oil/gas incurred by Company due to such defects.

iii. The Company shall give the Contractor a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The Company shall afford all reasonable opportunity for the Contractor to inspect any such defects and all necessary access to the facilities and the site to enable Contractor to perform its obligations under the clause.

iv. If the Contractor fails to commence the work necessary to remedy such defect or any damage to the facilities caused by such defect within a reasonable time (not more than 15 days), the Company may, proceed to do such work, and the costs and expenses incurred by the Company in connection therewith shall be paid to the Company by the Contractor or may be deducted by the Company from any monies due to the Contractor or claimed under the Performance Bank Guarantee.

v. If the facilities or any part thereof cannot be used by reason of such defect and/or any making good of such defect, the Defect Liability Period of the facilities or such part, as the case may be, shall be extended by a period equal to the period during which the facilities or such part cannot be used by the Company because of any of the aforesaid reasons.

vi. This clause shall also be applicable if any defect or failure is detected during Intelligent Pigging/Pigging Process whenever it is carried out till defect liability period.

3.29.5 Land for Contractor's Office, Godown and Workshop:

Unless otherwise specified in the Bid documents, the Contractor shall, as required for his works, for the entire duration of the execution of the work arrange near the Site, land for construction of equipment stock yards, maintenance work shops, field offices and warehouses and for any purpose in connection with providing infrastructure required for the execution of the Contract. The Contractor shall bear all the cost related to the provisions of the site / land and sanitary arrangement as required without any recourse to the Company.

On completion of the work undertaken by the Contractor, the Contractor shall remove all temporary works and have the Site cleared as directed by the Company. If the Contractor fails to comply with these requirements, the Company may, at the expenses of the Contractor, remove such surplus and rubbish materials and dispose the same as the Company deems fit and get the site cleared at the risk and cost of Contractor.

Land for residential accommodation for staff and labour of Contractor shall, if so required by him, be arranged by Contractor at his own cost and risk with no recourse to the Company.

3.29.6 QUALITY ASSURANCE, INSPECTION & PACKING (RATE CONTRACT):

The provisions related to Quality Assurance System shall be as per the Technical Specifications and the Scope of Work in accordance with applicable codes and standards as referred in Clause-3 of Section-4 (Scope of Work).

a) The Contractor shall ensure that all Goods supplied under this Rate Contract conform strictly to the applicable specifications, standards and requirements specified in the Callout Order and/or approved technical specifications.

b) The Company or its authorized representative shall have the right to inspect the Goods at the Contractor's works, supplier's works or at delivery location, as deemed necessary by the

Company. Such inspection shall not relieve the Contractor of its obligations or warranties under the Contract.

c) Goods found non-conforming during inspection or upon receipt shall be rejected and replaced by the Contractor at no additional cost to the Company, within the stipulated delivery period.

d) Packing, marking, documentation and delivery requirements shall be **as specified in the relevant Callout Order**, applicable standards and statutory regulations. The Contractor shall ensure safe packing suitable for transportation and handling.

e) For imported Goods, packing, marking and documentation shall comply with applicable international standards and Indian statutory requirements, as specified in the Callout Order.
Detailed inspection, testing, packing and shipping instructions, where required, shall be governed by the individual Purchase Order / Callout Order issued under this Rate Contract.

3.29.7 The quoted lump sum prices for various items are deemed to have appropriately catered for all mobilization, demobilization and all clearing of activities at all the sites and no separate claim whatsoever is allowed. Including carrying out detailed engineering for laying pipelines & preparation of 'As Built' drawings of pipelines & CPF.

3.29.8 Payment Terms:
100% payment within 30 working days on submission of certified undisputed Invoices along with job report / documents etc as specified in the Contract after completion of work.

3.29.9 In the conduct of Petroleum Operations, the Contractor shall:

(a) give preference to the purchase and use of goods manufactured, produced or supplied in India provided that such goods are available on terms equal to or better than imported goods with respect to timing of delivery, quality and quantity required, price and other terms;

(b) employ Indian subcontractors having the required skills or expertise, to the maximum extent possible, insofar as their services are available on comparable standards with those obtained elsewhere and on competitive terms; provided that where no such subcontractors are available, preference may be given to non-Indian Subcontractors who utilize Indian goods to the maximum extent possible, subject, however, to the provision in Para (a) above;

c) In this Clause, goods means equipment, materials and supplies

3.29.10 Price Escalation: To mitigate the fluctuation of rates due to inflation after 1 year, SunPetro may review escalation in prices linked with Overall all Commodities Wholesale Price Index (WPI) as announced by the Government of India after completion of 1 year.

Contract price will remain fixed for the 1st Year & will be base price for considering the escalation for subsequent years. I.e. Contract Price & (WPI) Index of bid closing date will be considered as base for any calculation / escalation. However, the escalation consideration by the Company will be subject to reasonably good performance by the Contractor & at sole discretion of SunPetro.

SECTION-4

SCOPE OF WORK

1. INTRODUCTION

Sun Petrochemicals Private Limited (SunPetro), incorporated in 1995, has diversified into the upstream hydrocarbon business in 2014. Sun Petro is owned by the promoters of Sun Pharmaceuticals Industries Limited.

Currently, Sun Petro is operator for four Oil & Gas fields in Gujarat. These are Modhera field in Mehsana, Baola field in Ahmedabad, Hazira field in Surat and Bhaskar-1 Field in Khambhat.
Modhera and Baola Fields are heavy oil fields whereas Hazira field is predominantly gas field with light oil and is spread over both onshore and offshore and developed with unique concept of Land Based Drilling of Platform (LBDP) and an offshore platform named Alfa Bob. Bhaskar-1 field is in the process of development & presently is producing Oil & Gas through Early Production System. Capacity enhancement of Central Processing Facility (CPF) for Bhaskar-1 field including installation and commissioning of Gas Compressor facility is in advanced stage of completion. Company also installed and commissioned Water Intake, Processing & Injection Facility in the Bhaskar-1 Field for freshwater injection.
Presently SunPetro is developing recently awarded field in addition above are Prabhakar 1, 2, 3, Bhaskar-2 of Cambay Basin and Bhaskar-3, Prabhakar-4 of Kutch Basin.

Apart from above, Company is bidding for several oil & gas fields also.

Details of Bhaskar-1 field are given below:

- Location: Khambhat, Dist. Anand, Gujarat
- Size of field: 70.4 sq.km
- No. of wells: 39 producers & 01 disposal well (further additional wells drilling may be for about 15 nos.)
- Area for CPF: 32 acres approx.
- 4" Flow Lines, 6" Collector Lines#01, 02 & 03, 6" Export pipeline (to ONGC, Akholjuni), 10" Independent Crude Oil Pipeline (Export to IOCL) totalling to approx. 150Kms of UG Pipeline network is already laid in the field to CENTRAL PROCESSING FACILITY (CPF). Well flowline are connected to CENTRAL PROCESSING FACILITY thru Collector Lines and further will be connected with the collector line subsequently, for which provision has been made for future connections. The well fluid from the wells (Existing and Proposed) shall be processed at CPF. The oil after processing shall be exported through 10" Independent Crude Oil pipeline to IOCL terminal, Bareja. CTM installed at the IOC, Bareja facility which is about 60 kms from CPF. The gas liberated during the process shall be handed over at battery limit to the customer.

This scope of work is for supply & installation of wellhead piping & manifold for well fluid, flow lines from well site to nearest manifold connected to Collector pipeline, water injection flow lines & manifolds. Only 3LPE pipes shall be free issued to the Contractor. All flow lines are of piggable type.

Work also involves supply & installation above ground & underground piping works in the oil & gas fields for installation of new piping or modification of piping at Bhaskar-1, Baola & Modhera fields and onshore works of under development field Prabhakar 1, 2, 3, Bhaskar-2 of Cambay Basin and Bhaskar-3, Prabhakar-4 of Kutch Basin of the Company in Gujarat. Company reserves right to use this Contract in any other fields of SunPetro in Gujarat. Supply of required piping material/ valves & fittings for the same are in the scope of the contractor.

2. ABBREVIATIONS

- ANSI American National Standard Institute
- ASME American Society of Mechanical Engineers
- IS Indian Standards
- NDT Non-Destructive Testing
- MOC Material of Construction
- PMS Piping Material Specification
- VMS Valve Material Specification

- PFD Process Flow Diagram
- P & ID Piping and Instrument Diagram
- GAD General Arrangement Drawing
- PRV Pressure Relief Valve
- PMS Piping Material Specification
- PMI Positive Material Identification
- FGL Finished Grade Level /FFL-Finished Floor Level
- C.S. Carbon Steel
- A.S. Alloy Steel
- S.S. Stainless Steel
- RF Raised Face
- FF Flat Face
- SWG Spiral Wound Gasket
- OISD Oil Industry Safety Directorate
- PESO Petroleum and Explosives Safety Organization
- DGMS Directorate General Of Mines Safety
- OMR Oil Mines Regulations
- GPCB Gujarat Pollution Control Board
- TPI Third Party Inspection
- CPF Central Processing Facility (SunPetro)
- EPS Early Production Facility (SunPetro)
- JSA Job Safety Analysis
- ROU Right of Use
- NOC No Objection Certificate
- DGPS Differential Global Positioning System
- CCOE Chief Controller of Explosives
- QAP Quality Assurance Plan
- ITP Inspection and Testing Plan
- WPS Welding Procedure Specification
- EQT Electrode Qualification Test
- WQT Welder Qualification Test
- DFT Dry Film Thickness

3. MAJOR REFERENCE CODE & STANDARDS

- ASME B16.34: Valves Flanged Threaded and Welding End
- ASME B31.3: Process Piping
- ASME B31.4: Pipeline Transportation Systems for Liqui Hydrocarbons and Other Liquids
- ASME B31.8: Gas Transmission & Distribution Piping Systems
- ASME B16.11: Forged Steel Fittings
- ASME B16.5: American Standard for Flanges and Flanged Fittings
- ASME B16.9/ B16.11: American Standard for Butt Weld/Socket Weld Fittings
- ASME B36.10/36.19: American Standard for Pipe Dimensions CS &SS
- ASME B18.2.1/ B18.2.2: Dimensional standard for nut-bolt
- ASME B16.10: Dimensions of Valves
- ASME B16.20: Metallic Gaskets For Pipe Flanges
- ASME B16.21: Non Metallic Flat Gaskets For Pipe Flanges
- ASME B16.25: Butt weld Valves
- ASME B.1.20.1: Precision Pipe Fittings
- ASME 16.34: Stainless Steel Gate, Globe, Check Valves
- ASME B36.19: Stainless Steel Pipe Dimensions
- MSS SP25: Gate, Globe & Check Valve Marking

- API-5L: Specification of line pipe
- API RP 1102: Steel Pipeline Crossing Railways & Highways
- API STD 1104: Standard for Welding Pipelines and Related Facilities
- API 1105: Bulletin on Construction Practices for Oil and Product Pipelines
- API RP 1109: Marking Liquid Petroleum Pipeline Facilities
- API RP 1110: Recommended Practice for the Pressure Testing of Liquid
- ISO 21809-1: International Standard for Pipelines 3LPE Coating
- ASTM D 4541: 3LPE Coating Adhesion strength
- Petroleum Pipelines Oil Industries Safely Directorate (OISD) and Indian Standards (IS)
- OISD-STD-106: Pressure Relief & Disposal System
- OISD-STD-109: Process Design and Operation philosophies on blow down and sewer system.
- OISD-STD-108: Recommended Practices on Oil Storage and Handling
- OISD-STD-130: Inspection pipes valves and fittings
- OISD-STD-138: Inspection of "Cross Country pipelines-onshore"
- OISD-STD-141: Design and construction requirement for cross country Hydrocarbon Pipelines.
- OISD-STD-118: Layouts for Oil and Gas Installations
- OISD-STD-189: Standard on Fire Fighting Equipment for Drilling Rigs, Work Over Rigs and Production Installations.
- OISD-STD-226: Natural Gas Transmission Pipelines and City Gas Distribution Networks
- OISD-GDN-233: Standard on non-piggable pipelines
- ISO 8501-1 / SIS-05 59 00: For preparation of steel substrates before paint application (visual assessment of surface cleanliness).
- SSPC-PA 2: For measurement of dry film thickness (DFT) of paint coatings.
- IS 2379: Pipelines - Identification - Colour Code, Marking & Stencilling
- ISO 15589-1: Petroleum, petrochemical and natural gas industries — Cathodic protection of pipeline systems — Part 1: On-land pipelines.
- ISO 15589-2: Petroleum and natural gas industries — Cathodic protection of pipeline systems — Part 2: Offshore pipelines.
- NACE SP0169: Control of External Corrosion on Underground or Submerged Metallic Piping Systems.
- EN 12954: Cathodic protection of buried or submerged structures.
- DNV-RP-F103: Cathodic protection of pipelines and subsea structures (offshore).
- IS 8062: Code of practice for cathodic protection of buried pipelines/structures for transportation of oil, natural gas and liquids (Indian Standard).
- TAC: Tariff Advisory Committee

  Any other codes and standards not specifically listed here in but required for successful completion of the work.

3 DESIGN AND DETAIL ENGINEERING

- Collection of data at site and carrying out detailed engineering, residual engineering for pipeline system including terminals and crossings of major and minor roads, rivers, highways, railways etc. in accordance with design basis, codes & standards and project specifications contained in this bid package. Requirements of Indian standards and codes shall be complied with wherever applicable.
- Preparation of pipeline/ piping construction drawing such as alignment sheets for detour portion, crossing details, all drawings / methodology shall be subject to review and approval by the Company. All construction shall be carried out based on the Approved for Construction (AFC) drawings.
- Laying of pipeline including provision for pigging facilities for the flowlines & associated above ground piping works.

- Applicable PFD, PIDs, VMS, PMS, and Piping GADs, Piping Isometrics, Standards Piping Support Design, shall be approved from SunPetro.
- Preparation of design documents, procedures, manuals, drawings etc. duly supported by Pipeline design calculation, Stress analysis, Surge analysis, and HDD Profile including design calculations etc meeting all applicable codes and standards but not limited to.
- Design shall meet all required process, quality and HSE requirements as per SunPetro policies and applicable codes and standards as specified in Clause-03 of this Section.
- The detail design shall take into consideration stipulations, practices followed by various authorities for all types of crossings and laying along ROU of roads and canals and specifically all the factors that are agreed upon between Company and state/local authorities as per agreements reached as a part of permissions for various crossings. Contractor shall provide all design data/drawings/calculations as required for statutory clearances including obtaining necessary engineering and construction approvals.
- Horizontal Directional Drilling (HDD) profile duly supported with design calculations across the Roads, Highways, Railways, and including and Buoyancy analyses at canal crossings etc. as per specifications and relevant codes with casing pipe as required.
- Execution / Work Methodologies in line with the design and detailed engineering shall be submitted for SunPetro review and approval as as per Clause-3.29.6 (GCC) but not limited to.
- Carrying out Material Take Off in line with all applicable code and standards for the entire pipeline & associated system and get SunPetro approval to proceed for Procurement.

4 PROCUREMENT METHODOLOGY

- Contractor shall procure and supply all materials (Except line pipes) for permanent installation of pipeline and piping system in sequence and at appropriate time. All equipment, materials, components etc., shall be suitable for the intended service. Necessary details i.e. data sheets & specifications for the items in the Contractor's scope of supply.
- Contractor shall procure all materials, components, equipment, consumable etc. required for successful completion of flowlines. Contractor shall also procure, and supply spares required for pre-commissioning and overall commissioning / start up as recommended for all items supplied by them as per specifications provided in the bid package. Where no specification is available in the contract, the same shall be prepared by the Contractor, based on the piping material specification and shall be subject to Company's approval.
- Material take-off (BOM) with complete description of size, rating, material, thickness and specifications.
- Material Management Plan to be submitted for SunPetro review and approval.
- All Materials shall be purchased of SunPetro approved Manufacturers / Make as below

SunPetro hereby provides consolidated Pipes Fittings & Material Manufacturer List.
Consolidated Pipes Fittings & Material Manufacturer List as below for best quality of material.
Bidder to provide credentials of Manufacturer if material is not from Consolidated Pipes Fittings & Material Manufacturer List as per below, which will be subject to approval from SunPetro.

Sl.	Piping Material Category	Approved List of Manufacturers
1	PIPE	M/s The Bengal Mill Stores Supply Co. Bombay, M/s BMS INTERNATIONAL (BOMBAY) LLP Mumbai, M/s Grasim Metal Corporation Ahmedabad, M/s Maharashtra Seamless Ltd. Mumbai
2	FLANGE	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara, Fittech Industries Pvt. Ltd. Thane, Maharashtra.

3	BLIND FLANGE	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara Fittech Industries Pvt. Ltd. Thane, Maharashtra.
4	LR BEND	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara, Fittech Industries Pvt. Ltd. Thane, Maharashtra.
5	ELBOW	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara, Fittech Industries Pvt. Ltd. Thane, Maharashtra.
6	EQUAL TEE	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara, Fittech Industries Pvt. Ltd. Thane, Maharashtra.
7	UNEQUAL TEE	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara, Fittech Industries Pvt. Ltd. Thane, Maharashtra.
8	BARRED TEE	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara, Fittech Industries Pvt. Ltd. Thane, Maharashtra.
9	CON REDUCER	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara, Fittech Industries Pvt. Ltd. Thane, Maharashtra.
10	ECC REDUCER	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara, Fittech Industries Pvt. Ltd. Thane, Maharashtra.
11	SOCKOLET	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara, Fittech Industries Pvt. Ltd. Thane, Maharashtra.
12	WELDOLET	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara, Fittech Industries Pvt. Ltd. Thane, Maharashtra.
13	COUPLING	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara, Fittech Industries Pvt. Ltd. Thane, Maharashtra.
14	PIPE NIPPLE	M/s United Forge Industries, Vadodara, M/s Nik-San Enterprise, Ahmedabad, M/s Grasim Metal Corporation, Ahmedabad M/s Sawan Engineers Pvt. Ltd Vadodara, Fittech Industries Pvt. Ltd. Thane, Maharashtra.
15	GASKET	M/s United Forge Industries, Vadodara, M/s Sawan Engineers Pvt. Ltd Vadodara, M/s Nik-San Enterprise, Ahmedabad,
16	FASTNERS	M/s Nitin Fastners Pvt Ltd Vadoda43ra, M/s Multi Fastners Pvt Ltd Vadodara, M/s Deepak Fastners Ltd Ahmedabad, M/s Rudra Enterprise Ahmedabad
17	MIJ	M/s Nuseal Nupros Inc Vadodra, M/s Vee Kay Vikram & Co. Ahmedabad, M/s Techfield Engineers, Chattral Ahmedabad, M/s Nik-San Enterprise, Ahmedabad,

18	NIDDLE VALVE	M/s Steel Strong Valves, Ahmedabad, M/s Metflow Engineers, Ahmedabad, M/s Oswal Ahmedabad, M/s SAP Valves Ahmedabad, M/s Flowchem Industries Ahmedabad, M/s Petro Valves Pvt. Ltd. Ahmedabad
19	BALL VALVE	M/s Steel Strong Valves, Ahmedabad, M/s Metflow Engineers, Ahmedabad, M/s Oswal Ahmedabad, M/s SAP Valves Ahmedabad, M/s Flowchem Industries Ahmedabad, M/s Petro Valves Pvt. Ltd. Ahmedabad, M/s HTC Valves Pvt. Ltd Vadodara,
20	GLOBE VALVE	M/s Steel Strong Valves, Ahmedabad, M/s Metflow Engineers, Ahmedabad, M/s Oswal Ahmedabad, M/s SAP Valves Ahmedabad, M/s Flowchem Industries Ahmedabad, M/s Petro Valves Pvt. Ltd. Ahmedabad
21	GATE VALVE	M/s Steel Strong Valves, Ahmedabad, M/s Metflow Engineers, Ahmedabad, M/s Oswal Ahmedabad, M/s SAP Valves Ahmedabad, M/s Flowchem Industries Ahmedabad, M/s Petro Valves Pvt. Ltd. Ahmedabad
22	NRV	M/s Steel Strong Valves, Ahmedabad, M/s Metflow Engineers, Ahmedabad, M/s Oswal Ahmedabad, M/s SAP Valves Ahmedabad, M/s Flowchem Industries Ahmedabad, M/s Petro Valves Pvt. Ltd. Ahmedabad
23	FOOT VALVE	M/s Normax Valves, Pune,
24	STAINERS	M/s India Valves, Ahmedabad, M/s Multi tech Engineers Ahmedabad, M/s Noval Valves Mumbai.
25	PIG LAUNCHER/RECEIVER	M/s Pipeflow integrity India pvt ltd Ahmedabad,

- Preparation of BOM as per design and Materials Purchase Requisition and submission for SunPetro approval to proceed for procurement as per applicable codes and standards as listed in Clause-3 of this Section and Good Practice of Petroleum industry ensuring all quality criteria as briefed in Clause-3.29.6 of Section-3 (GCC).
- All material supplied at site shall have valid Material Test Certificates from accredited lab/ Test agency / TPI which shall be new & shall not be older than one year from the date of manufacture.
- Contractor shall carryout proper documentation of inspection and quality assurance programs for all equipment and bulk materials duly approved by Company. Contractor shall maintain an accurate and traceable listing of procurement records for the location, quality and character of all permanent materials in the Project.
- At the time of Material supplies, SunPetro Inward Material Inspection shall be carried out and Reports in triplicate to be generated for original for billing, duplicate for material reconciliation and triplicate for contactor reference.
- Compliance with vendors and supplier's instructions and recommendations for transportation, handling, installation and commissioning.
- Contractor to ensure availability of sufficient Material inventory available considering lead time to ensure uninterrupted execution of work at given point of time or delay in any work.
- Stores management including receipt, warehousing, preserving the material in good condition, issue of material to construction site, reconciling / handing over surplus material to Company for Company supplied items at Company's storage yard.
- All purchase requisitions including purchase orders shall be approved by Company.
- Contractor to submit Material Reconciliation on monthly basis along with the invoices indicating available Inventory.
- Preparation of Material requisition, request for quotation, bid evaluation and recommend vendors for Company's approval. Only single offer shall be provided by the bidder fully complying with specification requirements for Company's review and approval. Bid evaluation report and recommendation for procurement of major equipment as listed elsewhere in document shall be subject to Company's approval. Preparation of purchase requisitions, review of vendor drawings

and calculations, approval of manufacturing procedures wherever necessary, and third party inspection at manufacturer's works of the materials. Quality control and expediting of all procured items at Vendor's shop or at fabrication yard. Company may also appoint TPI agency for carrying out inspection of the equipment and materials at its discretion.

5 QUALITY ASSURANCE SYSTEM:

The provisions related to Quality Assurance System shall be as per the Technical Specifications and the Scope of Work in accordance with applicable codes and standards as referred in Clause-3 of Section-4 (Scope of Work).

I. Material Supplies quality shall be ensured in accordance with Good Practice of Petroleum industry standards.
   a. SunPetro approved Manufacturer / Make Materials shall be supplied.
   b. Material VMS, PMS, GAD approval shall be obtained prior start of Manufacturing
   c. QAP / ITP shall be submitted for review and approval and must be adhered for quality assurance.
   d. In-stage / Pre-dispatch inspection by TPI / SunPetro PMC / Representative in accordance with Point-3.29.6.c
   e. Material supplies supported with all applicable Test Certificates
   f. Supplied materials to be offered for inspection before use and IMIR (Inward Material Inspection Report) to be generated.

II. Work shall be executed in accordance with approved Drawings and Methodologies.
   a. Work Methodology / Procedures including listed below but not limited to be submitted for SunPetro review and approval
      i. Welding Procedure Specification
      ii. Welding Electrode Qualification Test
      iii. Welder Qualification Test
      iv. Procedure for coating of field joints shall be submitted for approval.
      v. Stage wise inspection and inspection reports in line with QAP.
      vi. Submission of Pipe Book / Loop files as applicable
      vii. Pipeline flushing, cleaning, Gauging and Hydrotest, Swabbing procedures for SunPetro review and approval
      viii. Procedure for Piping Cleaning flushing, Hydrotest, and Drying and Card bord blasting etc for Testing and Pre-commissioning activities.
      ix. Commissioning Procedure
   b. Markers
      i. Markers Installation Procedure / Specification
      ii. Markers installation reports

6. SCOPE OF WORK FOR FLOWLINES

The detailed scope of work includes design, engineering, detailed engineering, procurement (only 3LPE line pipes shall be free issue), installation, testing and commissioning along with all associated works pertaining to complete pipeline system and related facilities.

ROU & all the approvals/permissions for laying the pipeline shall be in the Scope of SunPetro.

The detailed scope of work shall be, in general, but not limited to the works listed below.

- Review/ update the survey data along the flowline route and road / minor water crossings, soil / soil resistivity data including collection of additional data / topographical surveys if required during detailed engineering.

  Compilation of all data/ information furnished in the bid package and additionally collected/ generated by Contractor. Firming up of route survey drawings, considering rerouted sections and additional surveys, if any

6.1 SCOPE OF SUPPLY FOR FLOWLINES

MATERIALS TO BE SUPPLIED BY CONTRACTOR

All materials (unless specified otherwise), consumables, equipment required for completion and successful commissioning of entire pipeline system shall be procured and supplied by the Contractor (Only 3LPE Coated Pipes shall be free issue). The procurement and supply, in sequence and at appropriate time, of all materials and consumables required for completion of the Work as defined in this bid document. All materials supplied by the Contractor shall be strictly in accordance with the requirements of relevant material specifications. All equipment, materials, components etc. shall be new and specifically purchased for this job. All material to be supplied by the Contractor shall be purchased from the suggested vendors of Company, duly inspected by Company / Third party inspection agencies. The list of suggested vendors is enclosed along with bid document. As a minimum, the materials to be supplied by Contractor shall, but not limited by any way, be as follows:

- All valves of all sizes & ratings, insulating joints, all pipelines including casing pipe, pipes for all sizes and thickness, fittings, flanges, Weldolet, Sockolets, Nippolets, Threadolets etc., spectacle blinds, tees, reducers, elbows, spacer & blinds required for permanent installation in the system. Each valve item shall be inclusive of commissioning spares.
- All stud bolts, nuts, jack screws, all type of gaskets (metallic spiral wound /ring type / nonmetallic gaskets) in required quantities to be used for permanent installation into the system for all sizes and ratings of flanges and flanged valves, equipment etc.
- All consumable such as welding electrodes, oxygen, acetylene, inert gases, all types of welding electrodes, filler wires, solder wires, brazing rods, flux etc. for welding / cutting and soldering purposes. All equipment & consumables for manual UT.
- All materials for all types of markers including paints, cement, sand, reinforcements, structural steel, etc.
- All materials required for continuous concrete coating for providing negative buoyancy to the pipeline wherever required and at river crossings detailed elsewhere.
- All materials required for weld joint coating, corrosion coating of LR bends, pup pieces of sectionalizing valves and repair of damaged corrosion coating of line pipe. Contractor shall confirm that proposed field joint coating material is suitable for type of terrain encountered along pipeline route. Contractor shall take prior approval from Company for field joint coating material to be used.
- Direx or equivalent field joint coating material for HDD works, if required.
- All materials required for sand/soft soil padding around pipeline, select backfill of approved quality, slope breakers, bank stabilization of water crossings wherever required. Size of gravel and stones used for back filling of balance portion of the trench shall be limited to 150 mm. All materials including consumables required for hook-up with adjoining pipeline section or wherever required.
- Pipeline trench backfilling warning mat shall be laid over post padding of 300mm from top of pipe / as per instruction of Engineer In-Charge.

- All materials required for repair/restoration of pavements, roads, canals, temporary irrigation pipe laid by villagers in their field's bunds, walls, other structures affected/damaged by Contractor's construction activities. Materials shall be equivalent/superior to those used for original construction of the facility.
- Backfilling and proper compaction of trenches excavated with in Well Sites / Well Site approach road crossings as per the instruction of Engineer In-Charge.
- All primer and paints for painting above ground piping. All painting shall be as per specification enclosed with the bid package. All materials for skin measurement instrument.
- All temporary materials and consumables required for filling and pressurizing in connection with hydrostatic testing, dewatering, swabbing and pre-commissioning activities, etc. including pipes, flanges, fittings, gaskets, bolts, nuts, etc. required for fabrication of temporary pig traps and /or test headers.
- Pumps and water to be used for hydrostatic testing/ flushing. All materials & consumables such as Corrosion inhibitor, oxygen scavengers and bactericides, required during hydro testing and idle time preservation, as required.
- All consumables and equipment required for all types of tests and NDT such as radiography, ultrasonic testing, magnetic particle, dye Penetrant examination etc. including radiography film etc.
- All safety tools and tackles, devices, apparatus, equipment, personal safety gadgets to be used as personal protective equipment (such as helmets, safety belts, safety shoes, etc.) including ladders and scaffolding etc. complete as recommended by Engineer-in-Charge as per relevant safety standards. Each material handling equipment shall have valid load test certificate, which shall be valid for next 6 months.
- All structural steel material for all types of supports.
- All materials and equipment related to blasting of rock for excavating trench or grading the Right-Of-Use pipeline and pipe laying/installation and other works.
- All steel materials such as structural steels, reinforcement steels and steel for all types of supports, foundations, ladders, platforms etc. including bolts, nuts, washers, U bolts, clamps, clips, gaskets, Shims, wedges and packing plates (Machined wherever required) and materials required for fabrication of low friction sliding bearing supports.
- All fencing, gate and steel materials such as structural steels, reinforcement steels and steel for all types of supports, foundations, ladders, platforms, etc. All materials, manpower, spares, tools & tackles and consumables for carrying out pre-commissioning activities and during commissioning (including compressor, nitrogen required for achieving the specified criteria for pipeline installation prior to declaring pipeline fit for commissioning) necessary piping and instrumentation connection for measuring flow rate, pressure, temperature etc., temporary facilities for blow down/ venting/ flaring along with necessary piping, valves & instrumentation as well as consumables and manpower required during pre-commissioning and commissioning. High built two component epoxy for corrosion protection of buried piping (pipes, fittings, flanges, valves etc.).
- Corrosion resistant straps required for strapping CS / HDPE conduit with mainline at crossings of water bodies and other crossings as required.
- Any other material not specifically listed herein but required for successful completion of the Work.

Note: All escalations / extra materials procured by contractor for contingencies shall be contractor's property and no payment shall be made for such materials.

A. Flowlines:

- Pipelines shall be designed as per ASME B31.4 and OISD STD- 141.
- Buoyancy analyses at canal crossings, if required are to be carried out.
- Thermal expansion effect of pipelines on above ground facilities are to be evaluated.
- Pipelines shall be provided with pigging facilities

B. Pig launchers and receivers

- Piping associated with launchers and receivers shall be designed as per ASME B 31.3.
- Piping shall be able to withstand combined effect of pressure, temperature and weight during operation without overstressing the piping system.
- Piping shall be adequately supported to prevent vibration and overloads to connected equipment.

6.2 ROU (RIGHT OF USE)

- It shall be Contractor's responsibility to make arrangement for any additional land required for fabrication, construction, storage and all other work areas. Contractor shall carry out construction work within the width as made available to him. Damage to any obstruction, temporary/permanent structure etc. within ROU shall be repaired and restored and shall be to Contractor's account.
- The Contractor must ensure that during laying of the pipeline minimum damage occurs to the land. The land has to be restored to original condition. All construction activities shall be in accordance with the local Government regulations and shall be performed by the competent and qualified persons for providing adequate protection to the general public, livestock, wildlife, forest, power lines, buildings etc. in the vicinity of the pipeline.
- During pipeline construction, measures shall be adopted in order to minimize the impact of pipeline construction activities on the environment. During ROU clearance, the vegetation shall be cut off at ground level leaving the roots intact. Only stumps and roots directly over the trench shall be removed for pipeline installation.
- Company has acquired the ROU free of any encroachments/ temporary/ permanent structures. However, in case any such encroachments or structures are encountered during execution, the same shall be got removed by the contractor. All costs towards such activities shall be to Contractor's account.
- In case contractor wishes to propose any detour from the acquired alignment due to constructability problems or otherwise, he may be permitted to do so only after explicit approval from the Company. All immediate measures for taking the land and compensations to landowner(s) shall be to Contractor's account. Company shall proceed with regular notifications etc. in due course. All statutory fees shall be paid/ reimbursed by Company. However, such activity shall not affect the construction schedule and overall completion period.
- If new pipeline is running parallel to an existing pipeline in common ROU, then separation distance between the new and existing lines shall be minimum 5 meter. This distance can be reduced to 3 meters from case-to-case basis.

6.3 BURIAL DEPTH

- The pipeline shall be buried normally a depth as per OISD-141 (Table-5) & Design Basis. Burial depth shall also meet the requirement of local authorities or statutory authorities whichever is more stringent.

6.4 CROSSINGS

- For all roads, Drain & other water crossings, Contractor shall liaison with relevant authorities and intimate them well in advance about the schedule and methodology of crossing. It shall be obligatory on the part of the Contractor to ensure that Authorized Representative of the authority under whose jurisdiction the crossing falls should be made available at site by the Contractor at the time of making crossing. After completion of works and complete restoration of ROU, Contractor shall provide NOC from the relevant official pertaining to complete restoration to their satisfaction and certification in respect of no other damage caused to their property outside the earmarked ROU

6.4.1 ROAD CROSSINGS

- Road crossings shall be designed as per API 1102. Requirement of casing pipe shall be decided with the local road authorities. Casing pipes shall extend 600 mm beyond road on either side. Casing pipe and carrier pipe shall be electrically isolated and sealed at the ends.
- The method of crossing of roads such as open cut / boring/ trench less technology shall be firmed up by Contractor in consultation with concerned authorities and Company. The Contractor shall

also take due care to identify and take due precautions so as not to disturb or damage the utilities like cables, water lines and other structures.

- After laying the pipeline in a road crossing by open cut method, the Contractor shall completely restore the road to its original condition.
- While laying the pipeline in road crossings by open cut method the Contractor should ensure that the traffic is not stopped during the execution of work. This may be done by cutting half of the road at a time so as to enable the traffic to pass on the remaining half of the road. Alternatively, the Contractor can provide diversion roads to maintain the flow of traffic.
- The Contractor shall provide proper caution boards during daytime and danger lights during nighttime when the cutting operation of the road is going on.
- For cased crossings, the pipeline should be taken through the casing pipeline, the top of which should be as per relevant standards or as per the requirements of the local authorities, whichever is higher.

6.4.2 WATER CROSSING

- CANAL/DRAIN/OTHER MINOR WATER CROSSINGS
- Canal and other water crossings shall be carried out by open cut / boring /trench less technology method. The method of crossing of canals shall be by open cut/boring/trench less technology and shall be firmed up by Contractor in consultation with concerned authorities and Company.
- No damage shall be caused to any irrigation sources, while laying the pipeline through canal crossings.
- The banks of the Canal should be brought to the original condition, if they are damaged by the laying of the pipeline. Stabilization of banks shall be carried out as per requirements of concerned authorities.

6.4.3 RAILWAYS CROSSING

- The rail crossing shall comply with the requirements of API-RP-1102 and Indian Railway Authorities. Pipeline at rail crossings shall be provided with casing pipe. The casing pipe shall be three nominal pipe sizes larger than carrier pipe or as advised by the concerned authorities and shall be installed by jacking and boring method. The crossing angle shall be as close to 90° as possible. ROW limits shall be defined by the railway authorities. Casing pipe shall be extended for a distance up to 0.6 m beyond railway ROW limits on either side. Carrier pipe shall be electrically insulated from the casing pipe and casing ends shall be sealed using durable, electrically no conducting materials. The crossing drawing shall be subject to approval of concerned Railway Authorities prior to implementation

6.5 BACK FILLING

- The pipeline trench shall be backfilled with excavated soil. Contractor shall keep top 150mm of excavated soil free of gravels aside, which shall be backfilled in the end as top layer. Select backfill shall be provided at approach to terminals upto transition point of underground and aboveground pipeline. In rocky areas trench bottom shall have sand/soft soil padding of 150mm. After laying of pipeline sand/soft soil padding shall be placed all around and top of the pipe so that thickness of compacted padding is not less than 150mm.

6.6 PIPELINE MARKER

- Contractor shall fabricate and install adequate pipeline markers as required as per ASME B31.4 and as per directions of authorities having jurisdiction. Refer specification in attachments.

6.7 REPAIR OF COATING

- Damages to 3 -layer PE coating of pipes during transport and handling shall be rectified at site. Coating repair material and application procedure shall be submitted for approval. Procedure for coating of field joints shall be submitted for approval.

6.8 CONSTRUCTION

- The Contractor should have sufficient resources (manpower and equipment etc.) to carry out the jobs at more than one location / site simultaneously.

- Comply with all Central, State and Local Government Regulations applicable to the Work.
- While laying the underground flow lines, in order to maintain cordial relation with the landowners, it will be necessary to excavate and back fill the trenches in the specified period of work. The Contractor shall deploy additional manpower, equipment, if required, to achieve the same, at their own cost and time.
- Company shall inspect the entire work through their representative/ appointed TPI (by Company). Contractor shall always provide required and necessary access to site to the person/s carrying out inspection. However, this shall not relieve the contractor of his responsibility from executing the work as per the required quality standards/ specifications.
- At certain locations, like CPF, EPS and Operational Well Sites, the work will have to be carried out in restricted area/conditions and work permits supported with JSA. The Contractor shall have to carry out such works without any extra payment and time as per instructions of Engineer-In-Charge and observe and abide by all fire safety rules & regulations as applicable as per requirements of the works.
- Hookup of the pipelines and Composite works related to engineering, fabrication, erection, testing and commissioning of piping including provision of pigging facilities at CPF etc.
- Contractor shall be responsible to carry out all activities as outlined below but not limited to:

6.8.1 GENERAL

- All construction works shall be carried out as per "Approved for Construction" drawings, procedures, specifications and applicable codes and standards. Any changes at site shall also need prior approval from the Company and revision of drawings.
- All NOC's are being obtained by the company SunPetro. SunPetro shall obtain clearances, No objection certificates (NOC) for laying pipeline & for terminal works from concerned village, District, State and Central Govt., irrigation, forest and PWD authorities etc. as required. SunPetro shall obtain permits/clearance from concerned authorities before actual commencement of the job at site including preparation and establishment of safety procedures for laying pipeline.
- Contractor shall be responsible for claims if any arising out of damage / obstruction to public utilities. The claims will cover the restoration costs as well as loss of revenue due to down time.
- Providing all equipment, manpower, machinery, consumables, apparatus, tools and tackles including ladders and scaffolding etc. for fabrication, installation, inspection, testing, pre-commissioning and commissioning complete as required including facilities for inspection and interpretation of testing results by Company/ Company's Representative personnel, providing all types of safety tools, tackles, devices and apparatus, equipment etc.
- Obtaining all necessary approvals and work permits from Company/concerned local authorities having jurisdiction including hot work permit as applicable for performing the work in existing terminal facilities. Arranging of adequate firefighting equipment viz. fire brigade, fire extinguisher, shielding from existing facilities, oxygen mask etc. for carrying out the work safely in existing terminals to the satisfaction of Engineer – In Charge.
- Immediately after award of work, Contractor shall make a visit to the site to establish the route and familiarize with the working conditions so as to plan for deployment of man and machinery.
- Providing schedules, progress reporting, organization chart at construction site, quality assurance plan and developing quality control procedures, as per requirements indicated elsewhere in the bid package.
- Coordination and supervising the work of sub-Contractors.
- Transportation of appropriate materials to worksite, intermediate storage points, maintaining and operating an adequate material control procedure at worksite.
- Fabrication of all piping, structural components as per approved drawings.
- Carrying out radiographic inspection and interpretation of radiograph of welds.
- Provide, maintain and operate all temporary facilities required for the construction related works and remove after completion of work.
- Hook up/tie-in of pipeline and piping system with terminal facilities.
- All works related to testing, dewatering, swabbing, pre-commissioning and commissioning of the work tendered.

- Idle time preservation of pipeline, if required.

6.8.2 PIPELINE LAYING

- Contractor shall carry out repairs (including supply of all materials) of line pipe, pipe coating & casing pipes after receiving and taking over including repair of all defects/damages occurring during transportation and/or handling.
- Loading, unloading, handling, stacking, storing and transportation to workshop/work site of all materials including line pipes and casing pipes that may be used for the construction of pipeline system supplied by Contractor.
- Carrying out all additional topographic, geo-technical survey and/or soil investigations required for local detours, crossings and elsewhere during execution including preparing plan and profile drawings as directed by Engineer-in-Charge.
- Mobilizing and providing all equipment, manpower (skilled and unskilled), consumables and other resources etc. as required for the execution of complete work and thereafter demobilizing the same upon completion of work.
- Thorough internal cleaning of all pipes to remove debris, shots, grit etc. to the satisfaction of Engineer-in-Charge. However, adequate care shall be taken so as to avoid damage to the internal coating.
- Installation of all in-line/ on-line instruments, valves, insulating joints, appurtenances, etc.
- Obtaining all necessary approvals and work permits from concerned local authorities having jurisdiction, as applicable for performing the Work including shifting / relocation and restoration of telephone/electrical poles and underground pipes and other crossings, other utilities etc., as required by local authorities and as directed by Company. Contractor shall inform all local authorities in advance and obtain all necessary approvals, and work permits from concerned authorities having jurisdiction for crossing underground utilities/pipelines wherever encountered along the pipeline route. Contractor shall be required to carry out all the works as mentioned in the work permit. The scope of Contractor would include implementation of all the conditions of statutory approval.
- Staking, clearing, grading, fencing of Right of Use (ROU) as required, trenching to all depths in all types of soils including soft/hard rock, controlled rock blasting/rock blasting by special techniques, chiselling or otherwise cutting etc. to a width as per relevant standards, drawings, specifications etc., transportation of coated pipes to ROU along the route, stringing, aligning, bending, welding, NDT including radiographic inspection, field weld joint coating, sand padding including supply of sand/ soft soil, laying and lowering of the pipeline, back filling including supply of select backfill wherever required, slope breakers as required in steep slope areas, carrying out rail, road, canal, utility and submerged minor and major water course crossings by conventional / HDD method including installation of carrier pipe inside casing pipe at cased crossings wherever required, bank stabilization of water course crossings as required, arranging all additional temporary land/area required for construction purposes. Supply and installation of anti-buoyancy measures viz. continuous concrete coating, saddle weights, Geotextile gravel filled bags, extra cover etc. on pipeline as shown in approved drawings and as directed by Company, supply of select backfill material as required, clean-up, pigging, flushing, gauging, hydrostatic testing with the quantity of inhibitor as required, dewatering with the addition of approved chemicals to neutralize the associated works for complete pipeline system as per relevant specifications, standards and approved drawings.
- All welding & NDT shall be carried out as per relevant welding specification enclosed with the bid. Repairing of weld joints, if any, shall be carried out by contractor at no additional cost or time implication.
- Welding of all tie-in joints including tie-in joints and bends on either side of major river crossings / with adjoining pipeline/ other facilities as required, re-bevelling and tie-in with adjacent pipeline sections.
- Supply and installation of all types of pipeline markers including their painting along the ROU as per (irrespective of paint system shown on respective standards) and all associated civil works.

- Location of markers shall be as per “AFC” alignment sheets/ specification /standards and as directed by Engineer-in-Charge.
- All works/provisions including installation of slope breakers to be provided in the trench in areas where slope is more than 1 in 10. Sand/ soft soil padding around pipe wherever required in areas where trenching has been done in rock including supply of sand/ soft soil. The thickness of sand/soft soil padding at the bottom of pipe shall be 150 mm in rocky areas. The pipeline trench shall not be filled with gravel & large stones or boulders. Extra digging of trench shall be carried out to comply with above requirements & to provide minimum cover over pipeline as per code & standards. Alternatively rock shield may be used with 50mm of sand padding in rocky areas wherever instructed by Engineer-in-charge. The rock shield shall be of minimum 6 mm thick polyethylene mesh as per Company specifications. Contractor shall furnish all details of proposed rock shield to be used, for Company’s approval.
- Installation of all inline/online instruments / valves / insulation joints/appurtenances etc. as per requirements of approved drawings.
- Crossings of streams/canals by Open Cut/ Boring/ Trench less Technology method:
- Pre-construction surveys, preparation of detailed construction method, statement and calculations for Company’s approval.
- Geo-technical investigations, if required.
- Site preparation, arranging required land for setting up of string fabrication yard and obtaining necessary permissions from concerned authorities.
- Preparation of pipeline Launch way, string preparation, field welding, NDT including radiography, pretest of completed strings, corrosion coating of field joints, trenching, laying at approved depth, backfilling including supply of select backfill material (where required), stabilization of banks, post installation hydro test capping, providing and installing of markers, etc
- HDD works shall be carried out as required.
- Carrying out all surveys and collection of data, as may be required for the design and construction of the crossings.
- Carrying out all engineering, design calculations and preparing all construction drawings for laying of pipeline as per requirements for installation of crossings by HDD method.
- All construction activities required for installation of the crossings viz. site preparation, preparation of pipe string, repair of damages to corrosion coating, field welding, NDT including radiography, pretest of completed string, corrosion coating of field joints, holiday testing of complete pipe string, drilling in all types of soil including gravel, boulders and disintegrated and hard rock, installation of pipeline, post installation hydro testing of the crossing section, capping, providing and installing markers and temporary Cathodic protection of pipeline section at crossings.
- Carrying out Idle time preservation if required.
- Tie-in with main pipeline after successful installation of pipeline at river crossing, road crossing, railway crossing and canal crossings etc.
- All associated pipeline work w.r.t. temporary and permanent cathodic protection.
- Clean-up and restoration of ROU and other conveniences like road, rail, canals, cultivable land, water facilities, irrigation facilities, boundary wall/fence etc. to original condition as per specification and drawings to the entire satisfaction of Company and/or Authorities having jurisdiction over the same, including disposal of surplus excavated soil and other construction materials to a location identified by Contractor approved by local authority without causing any disturbance to environment and to the entire satisfaction of Company. Contractor shall arrange necessary clearance from the concerned authorities/ landowners to the effect that ROU/ ROW has been restored back to original condition. Contractor shall carry out joint survey with representative of Competent Authority (CA) and will obtain clearance in writing from CA that ROU has been restored to original condition. Necessary clearance from statutory authority / NOC for restoring the ROU to original condition shall be in Contractor’s scope. However, if the owner does not give the NOC, payment can be released if the restoration is certified and accepted by Engineer-In-Charge as per the tender specifications.

- Carrying out cleaning, flushing, swabbing (as applicable), dewatering, testing and Pre-commissioning of pipeline and associated facilities at Dispatch Station, Intermediate Pigging Station, Sectionalizing Valve Stations and Receipt/Dispatch Station up to the respective battery limits. Locating all major and minor leaks during hydro testing if any.
- Tracking of construction progress of the project through Microsoft Project on a real time basis updated daily. The progress shall be displayed electronically on a web-based format for company to monitor progress on daily basis.
- Repair of any leaks / bursts occurred during testing of pipeline.
- Tie-in with the pipeline at road, drain and other crossings (as applicable) including cutting of test headers as required and tie-in with terminal piping & with existing facilities as applicable.
- Idle time preservation of the pipeline for the specified period by filling with by nitrogen to a positive pressure of 0.5 bar (g) (if required) including supply of nitrogen etc.
- Preparation of as-built drawings, pipe books, documents, photographs, project records as per specification and instructions of the Company including furnishing of all Test Certificates/Inspection Reports for all materials used for permanent installation.
- All incidental and associated works and any other works not specifically listed herein but are required to be carried out to complete entire work related to pipelines and the associated facilities and making the entire pipeline system ready for operation.
- Counting the number and type of trees to be cut (before cutting) during pipeline laying works in presence of DFO/ concerned authorities keeping record thereof and handing over the cut trees as directed by concerned authorities/ Company.

7. SURVEY

- Company shall carryout the detailed survey for flowline route. Any additional topographic/ geotechnical surveys required during execution of the project and for local detours during execution of the project shall be carried out by Contractor without any extra cost.

8. SITE VISIT:

- Bidders are advised to make site visits prior to quoting to familiarize themselves with all the salient features of terrain, etc. Contractor shall be deemed to have considered all constraints and eventualities on account of site conditions along pipeline route while formulating his bid. Contractor shall not be eligible for any compensation in terms of cost and/or time, on account of site conditions along pipeline route varying to any extent from whatever is described in the bid package and the survey drawings/data furnished along with the bid package.

9. STATUTORY PERMISSIONS

- Statutory permissions are being obtained by SunPetro. The SunPetro shall obtain permission from the authorities having jurisdiction over the area as necessary for construction of the pipeline. SunPetro shall do the follow up with the concerned authorities to get the permissions to execute the job in time.

10. ENVIRONMENTAL RESTRICTIONS

The following measures shall be adopted during pipeline construction in order to minimize the impact of pipeline construction activities on the environment.

- While working in plantation areas, Contractor shall take due care to minimize the damage of trees. In case any tree falling is required, it shall be done only after obtaining clearance from the consent authorities. In the paddy field area, Contractor shall exercise maximum care not to damage the crop outside the ROU. The compensation of damage of crop outside ROU, if any, shall be to Contractor's account. Damage to any obstruction, temporary/permanent structure, boundary walls etc. within ROU shall be repaired, restored and shall be to Contractor's account.
- No mangroves shall be cut during construction of the pipeline.
- Intake and discharge of water required/used for line flushing and testing should not cause unacceptable environmental disturbance. During dewatering process, proper drainage arrangement shall be made to discharge the hydro-test water to avoid flooding of the nearby area.

In addition to above, relevant requirements of Ministry of Environment and Forests, Pollution Control Boards, forest department, CRZ etc. (as applicable) and NOCs shall be complied with.

11. HYDROSTATIC TESTING, DEWATERING, SWABBING AND COMMISSIONING

11.1 HYDROSTATIC TESTING OF PIPELINE

- All Pipelines shall be pressure tested in-place after construction except for pre-tested pipes used in tie-in spools.
- Installation of all electrical connection and monitoring points on the pipelines shall be completed before pressure testing of the pipeline. No welding (other than tie-in welds) and / or mechanical handling of pipe are permitted after pressure testing. Pipe used for making repairs shall be pre-tested to a pressure equal to or greater than the original pipeline strength test pressure.
- Mainline pipe in canal crossing sections shall be hydro tested before and after installation.
- Carrier pipe in cased crossing (rail / road) section shall also be hydro tested before installation.
- All such previously tested sections shall be retested along with the completed mainline sections as per ASME B31.4 and OISD-141.
- Water used for the test medium shall be dosed with required quantity of corrosion inhibitor and oxygen scavenger depending upon quality of the water. API-1110 recommended practice should be used for guidance for the hydrostatic test.

11.2 HYDROSTATIC TESTING OF TERMINAL FACILITIES

- Piping facilities between the insulating joint and hook up point/battery limit and all above ground facilities installed by Contractor shall be hydrostatically tested to a test pressure as indicated in line schedule document, in accordance with “Standard specification for Inspection, Flushing and Testing of Piping System” enclosed with the Contract document. All valves in the piping network being hydro tested shall be kept in the crack open position. Holding time shall be six hours.

11.3 DEWATERING AND SWABBING:

- It is envisaged that dewatering and swabbing operations shall be carried out as a part of Pre-commissioning activities. Dewatering of pipeline after hydrostatic testing shall be taken up by Contractor only when Contractor is ready for swabbing operations. Till such time Contractor is ready to start pre-commissioning activities, the pipeline/section of pipeline after hydrostatic testing shall be left filled with inhibited water. In case, dewatering of any test section is proposed by Contractor for any reason depending upon site conditions (e.g. using test water for adjoining section due to non-availability of water), the Contractor shall swab such sections as per applicable requirements of Contract and fill the section with nitrogen at a pressure of 0.5 bar (g) with residual content of oxygen less than 1% v/v at no extra cost to the Company. In no case shall the pipeline section be kept empty i.e. without nitrogen filling.

11.4. MARKERS INSTALLATION:

- Contractor shall fabricate and install adequate pipeline markers as required as per ASME B31.4 and as per directions of authorities having jurisdiction and as per the SunPetro approved procedure including all required civil works supply of markers, cement sand and all required materials complete in all respect. Refer specification in attachments.

12. PRE-COMMISSIONING OF FLOWLINE

- Pipeline Contractor shall be responsible for pre-commissioning of the pipelines being installed by them, including supply of manpower, materials, equipment including nitrogen along with necessary piping and instrumentation connections for monitoring flow rate, pressure, temperature etc. temporary venting along with necessary piping, valves and instrumentation as well as consumables.

13. OVERALL COMMISSIONING

- Overall commissioning activities including drying, nitrogen purging etc. for entire pipeline including all terminals shall be performed the Contractor. Contractor shall mobilize all equipment, consumables, nitrogen and manpower for carrying out pigging, drying, interstation and

commissioning activities. Commissioning activities shall be carried out as per applicable specifications enclosed with Contract.

14. CONTRACTOR'S RESPONSIBILITIES

Contractor's responsibilities, besides the scope of work to be performed by him defined earlier, shall also include the following:

- Appraisal and taking cognizance of site-conditions, pipeline route, Central Government, State Government rules and regulations/ bye-laws, applicable Indian Standards and Codes, authorities having jurisdiction over the work site(s), environmental and pollution concerns including conditions/stipulations laid down by the concerned authorities etc. The Contractor is deemed to have recognized any restrictive features and constraints of the site(s), pipeline route and /or specific requirements of the work and made do allowance for it in the work to be performed by him.
- Company has provided the available information and survey data along pipeline route and crossings. Company gives no guarantee or warranty as to the accuracy or completeness of the information provided. It is the Contractor's sole responsibility to obtain sufficient information / data along pipeline route and crossings to allow safe and sound design and installation of the proposed pipeline.
- Interpretation and verification of data/information furnished by Company in respect of pipeline route surveys, crossing details, and geo-technical surveys contained in the bid package. Any additional information/data/surveys etc. required by Contractor for detailed engineering and execution of the works shall be obtained by him. Company may assist him in obtaining such information/ data by issuing recommendatory letters.
- Drawings and installation procedures, engineering for procurement & fabrication, engineering for installation including drawings, QA/QC procedures, etc. performed by the Contractor for complete pipeline system shall be reviewed and approved by Company. Contractor shall submit six sets of engineering documents, drawings, procedures as described under clause 6.0 for Company's review and approval. All works shall be executed based on approved documents only.
- Review and approval of Contractor's entire work(s) by Company shall in no way relieve the Contractor of his sole responsibility for safe and efficient design, engineering, installation and subsequent operation of pipeline system.
- Furnishing and mobilizing at site(s) of all construction equipment, manpower, tools and tackles, construction spreads, fully equipped and fully manned with other required support facilities etc. commensurate for spreads needed for successful execution of the works.
- Pre-commissioning/ commissioning of entire pipeline/piping system.
- Preparing and furnishing calculation books, pipe books, material/ purchase requisitions, final purchase orders including specifications, Vendor's data books (including Guarantees), fabrication and construction drawings, all survey reports, inspection and testing reports, as built records for all phases of work.
- The Contractor is cautioned to exercise extreme care and take necessary precautions to prevent damage to the existing pipeline(s), facilities, electrical and other cables during execution of the entire works. Restoration / reconstruction of all structures / facilities affected during pipeline construction shall be carried out by Contractor.
- Wherever Contractor comes across water lines / open channels / drains in the fields used for cultivation, suitable arrangements like or higher specifications than the existing type shall be made by the Contractor for ensuring water supplies across the fields and maintain the same till construction is completed in that stretch. Any claims arising out of noncompliance to the above requirements, as granted by competent authorities shall be to Contractor's account.
- Contractor shall carry out all testing and inspection of materials, equipment etc. in independent testing institutions, laboratories, if so desired by Company.
- Disposal and treatment of treated hydro-testing water, excavated materials, and surplus materials etc. as per local authority's requirements.
- Blasting if required, in all types of rocks for excavation shall be carried out in controlled manner so as to protect the existing facilities, men, environment and property etc. from any damage, whatsoever. Blasting in all types of rock shall be allowed subject to concerned central/state government and regulatory authorities permitting the same.

- Any other work not specifically listed but required for successful completion of entire pipeline system.

15. STORAGE OF MATERIALS

- All materials shall be preserved against deterioration and corrosion due to poor or improper storage while under the custody of the contractor.
- All materials shall be duly protected by the contractor at his own cost with the appropriate preservatives like primer, lacquer, coating, grease etc. and shall be covered with suitable material to prevent them from direct exposure to sun, rain, wind and dust.
- Pipes shall be stacked according to the identification marks and stacks shall be arranged on sleepers / sandbags at least 300 mm above ground.
- The Contractor shall check that valves, fittings, specials etc. are not subjected to corrosion from hydrostatic test water remaining in the piping. Any such condition when detected should be brought to the notice of Engineer-in-Charge and remedial measures taken as directed.
- All machined surface shall be properly greased and should be maintained and protected from damages.
- Openings of equipment, machinery, valves etc. shall be kept blocked / covered with blinds to prevent entry of foreign matter.
- As far as possible materials shall be transported to the site of erection only just prior to the actual erection and shall not be left around indefinitely on ground but kept on packing/sleepers etc. to maintain the minimum distance from the ground as specified and/or as per directions of Engineer-in-Charge.

16. AS BUILT DOCUMENT

On successful completion of hydrostatic testing, the Contractor shall prepare As Built drawings / reports for entire pipeline/piping system as specified in scope of work. All “As Built” drawings / reports shall be submitted in 3 Sets (One Original + Two Zerox) as below.

- As laid alignment sheets and crossing drawings/details.
- All Inspection, Testing and NDT records. Radiographs/ UT of all weld joints packed kilometre wise in separate cardboard boxes in one set.
- Pipeline approach/ departure drawings
- Pipeline stress analysis
- Pipe and calculation books/records.
- All purchase specification & procurement documents.
- Material Reconciliation.
- Photographs and video CDs / DVDs with audio commentary annotated as required covering all activities from grading to completion/restoration in three sets.
- Critical pipeline locations on the ROU shall be indicated using GPS coordinates.
- All piping GA drawings and supports at terminals and intermediate installations.
- List of drawings and documents
- NOC from all authority

17. DOCUMENTS TO BE SUBMITTED AFTER AWARD OF CONTRACT

These documents shall cover all three areas namely, pipeline, piping and mechanical equipment erection work required for completion of this scope of tender specification.

- Project specific quality plan and inspection and test plan (ITP)
- Project specific organization chart indicating clearly responsibilities assigned.
- Site Health Safety and Environment Plan
- Material Procurement and Management Plan
- Procedure for tracking non-conformance product and segregation of non-conformance product/services
- Procedure for control of non-conforming products
- Procedure for management of change
- Plan of periodical internal audit during entire contract period

PART-II

18. SCOPE OF WORKS FOR PIPING WORKS

18.1 GENERAL

The CONTRACTOR will carry out supply, fabrication and erection and fabrication of pipes, fittings, valves and other items as indicated in the SOR attached to this tender. These items will be supplied as free issue materials to successful bidder for fabrication and erection provided by owner. Drawings and documents required for this purpose will be supplied by COMPANY. Minor civil work like fabrication & erection of Primary & secondary support structure; support pedestal is in successful bidder's scope. All materials required for support fabrication and erection shall be supplied by successful bidder.

All the drawings, documents, specifications etc. related to the work, prepared by Contactor or given by the COMPANY to the CONTRACTOR shall be treated as confidential & shall remain property of the COMPANY.

The CONTRACTOR shall not disclose the details of the said documents to anybody or shall not publish any information contained therein.

CONTRACTOR is hereby advised to visit the site at their cost prior to submission of bid and apprise himself of existing site condition.

No changes to any drawing / design details supplied by COMPANY to CONTRACTOR will be acceptable. If for any technical reason a change is warranted then such change shall be furnished by CONTRACTOR to COMPANY along with a formal Change Request, with detailed explanation for approval. Such changes shall be deemed as a part of scope of work of the CONTRACTOR and will have no additional cost and time implication. However, in any specific case if agreed with COMPANY any change which result in cost saving, it shall be passed on to COMPANY. Covered storage and air-conditioned storage, if required at site, will be in the scope of the CONTRACTOR. He will submit the details of such items with size & space required along with the bid. In case the COMPANY is not able to provide space for construction of such storage then CONTRACTOR has to arrange suitable space nearby the site by his own. CONTRACTOR will have to carry out inspection activities of equipment/materials through an Owner approved third party inspection agency when they receive Material/Equipment from COMPANY before start of work (As Stated in PROCUREMENT METHODOLOGY and QUALITY ASSURANCE SYSTEM). It is responsibility of the CONTRACTOR for inspection / testing as per specifications approved documents and test plans. In case receiving of any defective/damage material, it is CONTRACTOR's responsibility to bring it in the notice of COMPANY for replacement /repair of the item All the piping items like pipe, fittings, valve, flanges, gasket, stud bolt, structural materials are under CONTRACTOR's scope of supply as per bill of material. Skilled, semi-skilled labour, its supervision, arrangement for boarding and lodging, tools, tackles, cranes for heavy lifts, chain pulley blocks, Welding machine, consumables like electrodes and accessories for the fabrication, construction, installation, mechanical completion, inspection, testing and commissioning of the work shall be CONTRACTOR 's responsibility. Receiving piping materials from stores, inspection, transportation from stores to local fabrication yard, end preparation, prefabrication of spool piece as per drawing supplied by owner, testing, transport to erection site, on site fabrication, assembly and erection including installation of supports and structures, supply of testing spools and supports, testing of pipeline after erection, Flushing and cleaning of pipe lines, temporary support during hydro test, painting in shop/site, arrange water for hydro testing and dispose of water used for hydro testing as per instruction of COMPANY. The piping erection work shall include installation of valves, online instrument items like control valves, flow meters etc. and other piping attachments as indicated in drawing. CONTRACTOR will ensure that pipeline is fully aligned with equipment nozzles before bolting. CONTRACTOR will ensure that all materials should be properly handled with care without any damage. In case of any damage found during transportation or loading & unloading, the CONTRACTOR shall repair or replace the material on his own cost. CONTRACTOR has to get approval from COMPANY before using such material. Total inventory will be maintained by CONTRACTOR for material used at site work considering lead time to ensure that work should not hampered due to non-availability of any material. The parts stored shall be classified by category according to their characteristics (diameter, thickness, grade of steel). These operations must be finished by the date of "Completion of the Work".

This description of scope of work intends to give idea of quantum of job involved, however it is not exhaustive, and any additional work required to be done by the CONTRACTOR as per details

given in drawing & documents shall be performed by CONTRACTOR without any extra claim. The requirement stipulated in Bid Document is the minimum requirement for the project. Any item that was not covered in the document but required, as per assessment of the bidder, for fulfilling the performance of the system CONTRACTOR may indicate the same with technoeconomic justification for owner consideration along with BID.

Scope of work include the following but not limited to the same.

- Pipes (All sizes and schedule as per the drawings/documents)
- Flanges (All sizes, types & Pressure ratings as per documents / drawings).
- Fittings (All sizes, types and schedule as per documents / drawings)
- Valves (All sizes, types and Ratings as per documents/ drawings)
- Gaskets (All sizes, types & Ratings as per documents /drawing)
- Bolts, Nuts or M/C Bolts (All types as per specification
- Expansion Joint / Bellows (All types as per specification)
- Flange earthing copper jumpers
- Specialty items like online filters, ejectors, sample coolers, steam traps, strainers, and air
- traps etc.
- Online instruments like control valve, orifice flange, rotameter, safety valves etc.
- Fabrication and erection of pipe support like shoe, saddle, guide, stops, anchors, clips, cradles, hangers, turn buckles, supporting fixtures, bracket cantilevers, struts, tee posts including erection of spring supports and sway braces.
- Fabrication of other misc. items
- Fabrication of piping specials like special radius bends, reducers, miters etc.
- Fabrication of plain and threaded nipples from pipes as required during erection.
- Fabrication of swage nipples as and when required.
- Fabrication of odd angle elbow like 60°, 30° or any other angle from 90/45° elbows as and when required.
- Fabrication of flange, reducing flange, blind flange, spectacle blinds as and when required.
- Fabrication of stub-in connection with or without reinforcement.
- Grinding of edges of pipes, fittings, flanges etc. to match mating edges of uneven / different thickness wherever required.
- All Civil works for piping support foundations at Well Sites including supply of cement, sand etc complete in all respect.
- Preparation and dismantling of scaffolding work wherever required to carry out the job safely.
- Modifications like providing additional cleats, extension of stem of valve, locking arrangement of valves etc. as and when required.
- Obtaining approval for drawings prepared by contractor from statutory authority. All statutory fees to concerned government office such as PESO shall be paid by CONTRACTOR.
- Contractor to do the liaison work and consider all expenses for the same in his scope.
- COMPANY shall not pay anything other than statutory fee.
- Radiography, stress relieving, dye penetration, magnetic particle test etc. as required in specification.
- Making material reconciliation statement and return of Owner's supply left over materials to Owner's storage.
- Flushing and testing of all piping systems as per standard specification for inspection, flushing and testing of piping systems
- CONTRACTOR will have to arrange water for construction activities at site (fabrication, testing and commissioning etc.). COMPANY is not liable to provide water from his source. However, it is discretion of the COMPANY to provide these facilities to CONTRACTOR on chargeable basis.
- All the tools & tackles required for the work is to be brought by the CONTRACTOR.

Carry out insulation and painting as per Painting and Insulation procedure mentioned in respective specifications. Supply of insulation and painting will be at discretion of COMPANY, so the

CONTRACTOR should quote his price for Insulation & painting, with and without supply of Insulation & painting material.
Contractor to carry out all required and applicable tests as per SunPetro approved ITP and in line with applicable codes and standards.
CONTRACTOR has to provide all testing apparatus, appurtenances and fittings and special testing fluids wherever required. Wrapping of PTFE tape on threaded joint before assembly for leak proof joint CONTRACTOR will do Flushing of pipeline/piping, air drying, disposal of fluids, reinstatement, preservation of pipeline/piping and miscellaneous items following hydro test. Hydro test of the pipeline/piping to be perform before painting /insulation activity. During hydro test, if some leakage is trace out on the joint of pipeline/piping, then the joint should be repaired by cutting & re-welding by CONTRACTOR. Same line should hydro tested again. Mechanical/chemical cleaning of pipeline/piping before painting/insulation should be done as per specifications. Hydro test of the pipeline/piping (non-IBR) to be performed at a pressure 1.5 x design pressure. However, if the design pressure of inline items (Valve/Instruments etc.) < than pipe design pressure, then it should be tested at reduced pressure. (Ref. Guideline of B31.3) CONTRACTOR has to Supply of all additional piping materials required for hydro testing and pre-commissioning e.g. piping spools, bolting and gaskets, flanges, blinds etc.
CONTRACTOR has to carry out fabrication and installation, setting and commissioning of pipe supports, guides, anchors and spring supports as required. In case of pipe supports fouling or clashing, their new locations will be finalized by the CONTRACTOR at site with COMPANY's approval.
CONTRACTOR will be responsible to resolve problems arising during prefabrication, shop fabrication, field fabrication or erection at site & based on sub vendor data.
Necessary field changes in the drawing will be made by CONTRACTOR and submitted to COMPANY for review & will be reflected in the As-Built Drawings, Documents.
CONTRACTOR will provide all industrial gases such as oxygen, acetylene, inert gases, all types of electrodes, filler wire, flux wire, brushes, etc.
CONTRACTOR will provide all materials such as hydraulic pumps, metallic blinds, temporary gaskets etc. and arrangement required for pressure testing.
CONTRACTOR will provide all materials, consumables, tools & tackles required for cutting, fitting, welding, brazing, cleaning, grinding, threading and other dismantling.
CONTRACTOR will take extra care for mating flange and will be exercised to properly align the pipe and to check the flanges for trueness, so that faces of flange can be pulled together with ease, without inducing any stress in the pipes and equipment nozzle. Extra care will be taken for flange connection to Pump, Compressor etc. The flange connection to this equipment's will be checked for misalignment, excessive gap etc. after the final alignment of the equipment is over. The joint will be made in discretion of COMPANY.
Supply & erection of Anchor bolts for pump/vessel/tanks are not in piping erection CONTRACTOR's scope.
CONTRACTOR will provide earthing lug connection to piping item if required as per drawing.
Piping for Packaged items: Supply & Erection of Package unit is in Package vendor's scope.
Joining of process & utility piping with package unit will be done by piping CONTRACTOR, however in case if the package is mounted on skid & the piping within the skid is provided by the packaged vendor, the Contractor will have to join with packaged piping termination points.

18.2 ERECTION

CLEANING OF PIPING BEFORE ERECTION

Before erection all prefabricated spool pieces, pipes, fittings etc. shall be cleaned inside and outside by suitable means. The cleaning process shall include removal of all foreign matter such as scale, sand, weld spatter chips etc. by wire brushes, cleaning tools etc. and blowing with compressed air/or flushing out with water. Special cleaning requirements for some services, if any shall be as specified in the piping material specification or isometric or line list. S.S jacketed piping requiring pickling shall be pickled to remove oxidation and discolouring due to welding.

18.2.1PIPING ROUTING

No deviations from the piping route indicated in drawings shall be permitted without the consent of Site in-Charge of COMPANY. Pipe to pipe, pipe to structure / equipment's distances / clearances as shown in the drawings shall be strictly followed as these clearances may be required for the

free expansion of piping /equipment. No deviations from these clearances shall be permissible without the approval of Site in-Charge. In case of fouling of a line with other piping, structure, equipment etc. the matter shall be brought to the notice of Site in-Charge and corrective action shall be taken as per his instructions.

18.2.2 SLOPE

Slopes specified for various lines in the drawings / P&ID shall be maintained. Corrective action shall be taken by the Contractor in consultation with Site in-charge whenever the Contractor is not able to maintain the specified slope.

18.2.3 EXPANSION JOINTS / BELLOWS

Installation of Expansion Joints/Bellows shall be as follows:

- All Expansion joints / Bellows shall be installed in accordance with the specification and installation drawings, supplied to the Contractor.
- Upon receipt, the Contractor shall remove the Expansion Joints/ Bellows from the case(s) and check for any damage occurred during transit.
- The Contractor shall bring to the notice of the Site-in-Charge any damage done to the bellows / corrugations, hinges, tie-rods, flanges / weld ends etc.
- Each Expansion Joint / Bellow shall be blown free of dust / foreign matter with compressed air or cleaned with a piece of cloth.
- For handling and installation of Expansion Joints, great care shall be taken while aligning. An Expansion Joints shall never be slanged from bellows corrugations / external shrouds, tie /rods, angles.
- An Expansion Joints / Bellow shall preferably be slanged from the end pipes / flanges or on the middle pipe.
- All Expansion Joints shall be delivered to the Contractor at “Installation length”, maintained by means of shipping rods, angles welded to the flanges or weld ends or by wooden or metallic stops.
- Expansion Joints stop blocks shall be carefully removed after hydrostatic testing. Angles welded to the flanges or weld ends shall be trimmed by saw as per manufacturer’s instructions and the flanges or weld ends shall be ground smooth.
- The pipe ends in which the Expansion Joint is to be installed shall be perfectly aligned or shall have specified lateral deflection as noted on the relevant drawings.
- The pipe ends / flanges shall be spaced at a distance specified in the drawings.
- The Expansion Joint shall be placed between the mating pipe ends / flanges and shall be tack welded/bolted. The mating pipes shall again be checked for correct alignment.
- Butt-welding shall be carried out at each end of the expansion joint. For flanged Expansion Joint, the mating flanges shall be bolted.
- After the Expansion Joint is installed, the Contractor shall ensure that the mating pipes and Expansion Joints are in correct alignment and that the pipes are well supported and guided.
- The Expansion Joint shall not have any lateral deflection. The Contractor shall maintain parallelism of restraining rings or bellows convolutions.
- For carrying out welding, earthing lead shall not be attached with the Expansion Joint.
- The Expansion bellow shall be protected from arc weld spot and welding spatter.
- Hydrostatic Testing of the system having Expansion Joint shall be performed with shipping lugs in position. These lugs shall be removed after testing and certification is over.

18.2.4 FLANGE CONNECTIONS

While fitting up mating flanges, care shall be exercised to properly align the pipes and to check the flanges for trueness, so that faces of the flanges can be pulled together, without inducing any stresses in the pipes and the equipment nozzles. Extra care shall be taken for flange connections to pumps, turbines, compressors, cold boxes, air coolers etc. The flange connections to these equipment’s shall be checked for misalignment, excessive gap etc. after the final alignment of the equipment is over. The joint shall be made up after obtaining approval of Site-in-Charge. Temporary protective covers shall be retained on all flange connections of pumps, turbines,

compressors and other similar equipment's, until the piping is finally connected, so as to avoid any foreign material from entering this equipment's. The assembly of a flange joint shall be done in such a way that the gasket between these flange faces is uniformly compressed. To achieve this bolt shall be tightened in a proper sequence. All bolts shall extend completely through their nuts but not more than ¼". Steel to C.I. flange joints shall be made up with extreme care, tightening the bolts uniformly after bringing flange flush with gaskets with accurate pattern and lateral alignment. Earthing copper jumpers shall be installed on all flange joints.

18.2.5 **VENTS AND DRAINS**

High point vents and low point drains shall be provided as per the instructions of company, even if these are not shown in the drawings.
Drawing and document, which cover the piping construction work, shall be issued by Company in accordance with "Drawing and Document List".
Piping work shall be carried out with Company issued "Final" drawing and document unless otherwise specified.

18.3 **FABRICATION**

GENERAL

Fabrication requirement shall be in accordance with ASME B 31.3 unless otherwise specified.
Fabrication shall be executed in accordance with the drawings, documents and the related Engineering Specifications.
Stainless steel pre-fabrication work including material storing shall be well separated from other steel pre-fabrication works. Tools and equipment to be used shall be suitable for stainless steel and shall not be used on any other materials, or vice versa.
The bolt holes of flanges shall be straddle /off center from a vertical center line in a horizontal pipeline/piping, and from plant north on a vertical pipeline/piping unless otherwise indicated in the drawing.

CUTTING

Cutting line shall be marked on pipe. Where the material marking will become invisible after cutting, additional material marking shall be provided. In the case of gas cutting, cutting surface shall be ground off to remove any edge and roughness and be made flush and smooth so as not to harm welding quality. In the case of automatic or semi-automatic gas cutter, the cut edge may be bevelled without such grinding off.
In the case of gas cutting, cutting slag stuck inside pipe shall be completely removed, especially for boring of pipe for weld branch.
Abrasive disc used for cutting or grinding of austenitic stainless steels or other high Cr-Ni steel shall not be used for carbon steels, or vice versa.
Plasma jet cutting may be applied for cutting stainless steel materials.

END PREPARATION

End preparation for butt weld shall be in accordance with Table:1, or any other details which meets the WPS

WELDING BEVELS FOR BUTT WELDS

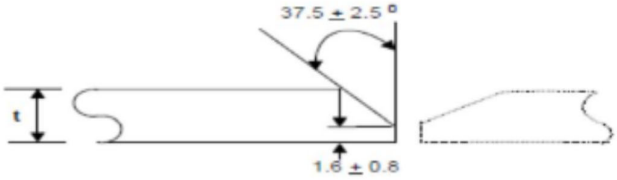
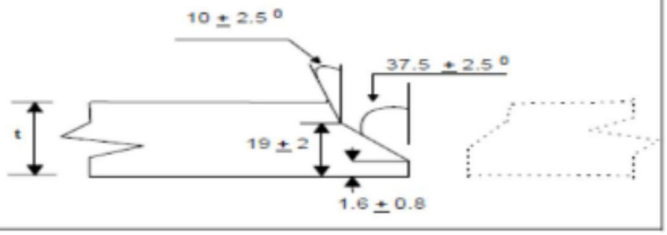
Thickness of Pipe	Type of End	Shape of Groove
t < 3	I	
t ≤ 22	V	
t > 22	Double - V	

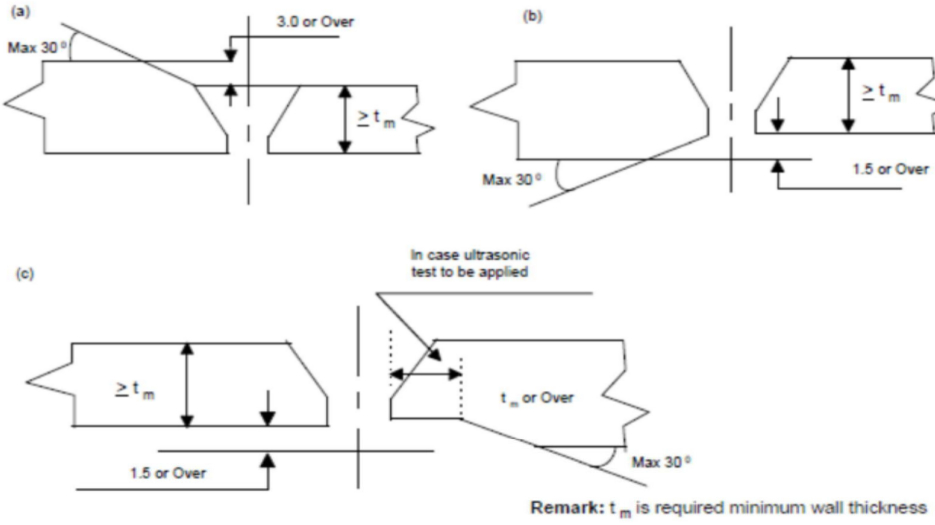
Table: 1

Shape of bevelling other than mentioned in Table 1 shall be in accordance with the WPS approved by Company.

All weld bevels and weld surfaces shall be free from cracks, porosity, slag inclusion and other defects indicative of poor manufacture.

ALIGNMENT AND TRIMMING

In the case of butt-welding pipe and / or fitting having unequal wall thickness, of which the difference is more than 3 mm in outer surface and / or 1.5 mm in inner surface, the end of the thicker pipe shall be trimmed by grinding as per the Fig. 1 (a), (b) and (c) shown below. The gradient of this trimming shall be less than 30°

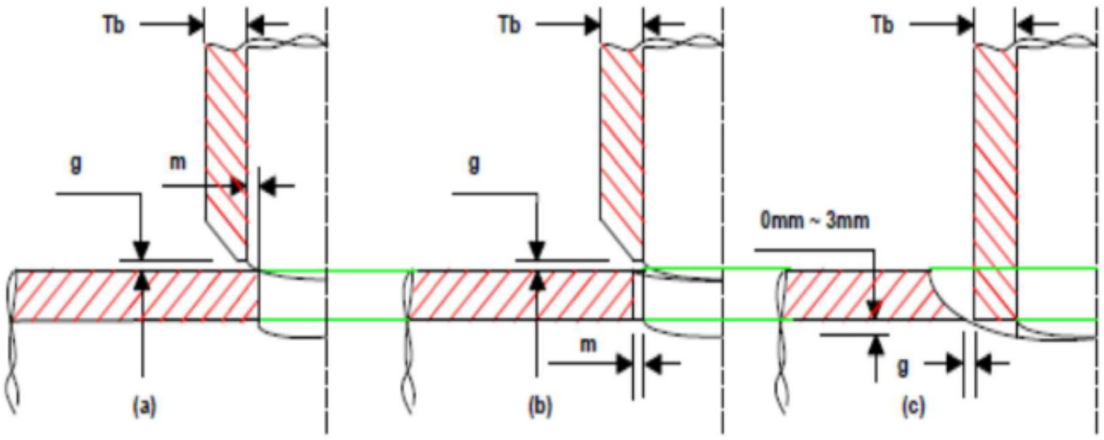


Remark: t_m is required minimum wall thickness between worked and no worked parts shown as below.

Fig. 1

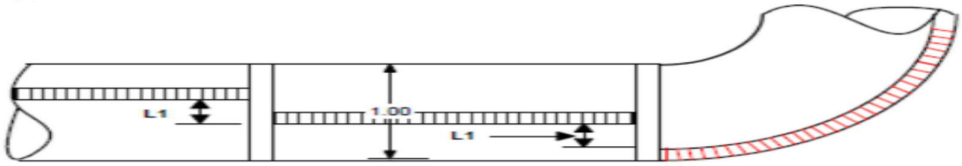
Branch connections which about the outside surface of the run pipe shall be contoured for groove welds which meet the WPS requirements [see Fig. 2 (a) and (b)].

Branch connection which are inserted through a run opening shall be inserted at least as far as the inside surface of the run pipe at all points [see Fig. 2 (c)].



g = Root gap per WPS
m = The lesser of 3.2mm or 0.5 Tb

Branch connections which about the outside surface of the run pipe shall be contoured for groove welds which meet the WPS requirements [see Fig. 2 (a) and (b)].
Branch connection which are inserted through a run opening shall be inserted at least as far as the inside surface of the run pipe at all points [see Fig. 2 (c)].
When a pipe having a longitudinal weld seam is used in a horizontal line, the pipe shall be laid so that the longitudinal weld seam is not on bottom or top of the pipe. Allocation and relation among circumferential longitudinal and other (branch, support, etc.) welds are shown in the Fig. 3 (a), (b) or (c).



Remarks : L1 shall be five times the pipe thickness or over.

Fig. 3 (a)
(1) Circumferential joint
(2) Branch pipe and weld line on run pipe

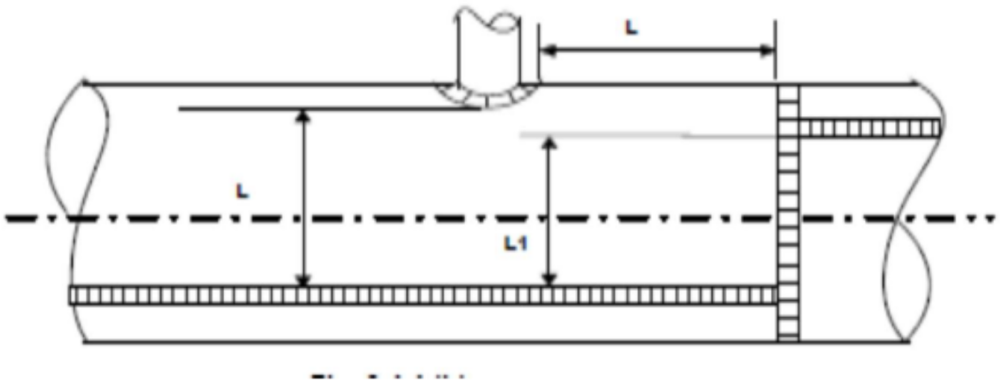
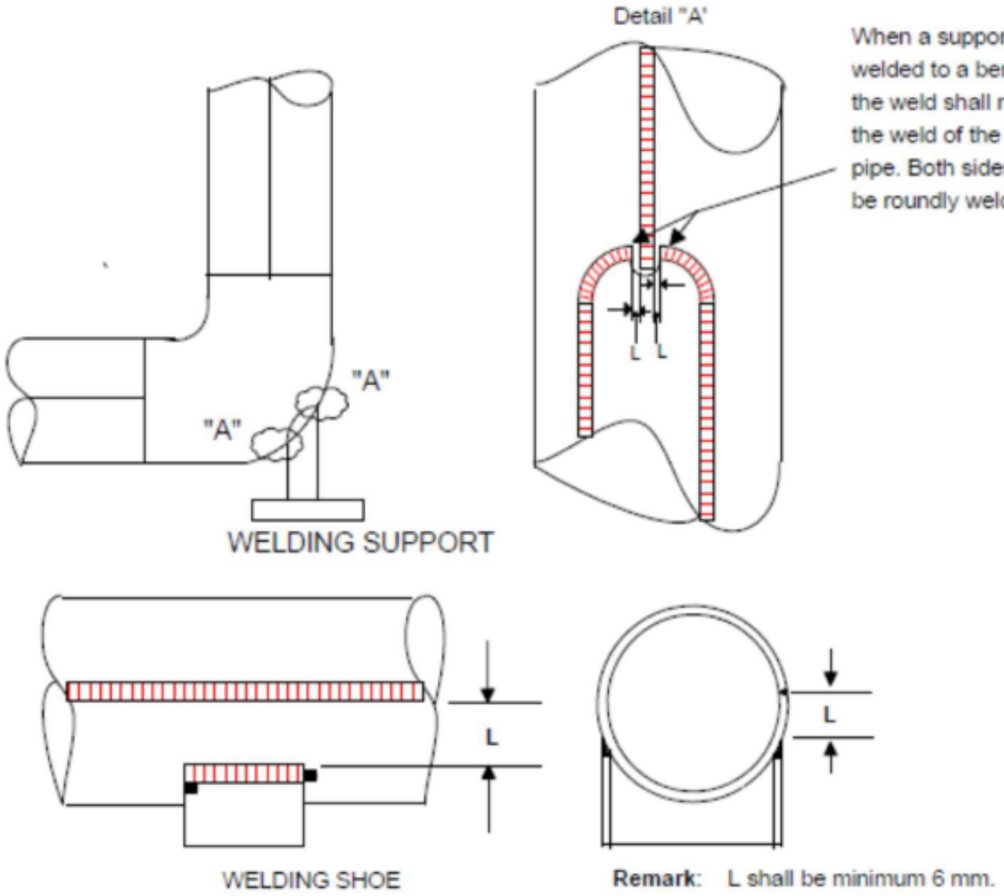


Fig. 3 (b)
Remarks:
L and L1 show the distance between both toes of the bead.
L shall be three times the pipe thickness or over.
L1 shall be five times the pipe thickness or over.

Fig. 3 (c)



(3) Support / Shoe and weld seam of main pipe.
Each butt, socket and support joints shall bear an identification number, which shall be maintained in the piping sketch/ drawing. These numbers shall appear on the fit up/ weld visual reports and NDT records.

WELDING PROCEDURE: -
The pipe shall be aligned so that the longitudinal mill weld in the pipe is on the top 90 Degree of the pipeline (except on vertical bends) and in such a way that the longitudinal mill welds are staggered not less than 45 degrees. Welding surfaces shall be thoroughly cleaned so as to be dry and free from paint, oil, rust, scale and other materials detrimental to weld quality. Each bead shall be cleaned of scale, oxides, dirt, slag and other impurities before any succeeding weld passes are made.

DEFECTS:
Defects revealed by visual inspection, D.P. Test & Radiographic inspection of welds shall be repaired / rectified by the Contractor at his cost to the satisfaction of the Site Engineer. The repaired portion shall be re-examined by radiography. The repairs carried out shall meet the approval of the Site Engineer

WELDING RODS AND ELECTRODES:
The electrodes shall be stored properly by the contractor to prevent moisture absorption and shall be handled in such a manner as to avoid damage to the coating. Manufacturer's instruction in this connection shall be strictly followed. All low Hydrogen type electrodes shall be completely dry when used. These shall be pre dried in suitable ovens at controlled temperature of 200 - 250 Degree Celsius for not less than four hours and then used on the job. Electrodes, wire and flux,

when used shall be free of rust, oil, grease, earth or any other matter, which could be harmful for the quality of welding.
Electrodes of reputed makes shall only be used. The welding consumables used shall meet requirements of the relevant codes and shall produce a deposit which is compatible in chemical analysis and similar in mechanical properties to the parent material.
Only consumables which have received the prior approval of Engineer- in-charge shall be used.
Before proceeding with welding, Contractor shall submit for approval to site Engineer, Type, brand and size for each batch of consumables for use in each class of piping.
Different grades of electrodes shall be completely separated. The Contractor shall have facilities available for storing and testing electrodes at recommended temperature where specified. The consumables shall be stored and handled at all times during construction so as to avoid damage to them and to the containers in which they are transported. Those in open in open containers shall be protected from excessive moisture changes. Electrodes, filler wires and fluxes that show signs of damage or deterioration shall not be used.

INSPECTION OF PRE-FABRICATED PIPING

Pipe work that has been done shall be checked with the relevant Drawings and other related documents to verify that it, as fabricated, complies with dimensions and specifications.
Fabrication shall have dimensions falling within the tolerances defined earlier. All welds shall be visually examined and shall also be subjected to radiographic inspection as required.
Contractor shall provide tools / instruments like spirit levels, dumpy levels, scale, tapes, gauges, callipers etc. for taking levels & measurements whenever required by Site-in charge.

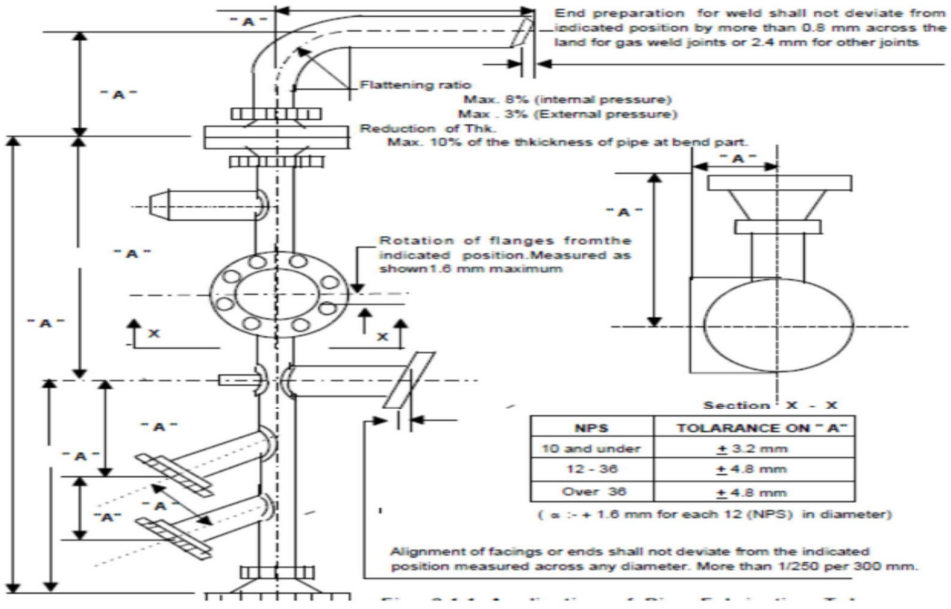
MARKING

All piping components for which welding have been completed shall bear the paint marking with the joint number and identification number of the welder.
Spool piece No. shall be clearly marked on fabricated components.

STORING

Inside of fabricated components shall be cleaned by air blowing, then opening of fabricated components shall be covered with suitable materials so as not to enter the foreign matters such as sand, mud, etc. into piping components. Gasket surface of flange, thread, and welding bevel shall be protected from any damage due to cleaning work and handling of storing.
Zinc contamination to stainless and high Ni-Cr steel shall be avoided. Countermeasures shall be taken to the materials such as protection from Zinc adhesion by paint spray work, separation from Zinc contact when the material is laid on the galvanized grating floor, etc.

PIPE FABRICATION TOLERANCES



NPS	TOLARANCE ON "A"
10 and under	± 3.2 mm
12 - 36	± 4.8 mm
Over 36	± 4.8 mm

(∝ :- + 1.6 mm for each 12 (NPS) in diameter)

Fig. 6

18.4 **PRE-COMMISSIONING, COMMISSIONING AND POST-COMMISSIONING** CONTRACTOR will be responsible for effective working of all piping items like valves and other fitting prior to commissioning. In case any problem is seen in proper functioning of piping system, CONTRACTOR will be responsible to rectify the problem. In case, if some modification work is needed during commissioning, the contractor has to carry out the job without any extra charges.

18.5 **AS BUILT DOCUMENTS**

On successful completion of hydrostatic testing, the Contractor shall prepare As Built drawings / reports for entire piping system as specified in scope of work. All "As Built" drawings / reports shall be submitted as below.

All PFD, P&ID's
As built Piping General Arrangement drawings for all terminals.
As built Piping isometrics
All purchase documents such as Material Requisitions, Purchase Requisitions and purchase orders of bought out items individually or as a unit.
Material reconciliation
Inspection and test reports as per approved ITP
Piping stress analysis.
Piping and equipment support details
Data sheet of valves and special items
Design calculations
List of drawings and documents

PART-III

19. SCOPE OF WORK –ERECTION OF MECHANICAL EQUIPMENT

19.1 GENERAL

Erection/installation work would be carried out independently by CONTRACTOR for equipment. However, for Packaged items and Machinery items the erection shall be carried independently or under package vendor's supervision and instructions. The attached equipment list (Attachment - 5) indicates the Package items where CONTRACTOR will carry out work under package vendor's supervision. The installation would be carried out by standard industrial practices, and relevant codes and standards.

Whenever conflicts exist between the Package vendor's instructions, this Specification, other specifications, the drawings, or codes, the COMPANY's Site Construction Manager shall be notified and shall provide the final resolution.

The CONTRACTOR will provide supervision, labour, equipment, materials, tools, and all other supplies, (unless specifically noted as being provided by others) to perform the work described there in accordance with the document and the referenced specification. In case work not specifically shown on the drawing or enumerated but it is necessary for the proper completion of the contract, then that will be done by the CONTRACTOR in the same way as if shown in the drawings or enumerated therein. Following are the major activities in Contractor's Scope-Unload COMPANY furnished equipment and materials. Load and transport equipment and materials from the storage area to the installation location. For process equipment erection necessary instruction as provided by manufacturer Site Construction manager shall be followed.

Crane capacity shall be checked & certified for its suitability of the equipment lift. Valid test certificates of the lifting equipment is to be produced before starting the work and is to be submitted to the Site in charge for verification and approval.

Equipment placement on foundation and anchor bolts size & projection shall be checked prior to placement.

Contractor shall ensure the orientation of the vessels and heat exchangers.

All vessel / tank supported platforms, ladders; gratings shall be installed by Contractor.

In case any hot work is required to carry out at site due to any mismatch, necessary corrective action like NDT or hydro testing shall be carried out by contractor.

Install all the equipment shown on the drawings or as noted in other contract documents.

Equipment installation shall include the supply and placement of grout for equipment or materials, and the supply and installation of anchors and fasteners as required for a complete installation.

Pump erection includes pump erection, motor erection, coupling fitting and final alignment.

Motor driven equipment placement shall include alignment, assembly of belts, sheaves, couplings, guards, etc. as required for a complete installation.

Inspection of the location for the equipment to ensure readiness of area including anchor bolt locations, size, projections and placement of support steel where applicable.

Coordination with COMPANY Construction Manager. No installation of equipment shall be done without release of the area for such installation.

All materials and equipment furnished by the CONTRACTOR shall be in accordance with the specifications. For substitution of any materials deviating from the specification, approval shall be taken from COMPANY. A description of CONTRACTOR supplied substituted material shall be submitted to the COMPANY Construction Manager for approval.

The CONTRACTOR shall be responsible for all obligations under ESI act and any other acts and regulations that may be relevant in carrying out the work assigned to him.

The CONTRACTOR shall not sublet or subcontract the work or part of the work to any other party without the prior consent of the COMPANY.

All equipment handed over to the CONTRACTOR for erection are to be inspected thoroughly by the CONTRACTOR for any damages which might have occurred during transportation/handling and if damages are observed, the same is to be informed to the Site in-charge immediately.

The equipment's handed over to the CONTRACTOR for erection is to be handled carefully.

The CONTRACTOR should use the correct tools and correct practices in handling and installation of the equipment's. The CONTRACTOR will be responsible for any damages to the equipment during erection of the equipment's. The cost of repair/replacement of the equipment, if required, along with the liquidated damages for the delay in the work due to damages during erection will be in the CONTRACTOR's account.

Surface preparation of foundation surface to remove the excessive irregularities is part of

CONTRACTOR'S scope.
For equipment's having common base plate for motor and equipment, first machine alignment to be done and then fixed on the foundation
If there is error in the drilling of holes in the equipment base plate or there is error in the positioning of the foundation bolts or pockets, the same is to be rectified by the CONTRACTOR without any additional cost.
Shims, wedges etc. required for the erection and alignment is in the CONTRACTOR's scope.
The instruction manual given by the any equipment or package supplier should be read before starting the erection. Any special instruction given shall be strictly followed.
Consumables like welding rods, cutting wheel, grinding wheel, cutting gas etc. are to be brought by the CONTRACTOR
After completion of the work, clearance of the site, removal of temporary structures used for erection works, removal of debris etc. are in the CONTRACTOR's scope.
Fitting of accessories (which is received from equipment suppliers in dismantled condition for transportation) e.g. gearbox motor assembly, bottom valves, etc…, drive end in case of blender, components of drying system, etc.
Although, fixing of foundation bolt and grouting are under civil CONTRACTOR scope but levelling, plumbing and alignment will be done by mechanical CONTRACTOR scope.
All necessary work required for commissioning of the equipment.

19.2 INSTALLATION REQUIREMENTS

The CONTRACTOR shall read and understand the equipment/package manufacturer's installation requirements prior to beginning the installation of the equipment.
Equipment shall only be lifted and handled in accordance with the manufacturer's instructions and at points and locations designated for such handling.
Before installation, all parts shall be thoroughly cleaned of all rust, grit and foreign matter.
Where accessible without disassembly, all holes and grooves for lubrication shall be examined and cleaned where necessary. Bolts and screws shall be tightened uniformly without over-stressing the threads. Anchor bolts shall be adequately tightened, and all other bolts shall be tightened per manufacturer's instructions.
During installation of equipment, all small access openings shall be covered with temporary covers made of tape, plywood or sheet metal whenever work is not actually in progress.
Clearance around all equipment shall be checked prior to installing the equipment. Any interference or lack of access for maintenance that may be evident shall be reported to the COMPANY Construction Manager.
All foundation elevations and bolt locations shall be verified prior to the start of installation of equipment. Bending of bolts to fit equipment base plate holes beyond the limit of the bolt sleeves will not be acceptable.
Levelling and alignment of all equipment shall be within the tolerance specified in the manufacturer's instructions. Where equipment is received as a shop-assembled unit, alignment shall be checked and adjusted where necessary.
Levelling plates, dowels, shims, and grout are to be furnished by the CONTRACTOR.
Field alterations to equipment to facilitate installation shall not be made without written approval from COMPANY. Subassemblies shall be dismantled only to the extent necessary to verify clearances, equipment condition and lubrication requirements. Total dismantling of the subassemblies, if necessary, shall be carried out only with the written approval from COMPANY.

The CONTRACTOR shall maintain alignment and lubrication records on all mechanical equipment and submit them to COMPANY for acceptance upon completion of the installation. Such records shall clearly indicate at least the following

Equipment name and number
Contract number and name
CONTRACTOR's name
CONTRACTOR's employee name, craft type and employee number.
Date and other pertinent details
Shaft coupling installation and alignment shall be per manufacturer's instructions. All allowable offsets and angular misalignment shall be per manufacturer's tolerances. Safety guards around rotating equipment furnished by the equipment manufacturer but shipped loose shall be installed by the CONTRACTOR in accordance with equipment manufacturer's instructions.

19.3 STATUTORY PERMISSIONS

Statutory approval / permissions from any authorities as per statutory rules and regulations of Central / State Government will be CONTRACTOR's responsibility. The application on behalf of the Owner for submission to relevant authorities along with copies of required certificates complete in all respects will be prepared by the CONTRACTOR well ahead of time so that the actual construction /commissioning of the work is not delayed for want of approval / inspection by concerned authorities.

Documents as required will be generated and submitted for approval of the statutory authorities. Follow up and obtaining clearances will be the responsibility of the CONTRACTOR. Any and all fees required to be submitted/paid to the statutory authorities / State /Central Government regulatory bodies etc. will be borne by the CONTRACTOR.

The CONTRACTOR will arrange the inspection of the works by the appropriate Authorities and necessary coordination and liaison work in this respect will be the responsibility of the CONTRACTOR.

Any additions / changes / modifications required to be made to meet the requirements of the statutory authorities / regulatory boards will be carried out by the CONTRACTOR without any extra cost and will have no implication on time schedule.

Fulfilment of all requirements during erection and construction, obtaining relevant certification for the installations will be responsibility of the CONTRACTOR. Further the CONTRACTOR has to give all required assistance to the COMPANY to enable COMPANY to obtain all the above certificates within a period of 3 months from the date of commissioning.

The above services should be included in Lump Sum quoted price.

19.4 AS-BUILT DOCUMENTS

On successful completion of commissioning, the successful bidder shall prepare As Built drawings / reports for all equipment as specified in scope of work. All "As Built" drawings / reports shall be submitted as below.

Installation procedure of all equipment
Alignment report of all static and rotating equipment
Installation, hook-up, field testing and commissioning procedures/ specifications.

19.5 HEALTH SAFETY AND ENVIRONMENT

19.5.1 SCOPE

This specification establishes the Health, Safety and Environment (HSE) management requirement to be complied by CONTRACTOR during construction. Requirements stipulated in this specification shall supplement the requirements of HSE Management given in relevant Act (s)/legislations, General Conditions of Contract (GCC), and Job (Technical) Specifications. Where different documents stipulate different requirements, the most stringent shall apply.

19.5.2 REFERENCE

The document should be read in conjunction with following:
General Conditions of Contract (GCC)
Building and other construction workers (regulation of employment and condition of service) Act, 1996
Job (Technical) specifications
Please ensure HSE as per relevant IS codes.
OMR and OISD standards.
Statutory requirements as stipulated and other applicable Rules and Regulations.

19.5.3 REQUIREMENTS OF HSE MANAGEMENT SYSTEM TO BE COMPLIED BY CONTRACTOR

HSE POLICY AND OBJECTIVES

The CONTRACTOR shall have a documented HSE policy & objectives to demonstrate commitment of their organization to ensure health, safety and environment aspects in their line of operations.

MANAGEMENT SYSYTEM

The HSE management system of the CONTRACTOR shall cover all HSE requirements as per the site condition.
INDEMNIFICATION
CONTRACTOR & their representatives are responsible for any and all liabilities arising out of non-fulfilment of HSE requirements.
PERSONNEL DEPLOYMENT
CONTRACTOR, as a minimum requirement, shall designate/ deploy the following persons at site:
Up to 75 persons - Designate one safety supervisor deployed by him at site
For 76 to 250 persons - Deploy one qualified & experienced safety officer in addition to the Safety Supervisor.
For more than 250 persons - Deploy an additional Safety Engineer/ deployed by him at site Officer for every 250 persons or part thereof, in addition to above.
IMPLEMENTATION AND MONITORING
CONTRACTOR shall be fully responsible for planning, reporting, implementing and monitoring all HSE requirements and compliance of all laws & statutory requirements. The CONTRACTOR shall also ensure that the HSE requirements are clearly understood & faithfully implemented at all levels at site.
AWARENESS
The CONTRACTOR shall promote and develop consciousness about Health, Safety and Environment among all personnel working for the CONTRACTOR. Regular awareness programmes and fabrication shop/work site meetings shall be arranged on HSE activities to cover hazards involved in various operations during construction.
FIRE PREVENTION AND FIRST AID
The CONTRACTOR shall arrange suitable first aid measures such as First Aid Box, trained personnel to administer First Aid, stand-by ambulance or vehicle and install fire protection measures such as: adequate number of steel buckets with sand & water and adequate number of appropriate fire extinguishers to the satisfaction of COMPANY.

DOCUMENTATION
The CONTRACTOR shall evolve a comprehensive, planned and documented system for implementation and monitoring of the HSE requirements. This shall be submitted to COMPNAY for approval. The monitoring for implementation shall be done by regular inspections and compliance to the observations thereof. The CONTRACTOR shall get similar HSE requirements implemented at his sub-CONTRACTOR(s) work site/office. However, compliance of HSE requirements shall be the responsibility of the CONTRACTOR. Any review/approval by COMPANY shall not absolve CONTRACTOR of his responsibility/liability in relation to all HSE requirements.
 ACCIDENT INVESTIGATION
All accidents shall be investigated by a team of CONTRACTOR's senior personnel for establishing root cause and recommending corrective & preventive actions. Findings shall be documented and suitable actions taken to avoid recurrences shall be communicated to COMPANY.
COMPANY shall have the liberty to independently investigate such occurrences and the

CONTRACTOR shall extend all necessary help and cooperation in this regard. If required COMPANY shall carryout independent enquiry / accident investigations.

HOUSE KEEPING

CONTRACTOR shall ensure that a high degree of housekeeping is maintained and shall ensure inter alias the followings:

All surplus earth and debris are removed/disposed off from the working areas to identified location(s).

Unused/surplus cables, steel items and steel scrap lying scattered at different places within the working areas are removed to identify location(s).

All wooden scrap, empty wooden cable drums and other combustible packing materials, shall be removed from workplace to identified location(s).

Roads shall be kept clear and materials like pipes, steel, sand, boulders, concrete, chips and bricks etc. shall not be allowed on the roads to obstruct free movement of men & machineries.

Fabricated steel structural, pipes & piping materials shall be stacked properly for erection.

Water logging on roads shall not be allowed.

No parking of trucks/trolleys, cranes and trailers etc. shall be allowed on roads, which may obstruct the traffic movement.

Utmost care shall be taken to ensure over all cleanliness and proper upkeep of the working areas.

Trucks carrying sand, earth and pulverized materials etc. shall be covered while moving within the plant area/ or these materials shall be transported with top surface wet.

The CONTRACTOR shall ensure that the atmosphere in plant area and on roads is free from particulate matter like dust, sand, etc. by keeping the top surface wet for ease in breathing.

At least two exits for any unit area shall be assured at all times.

CONSTRUCTION HAZARDS

CONTRACTOR shall ensure that during the performance of the work, all hazards have been identified, assessed and eliminated.

ACCESSIBILITY

The CONTRACTOR shall provide safe means of access to any working place including provisions of suitable and sufficient scaffolding at various stages during all operations of the work for the safety of his workmen and COMPANY Personnel.

PERSONAL PROTECTIVE EQUIPMENT (PPEs)

The CONTRACTOR shall ensure that all their staff and workers including their sub-CONTRACTOR (s)'s have been issued & wear appropriate PPEs like safety helmets (made of HDPE), safety shoes, full body harness (CE, EN361), protective goggles, gloves etc. All these gadgets shall conform to applicable IS Specifications/CE or other applicable international standards. For shot blasting, the usage of protective face shield and helmets (approved by the competent authority), gauntlet and protective clothing is mandatory. Wherever applicable, DGMS approved PPE items should only be provided. (E.g. Helmet, shoe, Gum boot etc.)

WORKING AT HEIGHT

The CONTRACTOR shall issue height permit for working above 2 metres height after verifying and certifying the checkpoints to be developed during the execution of the job. He shall also undertake to ensure compliance to the conditions of the permit during the currency of the permit including adherence to personal protective equipment. The permit shall be issued initially for one week or expected duration of an activity and extended further for the balance duration. This permit shall be applicable in areas where specific clearance from COMPANY's operation Depts. /Safety Depts. is not applicable. COMPANY field Engineers/Safety Officers/Area Coordinators may verify and sign this permit during the execution of the job. In case work is undertaken without taking sufficient precautions as given in the permit, COMPANY Engineers may cancel the permit and stop the work till satisfactory compliance is arranged.

CONTRACTORS are expected to maintain a register for issuance of permit and extensions thereof including preserving the used permits for verification during audits etc.

CONTRACTOR shall arrange (at his cost) and ensure use of Fall Arrester Systems by his workers. Fall arresters are to be used while climbing tall structures. These arresters should lock automatically against the anchorage line, restricting free fall of the user. The device is to be provided with a double security opening system to ensure safe attachment or release of the user at any point of rope. In order to avoid shock, the system should be capable of keeping the person in vertical position in case of a fall.

CONTRACTOR shall ensure that full body harnesses conforming to EN361 and having authorized marking are used by all personnel while working at height. The lanyards should be strong enough to take the load of the worker in case of a fall. One end of the lanyard shall be firmly tied with the harnesses and the other end with a fixed & rigid structure. The FBH should have BIS marking also. CONTRACTOR shall provide Roof Top Walk Ladders for carrying out activities on sloping roofs in order to reduce the chances of slippages. CONTRACTOR shall ensure that a proper Safety Net System is used wherever the hazard of fall from height is present. The safety net shall be located not more than 9.0 meters below the working surface extending on either side up to sufficient margin to arrest or to reduce the consequences of a possible falls of persons working at different heights.

ELECTRICAL INSTALLATIONS

The CONTRACTOR shall ensure that electrical systems and equipment including tools & tackles are properly selected, installed, used and maintained. The CONTRACTOR shall deploy qualified & licensed electricians for proper & safe installation and for regular inspection of construction power distribution lines/points including their earthing. A copy of the license shall be submitted to COMPANY for records. Proper “Electrical Permit system” as per the IE rule should be used while working with Electrical system and Equipment.

WELDING / GAS CUTTING

CONTRACTOR shall ensure that flash back arresters conforming to BS: 6158 or equivalent are installed on all gas cylinders while in use. All cylinders shall be mounted on trolleys. All welding machines shall have effective earthing. To eliminate radiation hazard, Tungsten electrodes used for Gas Tungsten Arc Welding shall not contain Thorium. Proper PPE should be used during welding, cutting, grinding etc.

OCCUPATIONAL HEALTH

The CONTRACTOR shall identify all operations that can adversely affect the health of its workers and issue & implement mitigation measures. For surface cleaning operations, sand blasting shall not be permitted even if not explicitly stated elsewhere in the contract.

HAZARDOUS SUBSTANCES

Hazardous and/or toxic materials such as solvent coating or thinners shall be stored in appropriate containers, which shall be labelled with the name of the materials, the hazards associated with its use and necessary precautions to be taken. Where contact or exposure of hazardous materials/Noise pollution exceeds the specified limit or otherwise have harmful effects, appropriate personal protective equipment such as gloves, earmuffs, goggles, aprons, chemical resistant clothing, respirator, etc. shall be used.

SPILLS

Chemical and other spills shall be contained and cleaned up immediately to prevent further contamination.

ROAD SAFETY

The CONTRACTOR shall ensure adequately planned road transport safety management system. The vehicles shall be fitted with reverse warning alarms. The CONTRACTOR shall also ensure a separate pedestrian route for safety of the workers and comply with all traffic rules & regulations.

ENVIRONMENT PROTECTION

CONTRACTOR shall ensure proper storage and utilization methodology of materials that are detrimental to the environment. Where required, CONTRACTOR shall ensure that only the environment friendly materials are selected and emphasize on recycling of waste materials such as metals, plastics, glass, paper, oil & solvents.

The hazardous waste, if generated, should be managed as per hazardous waste Management and standing rules. It shall be responsibility of the CONTRACTOR to resolve any pollution complaint from the neighbouring villages and pay suitable compensation (if any).

RECORDS

The CONTRACTOR shall maintain/ submit HSE records as under:

Monthly HSE Checklist cum compliance report

Accident/ Fire Report

Supplementary Accident & Investigation report

Monthly HSE Report

Permit for working above 2 meters height

HSE Plan

QUALITY ASSURANCE

The desire quality is to be met for different activities at various stages of work. SUCCESSFUL BIDDER is required to submit quality control (QC) measures to be adopted for this job for all stages/ types of activities and assure quality through own QC personnel. It is mandatory that CONTRACTORS will have to get approval from COMPANY on his QC plan before start of work at site.

COMPANY may engage TPI for inspection of the materials being procured /supply by successful bidder as well as inspection of the works executed by the successful bidder. The successful bidder shall always allow access to the TPI/ owner's representative as required.

SURFACE COATING

CONTENT

Scope

This specification defines the minimum requirements for the surface preparation, material, supply and application of paints and coatings for CPF Steel structures, Piping, Vessels, Equipment and accessories.

The instructions contained herein also covers the requirements for Quality Assurance and Quality Control together with guaranteed performances.

ABBREVIATIONS

ANSI	American National Standards Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BS	British Standard
DFT	Dry Film Thickness
°C	Degrees Celsius
HSE	Health Safety and Environment
ISO	International Standards Organisation
NACE	National Association of Corrosion Engineers
RAL	European Colour Standard (See tables in Appendix B and C)
SSPC	Steel Structures Painting Council
WHP	Well Head Platform

Codes and standards

All surface preparation painting and corrosion protection shall be in accordance with the latest edition of the following codes and standards.

AMERICAN WELDING SOCIETY (AWS)

AWS C2.18	Guide For the Protection of Steel with Thermal Sprayed Coatings of Aluminium and Zinc and their alloys and composites.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A90	Test Method for Weight of Coating on Zinc-Coated (Galvanised) Iron and Steel Articles
ASTM A123/ A123M	Specification for Zinc (Hit-dip Galvanised) Coatings on Iron and Steel Products
ASTM A143	Recommended Practice for Safe-guarding against Embrittlement of Hot-Dipped Galvanised Structural Steel Products and Procedure for Detecting Embrittlement
ASTM A153/ A153M	Specification for Zinc Coating (Hot-Dip) on Iron and steel Hardware
ASTM A384/ A384M	Standard Practice for Safeguarding Against Warpage and Distortion during Hot-Dip Galvanising of Steel Assemblies.
ASTM A385	Practice for Providing High-Quality Zinc Coatings (Hot-Dip)
ASTM D823	Method of Producing films of uniform thickness of Paint, varnish lacquer and released products on test panels.
ASTM D1200	Test method for viscosity of paints, varnishes and lacquers by ford viscosity cup.
ASTM D3359	Method of measuring adhesion by tape test
ASTM D4541	Test method for pull-off strength of coatings using portable adhesion testers.
ASTM D4940	Test method for conducting metric analysis of water-soluble ionic contamination of blasting abrasives.
ASTM D4285	Test method for indicating oil or water in compressed air.
ASTM D5064	Practice for conducting a patch test to assess coating compatibility.
ASTM E376	Practice for measuring coating thickness by magnetic field or Eddy-Current (Electro-magnetic) test methods.

NATIONAL ASSOCIATION OF CORROSION ENGINEERS (NACE)

RP-01-76	Recommended Practice Corrosion Control of Steel, Fixed Offshore Platforms Associated with Petroleum Production
RP-01-88	Recommended Practice for discontinuity (holiday) testing of Protective Coatings.
RP-02-87	Field measurement of Surface profiles using Replica Tape

STEEL STRUCTURES PAINTING COUNCIL (SSPC)

SSPC-PA 1	Shop, Field and Maintenance Painting of Steel
SSPC-PA 2	Measurement of Dry Coating Thickness with Magnetic Gauges
SSPC-SP 1	Surface Preparation No. 1 Solvent Cleaning
SSPC-SP 2	Surface Preparation No. 2 Hand Tool Cleaning
SSPC-SP 3	Surface Preparation No. 3 Power Tool Cleaning
SSPC-SP-5/NACE	Surface Preparation No. 1 White Metal Blast Cleaning
SSPC-SP-7/NACE	Surface Preparation No. 4 Brush Off Blast Cleaning
SSPC-SP-10/NACE	Surface Preparation No. 2 Near White Metal Blast Cleaning

INTERNATIONAL STANDARDS ORGANISATION(ISO) 8501-1

SA2½	Surface Preparation – Near White Metal Blast Cleaning

MANUFACTURER'S STANDARDS

Paint manufacturer's data sheets, application instructions and safety precautions shall be considered part of this specification.

GENERAL

SURFACES EXCLUDED FROM ABRASIVE BLASTING AND PAINTING

The following surfaces shall not be abrasive blasted or painted.

- All surfaces made from non-ferrous materials (Nickel, Monel, Brass, Bronze)

- Instrument tubing including fusible plugs and tubing used in the ESD system.
- Fibreglass, plastic, or plastic-coated material not susceptible to ultra violet deterioration.
- Stainless steel instrument cases and process control panels.
- Nameplates, machined surfaces, instrument glass, flange faces, control valve stems and similar items.
- Stainless steel process piping and vessels (unless specifically required).
- Electrical conduit, breathers and drain fittings.
- Machined and threaded surfaces shall be protected with suitable rust preventive.
- Flange gasket facing.

If stainless steel is connected to carbon steel, the carbon steel part shall be coated 50 mm beyond the weld zone on to the stainless steel. The coating for stainless steel part shall not contain metallic Zinc and shall be free from chlorides.

MANUFACTURED ITEMS

a) Manufactured items such as valves, level gauges and equipment shall be coated in accordance with this specification.

b) If manufacturer's paint system is not in accordance with this specification, Seller shall blast and repaint the item in accordance with this specification. Only the Buyer may waive this condition and this shall be obtained in writing prior to commencement of works.

Surfaces in Contact

a) Surfaces of components in contact (bottom of skids, mounting surfaces of equipment, pipe supports, brackets, bolt holes, etc.) shall be painted.

b) Surfaces in contact shall receive a minimum of one coat of primer prior to assembly (unless instructed otherwise by Buyer).

c) Paints containing Zinc or Aluminium metal or free chlorides shall not be used on Stainless steel.

d) When zinc rich primers are used, care shall be taken to avoid any possibility of over spraying onto Duplex or Austenitic stainless steel, Nickel alloy steel components.

ENVIRONMENTAL CRITERIA

a) Blasting shall be performed during dry weather.
b) Dry blast cleaning operations shall not be conducted on surfaces that are exposed to rain, water spray, or any other moisture.
c) Surfaces shall not be coated in rain, wind, snow, fog, mist, dust, or in areas where injurious airborne elements exist.
d) Unless otherwise authorised by Buyer, coating shall be applied only if all the following conditions exist:
   - Air temperature 10ºC above dew point.
   - Surface temperature at least 3ºC above dew point.
   - Relative humidity is below 85%.
   - Any other conditions as recommended by coating manufacturer.

e) Painted surfaces upon which it rains prior to the paint being rainproof shall be re-blasted and repainted.

Time Criteria

a) Blasting shall be performed during daylight hours.

b) Blast cleaned surfaces shall be coated with primer within 4 hours, prior to sundown of the same day, and before any rusting occurs.

c) Coatings shall be applied only during daylight hours.

POST-PREPARATION

Nameplates, manufacturer's identification tags, instrument glass, finished flange faces, control valve stems, and similar items shall be cleaned, restored to their original condition, and reattached.

COATING SYSTEMS

a) All equipment coatings must meet the requirements of this specification and be suitable for use in a coastal onshore environment.

b) The type, brand, number of coats, and colour shall be as specified in the Table. A (Appendix A) and where temperatures shown shall be deemed to be maximum operating temperatures. Colour shall be as specified in Table B-1 (Appendix B) or Table C.1 (Appendix C).

c) One manufacturer shall supply the products for each system.

d) Buyer shall approve selection of products in writing.

e) Only originally sealed intact, identified and undamaged manufacturer's containers shall be used. Any container exhibiting leakage or excess skinning or hard setting shall be discarded.

f) The lead content of inorganic zinc silicates shall not exceed 0.05%.

g) Organic coatings, excluding silicone and silicone acrylic, shall be lead and chromate free and VOC compliant.

h) All insulated pipes shall be fully painted prior to fitting insulation.

PAINT STORAGE

FIRE AND SAFETY

Storage areas shall not constitute a potential fire hazard to the work.

TEMPERATURE

Paint, thinners, and associated materials shall be kept in fully enclosed, ventilated storage room(s) within the temperature limits and time restraints for storage specified in manufacturer's product data sheets.

REJECTION

Coating materials that have jelled or otherwise deteriorated during storage shall not be used.

SURFACE PREPARATION

PRE-BLAST PREPARATION/PROTECTION

Steel Surfaces

a) Welding flux in crevices shall be removed.

b) Burrs, weld splatter, slivers, mill scale, indentations, and other sharp surface projections shall be ground smooth prior to further surface preparation.
c) Bolt holes shall be drilled and reamed before blast cleaning.

Electrical/Instrumentation

a) Local mounted instruments, gauges, nameplates, control valve stems, controllers, code stamps, etc., shall be protected to prevent damage during blasting and painting.

b) Where practical, electrical cable shall be installed after blasting. If not adequate cover shall be provided over the cables to protect them.

c) Nameplates that are attached in a manner that allows corrosion to occur behind the nameplate shall be removed prior to abrasive blasting and painting and reattached after painting is complete.

d) Surfaces of adjacent equipment and piping shall be protected from the blasting media.

Mechanical, Piping and Fittings

a) Flanged valves and any other items that can not be effectively sand blasted and primed after assembly shall be blasted and primed separately prior to assembly. Mating surfaces and threads shall be carefully protected from blasting.

b) Machined and threaded surfaces shall be protected from damage caused by the blasting medium.

General Clean-up

a) Before the start of abrasive blasting, oil and/or grease contamination shall be removed in accordance with SSPC-SP 1.
b) Acid washes or other cleaning solutions or solvents shall not be used on metal surfaces after being abrasive blasted. This includes any inhibitive washes intended to prevent rusting.

c) Dirt, scale, or other surface contaminants shall be removed prior to the start of abrasive blasting.

ABRASIVE BLASTING

General

a) Abrasive blasting shall be performed in an area away from painting operations and freshly coated surfaces.
b) Abrasive blasting shall be performed using Buyer approved equipment.

Blasting Equipment

a) Air compressors shall supply a continuous volume of air to each blast nozzle with adequate pressure and volume to achieve the required surface profile.

b) The compressed air supply shall be provided with dryers and oil mist extractors to keep the air supply dry and oil free.

c) The cleanliness of the compressed air shall be verified to standard ASTM D-4285, at the beginning of each shift by blowing air without abrasives or coating onto a clean white cloth. If oil or water appears on the cloth, all traps and separators shall be blown down until subsequent white cloth tests show no water or oil.

Abrasive

a) Unless specifically approved in advance by Buyer, the abrasive shall be mineral slag or a metal shot/grit mixture. Silica sand shall not be used.

b) The maximum particle size shall be no larger than that passing a No. 16 wire mesh screen and shall be capable of producing the desired anchor profile in the material.

c) Abrasive material containing any oil, moisture, or impurities (particularly salt or organic material) or inclusions of any kind shall not be used. It shall contain no more than 100ppm of chloride (Na). Flash rust 15 minutes after blasting indicates excessive salt presence, the surface shall be fresh water cleaned then re-blasted using abrasive material meeting the requirements.

Blasting Operations

The use of centrifugal wheels to propel the abrasive, or machine shot blasting, shall be acceptable only if the Seller/sub seller can demonstrate that an anchor pattern with the required surface profile is being produced.

Blast Cleaned Surface Requirements

a) Abrasive blasted surface profiles in accordance with SSPC-SP-10(Sa 2½) shall be measured using replica tape in accordance with NACE RP-02-87. Surface profiles shall follow Appendix-A coating systems. Profile measurements for abrasive blast cleaned surfaces can also be made with a Keane Tator Profile comparator, Clemtec anchor profile chips, Testex Press-O-Film or other Buyer approved method.

Prior to any coating application the substrate shall be checked for soluble salt contamination using a suitable method and the contamination shall not exceed 5µgm/cm^2. Surfaces that do not meet these criteria shall be reprocessed.

Should this problem occur on a frequent basis the abrasive medium shall be re-examined for quality and if necessary, changed.

b) Galvanised and aluminium surfaces shall be degreased and zinc salts removed by steam cleaning prior to surface preparation in accordance with SSPC-SP 7 (Sa 1).

c) Stainless steel surfaces shall be thoroughly degreased, and all contaminants removed prior to surface preparation in accordance with SSPC-SP-7. In no case steel abrasives or steel brushes shall be used for this operation.

d) Abrasive blasted surfaces shall be rendered dust free by “blow-off” with compressed air or vacuum cleaning prior to the application of primer.

e) A minimum of 100mm around the edges of abrasive blasted areas shall be left bare unless adjoining a newly coated surface. If adjoining a coated surface, blasting shall continue to a minimum of 50mm into the coated surface.

SURFACES WHICH CANNOT BE ABRASIVE BLASTED

a) Surfaces which cannot be abrasive blasted shall be degreased by steam cleaning prior to surface preparation in accordance with SSPC-SP 3 with the prior approval of the Buyer.

b) Care shall be taken not to burnish the metal surface.

c) Rough edges shall be feathered.

PRE-CONSTRUCTION PRIMERS

Pre-construction primers may be used. The brand and generic type shall be submitted to the Buyer for prior approval. For equipment that has received shop prime coat, the field coating Seller shall touch-up prime coat and apply additional coats in accordance with the coating schedule. It is the Seller's responsibility to confirm the compatibility between shop and field applied painting systems with reference to the available documents. In case of any conflict, Buyer shall be contacted for resolution.

Use of Pre-construction primer or shop primer as an integral part of final coating system shall only be considered when there is documented evidence that the surface preparation and the primer applied meets the requirement of the painting system.

PAINT APPLICATION

GENERAL

a) The Seller shall comply with all applicable requirements of the paint manufacturer's specifications regarding surface preparation, paint storage, handling, mixing, safety, application, curing, inspection and testing. The Seller shall have coating manufacturers coating system data sheet (CSDS) for each coating system to be used, containing at least the following information for each product:

- Surface pre-treatment requirements
- Film thickness (max, min and specified)
- Maximum and minimum recoating intervals at relevant temperatures
- Information on thinners to be used (quantities and type)
- Coating repair system

b) Precaution shall be taken to prevent coating from being applied to equipment nameplates, instrument glasses and gauge dials, couplings, shafts, flange and nozzle faces, valve stems, bearing and other machined surfaces.

c) All equipment components shall be in the fully painted condition prior to final assembly. Any damage due to mechanical handling shall be repaired by Seller/Sub-seller as per the paint manufacturer's specifications with the new coating overlapping the undamaged coatings surrounding the repair area.

PAINT PREPARATION

Coatings and primers shall be delivered to the jobsite in the original containers bearing the Manufacturer's name, product designation, batch number, shelf life and date of manufacture. Materials which have exceeded the Manufacturer's recommended shelf life shall not be used. Materials shall be used on a first in, first out basis.

Mixing

a) Before use, coating ingredients in any container shall be thoroughly mixed by power-driven mixers to a smooth and uniform consistency for a minimum of 5 minutes. Hand mixing using paddles shall not be permitted. For two (2) component systems, the catalyst and the coating shall be thoroughly mixed after the catalyst has been added to the coating.

b) Coating material mixed in the original container shall not be used until all settled pigment is incorporated in the vehicle. This does not imply that part of the vehicle may not be poured off temporarily to simplify the mixing.

c) Material which does not have a limited pot life, or does not deteriorate on standing, may be mixed any time before using. If settling has occurred, material shall not remain in spray pots or buckets overnight but shall be gathered into a closed container and re-mixed before use.

Thinning

a) Thinner shall not be added unless necessary for proper application.

b) Thinning shall not exceed the limitations established by manufacturer.

c) The thinner shall be as stated on the manufacturer's product specification sheets.

d) The manufacturer of the coating materials in which it is used shall supply thinner.

e) When use of thinner is permissible, it shall be added during the mixing process. Painters shall not add thinner after paint has been thinned to the proper consistency.

f) Thinning shall be done under supervision acquainted with the correct amount and type to be added.

General Application Techniques

a) Prior to the application of any coat of material, damage to previous coats shall be touched up. Edges of existing coating shall be feathered towards the substrate prior to over coating.

b) Coating shall not be placed on edges prepared for field welds or within 100mm of these edges.

c) Painting shall not be allowed over abrasive blasted areas less than 100 mm away from the un-blasted area.

d) Each coat shall be uniformly applied as a continuous film of uniform thickness free of pores, skips, sags, and drips. Holidays in the final coat at edges, corners, welds, and inaccessible areas shall be protected by hand brushing with an additional layer of finish coat to meet the specified thickness.

e) Each coat shall be in a proper state of cure or dryness before the application of the succeeding coat. Material shall be considered dry for recoating when an additional coat can be applied without the development of any detrimental film irregularities, such as lifting or loss of adhesion of the undercoat, and after the manufacturer's minimum recommended drying time has elapsed

f) The intermediate coat colours shall be distinctly different from the topcoats. Successive coats of paint shall be applied by cross-hatching the previous coat.

g) Painters shall be equipped with wet mil gauges, and each painter shall make frequent checks of wet film thickness.

Air Spray Equipment

a) The equipment shall be kept in satisfactory condition for proper paint application.

b) The air from the spray gun impinging against the surface shall show no condensed water or oil.

c) Spray equipment shall be kept sufficiently clean so that dirt, dried paint, and other foreign materials are not deposited in the paint film.

d) Prior to use, equipment shall be purged with thinner compatible with product to be sprayed.

e) Traps or separators shall be installed between the air source and the spray equipment to remove oil and condensed water from the air.

f) Traps or separators shall be of adequate size, and the drain valves shall be opened slightly to permit continuous draining of condensate during operations.

Brush Application

a) Coatings shall be brushed on all areas which cannot be properly spray coated for any reason.

b) Brushing shall be done so that a smooth coat as nearly uniform in thickness as possible is obtained.

c) Paint shall be worked into all corners and crevices.

d) Runs or sags shall be brushed out.

e) Successive coats of paint shall be applied by cross-hatching the previous coat.

DRYING OF COATED SURFACES

Forced Drying

Paint shall not be force dried under conditions which cause cracking, wrinkling, blistering, formation of pores, or detrimentally affect the condition of the paint.

Dryer Compounds/Accelerators

Dryer compounds or accelerators shall not be added to paint unless specifically called for in the manufacturer's specification for the paint.

HOT-DIP GALVANIZING

SPECIFICATIONS

Miscellaneous Steel Products

a) Gratings and other items so specified on the Contract drawings shall be hot dip galvanised in accordance with ASTM A123 and ASTM A384.

b) Hot dip galvanising shall provide a minimum zinc deposit of 2.5 ounces/ft^2 of surface.

c) Hot dip galvanising of bolts, nuts and washers shall conform with ASTM A153 and ASTM A143. Note: Bolts and nuts for piping are PTFE coated.

PROCEDURES

Galvanised Connections

a) Items to be galvanised shall be galvanised after fabrication.

b) Where it is impossible to galvanise a completely fabricated unit, joints that must be welded after galvanising shall have the welds metalized after assembly of the unit with Buyer approved procedure.

Painted Connections

a) Galvanized members that are to be permanently fixed to the structure by welding shall be attached after the supporting members are primed but before topcoats are applied.

b) The weld and heat-affected zone shall be cleaned of all welding flux, blasted, and coated as per Appendix A.

Repair

a) Galvanized surfaces that require welding, cutting, drilling, or other preparation and any galvanized surface that has been damaged shall be repaired with Buyer approved coating repair system.

b) Rust and surface contaminants shall be removed in accordance with SSPC-SP 3. The area shall then be cleaned by solvent washing.

c) Coating material shall be applied immediately after completion of surface preparation.

INSPECTION and testing

a) As a minimum, all surface preparation and coating application work performed shall be inspected as described in Table 11-1. The results of all the tests shall be recorded in a Daily Inspection Report. The proposed Daily Inspection Reports shall be submitted for Buyer approval.

b) All parts of the work shall be accessible to Buyer / Buyer's representative.

c) The Buyer/Buyer's representative shall at all times have the right to inspect any tools, materials, or equipment used or to be used in the performance of the coating application.

d) The Buyer/Buyer's representative shall have the right to reject any and all equipment or work which does not conform to the specifications.

e) Any defective work or work not conforming to this specification shall be repaired by Seller/ Sub-Seller at no additional time or cost to the Buyer.

MINIMUM INSPECTION AND TESTING REQUIREMENTS

Test Type	Method	Frequency	Acceptance Criteria	Consequence
Environmental conditions	Ambient and steel temperature Relative humidity Dew point	Before start of each shift + Twice per shift	In accordance to specified requirements, sec. 3.4	No blasting or coating
Visual examination	Visual for sharp edges and weld spatter, slivers, rust grade, etc.	100% of all surfaces	No defects Specific requirements sec. 7.0	Defects to be repaired
Cleanliness	a) ISO 8501-1 b) ISO 8502-3	a) 100% visual of all surfaces b) Spot checks	a) In accordance with specified requirements, sec. 7.0 b) Max. quantity and size rating 2	a) Re-blasting b) Re-cleaning and re-testing until acceptable
Salt test	ISO 8502-6 or equivalent	Spot checks	Max conductivity corresponding to 20mg/m^2 NaCl	Re-cleaning and re-testing until acceptable
Surface profile	Comparator or Stylus Instrument (ISO 8503)	Each component or once per 10m^2	As specified, sec. 7.2	Re-blasting
Visual examination of coating	Visual to determine • Curing • Contamination • Solvent retention • Pinholes / popping • Sagging • Surface defects	100% of surface after each coat	According to specified requirements, sec. 13.0 and 14.0	Repair of defects
Holiday detection	NACE RP0188 Voltage, ref table 1	100% of surface after final coat or as required	No holidays	Repair and re-testing
Film thickness	SSPC-PA 2 calibration on smooth surface	SSPC-PA 2	SSPC-PA 2 and coating system data sheet	Repair, additional coats or re-coating as appropriate
Adhesion	ISO 4624 using pneumatic or hydraulic equipment	Spot checks	Ref. notes below	Coating to be rejected
Chloride content of abrasive material	To be provided by Sub-Contractor and approved by Contractor and Company		< 100 parts per million chlorides by weight	To be provided by Sub-Contractor and approved by Contractor
Cathodic Disbandment	Part of prequalification of coating, according to ASTM G8, duration 30 days		Max disbanding 10 mm	Coating to be rejected

Note:
Daily Inspection Report
A Daily Inspection Report shall be maintained by the Seller.

Environmental Conditions
Prior to commencement of any surface preparation and coating application the steel temperature, ambient temperature, dew point and relative humidity shall be measured and recorded on the Seller's Daily Inspection Report. A psychrometer shall be used to determine the relative humidity.

Surface Cleanliness and Surface Profile
These assessments shall be carried out at random locations over the whole structure to provide an accurate assessment of the surface cleanliness and the surface profile. The results shall be recorded on the Seller's Daily Inspection Report.

Adhesion
Absolute minimum value is 5.0 MPa, unless otherwise agreed with Buyer.

INSPECTION RECORDS AND REPORTS
The Buyer shall have the right to inspect the paintwork at all stages of preparation and to reject any tools, instruments, materials, equipment or work that do not conform to this specification.

a) As a minimum requirement for each system the following aspects of the work shall be documented and recorded on the Coating Inspection Report:

- General
  - Names of the Seller and the responsible personnel.
  - Dates when work was carried out.

- Materials Preparation
  - Equipment and techniques used.
  - Materials receipt condition.
  - Type and calibration of instruments used.

- Environmental Conditions
  - Weather and ambient conditions.
  - Painting periods

- Surface Preparation
  - Condition of surface before preparation.
  - Tools and methods used to prepare surface.
  - Condition after preparation.
  - Surface contamination test results.

- Paints and Painting
  - Condition of surface before paint application.
  - Information on systems being applied.
  - Mixing and testing prior to application.
  - Paint application techniques.

- Testing
  - Type of quality control checks carried out, and results.
  - Compliance or otherwise with specification.

REPAIR OF DAMAGE TO SHOP PAINT

a) Where shop paint has been damaged in handling, damaged and loosely adhering paint shall be removed and the surface thoroughly cleaned by blasting wherever possible or by power tools if conditions do not permit blasting.

b) Edges of the breaks shall be feathered using sandpaper or emery cloth and the designated number of prime and finish coats applied.

c) Damaged to the finish coating prior to delivery shall be repaired and refinished.

SITE PAINTING AND REPAIR

a) The type, number of coats, and thickness of coatings shall be as specified in Appendix A.

b) The installation Seller shall touch up coatings that have been damaged during transport and installation.

c) Minor coating repairs made necessary as a result of normal installation procedures, i.e., removal of installation aid and sling damage, etc., shall be performed in accordance with Section 13.0

d) Installation Seller shall paint structural and piping interface connection areas.

e) Surface preparation of the structural and piping interface connection areas shall be in accordance with Section 7.0 of this specification.

COLOUR STANDARD SCHEDULE

a) The Buyer colour-coding standard (if any) takes precedence, otherwise the following colour schedule shall be followed.

- The final coat colours of all equipment piping and structural shall be as defined in Appendix B.
- Process piping shall be identified with two inches wide colour bands of suitable material at each side of a deck/wall penetration, close to equipment or where it is necessary to identify a piping system as Appendix C.

COATING SYSTEMS

SYSTEM NO. 1	APPLICATION	DFT (MICRONS)
Area	**Onshore plant steel structures, ladders etc.**	
Surface Preparation	Solvent de-grease, near white metal blast (SSPC-SP10) with 25 – 50 microns surface profile	
Primer Coat	One coat Zinc rich epoxy primer	50 – 75
Intermediate Coat	One coat polyamide cure high build epoxy	150 – 200
Finish Coat	1 coat Aliphatic Polyurethane	50 – 75
Total Dry Film Thickness (DFT) microns		**250 –300**

SYSTEM NO. 2	APPLICATION	DFT (MICRONS)
Area	**Steel Decking / Non-slip steel surfaces**	
Surface Preparation	Solvent de-grease, near white metal blast (SSPC-SP10) with 25 – 50 microns surface profile	
Primer Coat	Epoxy Zinc rich Primer	50-75
Intermediate coat	Epoxy High Build/mastic with entrained aggregate.	300-350
Final	Polyurethane-Finish	50-75
Total Dry Film Thickness (DFT) microns		**400-500**

SYSTEM NO. 3	APPLICATION	DFT (MICRONS)
Area	**Steel Flare Structure and low maintenance areas.**	
Surface Preparation	Solvent de-grease, near white metal blast (SSPC-SP10) with 25 – 50 microns surface profile	
Coating	Thermal Spraying of Aluminium Silicon resin finish (for use up to 450°C)	200-250 30 - 50
Total Dry Film Thickness (DFT) microns		**230 - 300**

SYSTEM NO. 4	APPLICATION	DFT (MICRONS)
Area	Uninsulated exterior surfaces of Carbon steel vessels, exchangers, Storage tanks, piping, pumps and other equipment or process skid units (including support structures) with surface ***temperatures not exceeding 120℃.***	
Surface Preparation	Solvent de-grease, near white metal blast (SSPC-SP-10) with 25 – 50 microns surface profile	

Primer Coat	Inorganic zinc rich epoxy	50 – 75
Intermediate Coat	1 coat polyamide cured high build epoxy Note (1)	150 – 200
Finish Coat	1 coat Aliphatic Polyurethane	50 – 75
Total Dry Film Thickness (DFT) microns		**250 – 300**

SYSTEM NO. 5	APPLICATION	DFT (MICRONS)
Area	Uninsulated exterior surfaces of Carbon steel vessels, piping, pumps and other equipment or process skid units (including support structure), with surface ***temperatures above 120 ℃ and not exceeding 250ºC***	
Surface Preparation	Solvent de-grease, near white metal blast (SSPC-SP-10) with 25 – 50 microns surface profile	
Primer Coat	Inorganic zinc silicate (self-cure)	40-50
Intermediate Coat/ Finish Coat	High Temperature Silicone Acrylic	50
Total Dry Film Thickness (DFT) microns		**100**

SYSTEM NO. 6	APPLICATION	DFT (MICRONS)
Area	Uninsulated **exterior Carbon Steel surfaces with Temperature exceeding 250ºC** like **Flare stacks, Chimneys, Exhausts, vents, and pipework up to 450ºC.**	
Surface Preparation	Solvent de-grease, near white metal blast (SSPC-SP-10) with 25 – 50 microns surface profile	
Primer Coat	Inorganic zinc silicate (self-cure)	40-50
Finish Coat	High Temperature Silicone Aluminium	2 x 25
Total Dry Film Thickness (DFT) microns		**100**

Note: For surface temperature above 450ºC two coat of 100µm Poly-siloxane system can be used.

SYSTEM NO. 7	APPLICATION	DFT (MICRONS)
Area	Uninsulated exterior austenitic **stainless-steel surfaces** operating up to 120°C and closed spaces subject to condensation.	
Surface Preparation	Solvent degrease, sweep blast to achieve an anchor profile of approximately 45 microns	

Primer Coat	1 coat epoxy Primer	50 – 75
Intermediate Coat	1 coat epoxy Polyamide	150 – 200
Finish Coat	1 coat Aliphatic Polyurethane	50 – 75
Total Dry Film Thickness (DFT) microns		**250 – 300**
SYSTEM NO. 7A	**APPLICATION**	**DFT (MICRONS)**
Area	Uninsulated exterior austenitic stainless-steel surfaces operating between 121°C & 200°C and closed spaces subject to condensation.	
Surface Preparation	Solvent degrease, sweep blast to achieve an anchor profile of approximately 25-45 microns	
Primer Coat	1 coat High temperature Silicone Acrylic	30
Finish Coat	1 coat High temperature Silicone Acrylic	30
Total Dry Film Thickness (DFT) microns		**60**

NOTES:

1. ***Abrasive used shall be non-metallic and chloride free.***
2. ***All paints shall be free from both chloride and low melting point metals in any form.***

SYSTEM NO. 8	**APPLICATION**	**DFT (MICRONS)**
Area	**Galvanised Steel Surfaces**	
Surface Preparation	Cleaning with Alkaline detergent followed by freshwater wash.	
Primer Coat	1 coat etch primer of epoxy	10 – 15
Intermediate Coat	Polyamide Cure Epoxy	50 – 75
Finish Coat	Aliphatic Polyurethane	50 – 75
Total Dry Film Thickness (DFT) microns		**100 – 125**

SYSTEM NO. 9	**APPLICATION**	**DFT (MICRONS)**
Area	**Internal surface of Tank for Diesel storage.**	
Surface preparation	Solvent degrease, near white metal blast (SSPC-SP-10) with surface profile 50 – 75 microns	
Coating Materials	2 coats of high build epoxy phenolic	2 x 125 = 250
Total Dry Film Thickness (DFT) microns		**250**

SYSTEM NO. 10	APPLICATION	DFT (MICRONS)
Area	**Internal surface of vessel/Tank for Fire water, Service water and Potable water (*) storage**	
Surface preparation	Solvent degrease, near white metal blast (SSPC-SP-10) with surface profile 50 – 75 microns	
Coating Materials	2 coats of high build Polyamide cure epoxy	2 x 125 = 250
Total Dry Film Thickness (DFT) microns		**250**

Note: (*) For Potable water storage the paint shall be certified for potable water storage

SYSTEM NO. 11	APPLICATION	DFT (MICRONS)
Area	**Inside Bottom plates (underside) of all Onshore storage tanks**	
Surface preparation	Solvent degrease, near white metal blast (SSPC-SP-10) with surface profile 50 – 75	
Primer Coat	Not required	
Intermediate coat	Option 1 - Belzona 5811 (Note 1)	**250**
	Option 2 - Coal Tar Epoxy (Note 2)	**125 - 140**
Finish Coat	Option 1 – Belzona 5811 (Note 1)	**250**
	Option 2 - Coal Tar Epoxy (Note 2)	**125 - 140**
Total Dry Film Thickness (DFT) microns for Belzona 5811		**500**
Total Dry Film Thickness (DFT) microns for Coal Tar Epoxy		**250 - 280**

NOTES:

1. *This product is the preferred HSE option and the Belzona requirements relating to the application and usage as defined in their Instructions for Use, Product Specification Sheet and Material Safety Data Sheets (for Solidifier and Base) shall be complied with.*

2. *This product shall only be used by personnel who have been advised of the potential risk to their heath, who are fully equipped with appropriate PPE, and who are adequately supervised to ensure that the PPE is worn at all times that the product is in use"*

SYSTEM NO. 12	APPLICATION	DFT (MICRONS)
Area	Internal surface of **Process vessels like Liquid Separator, Production Separator and Flare KO Drums.**	
Surface preparation	Solvent degrease, white metal blast (SSPC-SP-5) with 75-100 microns surface profile	
Coating Materials	Glass Flake Vinyl Ester Lining	2 x 500=1000
Total Dry Film Thickness (DFT) microns		**1000**

SYSTEM NO. 13	APPLICATION	DFT (MICRONS)
Area	Internal surface of Glycol and Methanol Tanks	
Surface preparation	Solvent degrease, white metal blast (SSPC-SP-5) with 75-100 microns surface profile	
Coating Materials	2 coats of two pack solvent free epoxy	2 x 300=600
Total Dry Film Thickness (DFT) microns		**600**

SYSTEM NO. 14	APPLICATION	DFT (MICRONS)
Area	**Fireproofing (Carbon steel)**	
Surface preparation	NACE No.1 / SSPC – SP 5 (H)	50 to 75 µm (2 to 3 mil)
Coating Materials	**Prime Coat:** Epoxy / phenolic **Finish Coat:** Epoxy / phenolic	 150 µm (6.0 mil) 150 µm (6.0 mil)
Total Dry Film Thickness (DFT) microns		**-**

SYSTEM NO. 15	APPLICATION	DFT (MICRONS)
Area	**Insulated** Carbon steel & Austenitic stainless steel exterior surfaces of Vessels, exchangers, Storage tanks, piping, pumps and other equipment or process skid units (*including support* structures) with surface temperatures up to 150°C.	
Surface Preparation	Solvent degrease, sweep blast to achieve an anchor profile of 25 – 45 microns	
Primer Coat	1 coat immersion grade epoxy phenolic	125
Finish Coat	1 coat immersion grade epoxy phenolic	125
Total Dry Film Thickness (DFT) microns		**250**

NOTES:

1. ***For stainless steel, abrasive used shall be non-metallic and chloride free.***
2. ***All paints shall be free from both chloride and low melting point metals in any form.***

Note:

COLOUR CDE

Colour Code of Piping shall be as per OISD guideLine.

A. COLOUR CODE

[PIPELINE COLOUR CODE – IS 2379 – 2006]

ITEM	COLOUR	RAL
Process Gas Lines	Yellow	1024
Process Liquid	Brown	8016
TEG	Pink	4003
MEG	Purple	4006
Methanol	Lilac	4001
Hot oil	Green	6004
Fuel gas	Yellow	1024
Flare Gas Lines	Yellow	1024
Inhibitor	Violet	4008
Open Drain	Orange	2000
Closed Drain	Traffic Orange	2009
Nitrogen	Canary Yellow	Black Band
Instrument Air	Light Blue	5012
Plant air	Water Blue	5021
Diesel	Brown	8008
Lube oil	Light Brown	Light Grey Band
Water:		
Service Water	Light Green	6018
Fire Water	Red	3000
Potable Water	Pastel Green	6019
Effluent Water	Copper Brown	8004

A. COLOUR CODE

[PIPELINE COLOUR CODE – IS 2379 – 2006]

ITEM	COLOUR	RAL
Process Gas Lines	Yellow	1026
Process Liquid	Brown	8016
TEG	Pink	4003
MEG	Purple	4006
Methanol	Lilac	4001

Hot oil	Green	6004
Fuel gas	Yellow	1026
Flare Gas Lines	Yellow	1026
Inhibitor	Violet	4008
Open Drain	Orange	2000
Closed Drain	Traffic Orange	2009
Nitrogen	Canary Yellow	Black Band
Instrument Air	Light Blue	5012
Plant air	Water Blue	5021
Diesel	Brown	8008
Lube oil	Light Brown	1011
Water:		
Service Water	Light Green	6018
Fire Water	Red	3000
Potable Water	Pastel Green	6019
Effluent Water	Copper Brown	8004

B. COLOUR CODE FOR:

STRUCTURE, TANK, VESSEL, HEAT EXCHANGER, VALVES, CRANE & ROTATING EQUIPMENT.

ITEM	COLOUR	RAL	BRITISH STD BS 4800
Steel structures, stairway, handrails, skid supports, ladders, and Foundations	Iron Grey	7011	
Gratings	Galvanised	-	
Steel buildings, walls, doors & window frame	White	9010	
Crane:	Yellow	1003	
Pedestal and Cabin	Yellow and black Stripe	1003 / 9005	
Crane boom and Counter weight			
Columns-Pressure vessels - Exchangers	Off white	1013	
All tanks in tank farm area	Camouflage	--	
Safety Equipment: Safety showers, Eyewash Fountains, First Aid Equipment etc.	Green	6038	14-C-39
Piping Valves, NRV, & Strainer	Dark Grey	7024	
Skid	Black (PU base Coal Tar Epoxy)		
Instrument Equipment	Light Grey	7035	10-A-03
Electrical Equipment	Light Grey	7035	10-A-03
Fire protection Materials and Equipment		3000	

Foamatic Hydrants, Water Hydrants, Extinguishers, Sprinkler systems, Alarm boxes, Fire doors, Connections & cabinets for Fire blankets and Hoses.	Fire Red		04-E-53
ITEM	**COLOUR**	**RAL**	**BRITISH STD BS 4800**
Rotating Equipment: Pumps-Compressors -Fans-Motors	Light Grey	7035	10-A-03
Uncovered moving parts that could cause injury	Orange	2004	06-E-51
Safety signs	Yellow (reflector) Black (name)	1018 9005	
Escape routes, Head Hazards, trip hazards, Restrictive access	Black/yellow stripes	9005 / 1003	
Internal walls/ceilings of equipment enclosure	White	9010	
Internal flooring of equipment enclosure	Brown, Red	3009	

SECTION-5

RESPONSIBILITY MATRIX

S. No.	Item Description	Scope	
		Contractor	SunPetro
1	Preparation of activity wise program of work conforming to agreed Completion schedule.	□	
2	Submission of Work procedures, QAP and ITP along with Report Formats for SunPetro PMC review and approval.	□	
3	Setting up of Contractor's Site Office with computing and printing facilities and fabrication, inspection & storage facilities	□	
4	Deployment of adequate number of qualified & experienced manpower, skilled/unskilled manpower at site for executing the work within agreed Completion schedule. Resume of persons to be submitted for approval by Company.	□	
5	Providing all construction equipment and machinery including welding machinery, all materials required for fabrication and erection of the complete work including sand, cement, reinforcement rods, consumables, tools & tackles, instruments, test equipment of reputed make for execution of work.	□	
6	Providing all material handling equipment, tools & tackles along with load test certificates.	□	
7	Providing personal protective equipment for Contractor's manpower according to statutory requirements	□	
8	Providing adequate number of transport vehicles for movement of contractor's working personnel.	□	
9	Transport and Receipt of all materials (including free issue) at contractor's storage.	□	
10	Transport of free issue materials from company's storage/ site locations to erection site.	□	
11	Transportation of material from Contractor's fabrication shop/storage to erection site.	□	
12	Submission of WPS, PQR & Welder Qualification certificates and any other document required for execution of quality work.	□	
13	Engineering: 1. Residual engineering for piping & pipeline works and erection works. 2. Preparation of all engineering drawings/ documents, including drawings/documents required for statutory approvals, design calculations, specifications, bill of materials, and all erection procedures 3. Pre- Commissioning and commissioning procedure. 4. As Built drawings and documents.	□	

S. No.	Item Description	Scope	
		Contractor	SunPetro
14	Inspection of all bought out items and free issue items at site/ contractor's storage facility.	□	
15	Inspection of the works carried out by contractor at fabrication shop / erection site	□	□
16	Quantifying, monitoring and reporting of actual progress of work, scheduling and forecasting.	□	
17	Removal of all kinds of contractor's debris from construction site	□	
18	Disposal of excess earth from excavation work as instructed by company	□	
19	Disposal of hydrostatic test water as instructed by company	□	
20	Providing Food and Accommodation for Contractor's personnel	□	
21	Supply of Utilities like air, water, oil and electric/diesel power	□	
22	Insurance of Contractor's men & material	□	
23	Following Company's HSE policy, safety rules	□	
24	Following safety and quality requirements of Oil & Gas Industry & as instructed by site In-charge.	□	

SECTION-6

BID EVALUATION CRITERIA

BID EVALUATION CRITERIA

6.1 TECHNICAL CRITERIA

The following vital technical conditions should be strictly complied with failing which bid will be liable to be rejected:

1.1 Bidder should be a pipeline & piping contractor and should be carrying out pipeline & piping works in oil & gas fields.

1.2 Bidder should have completed at least two projects involving laying of flowlines & plant piping works in Oil & Gas fields during last 5 years. Bidder should have laid at least 5 Kms of 6" dia minimum of piggable flow lines in oil & gas fields during last 5 years.

1.3 Out of above works, Work order/contract valve of completed works should not be less than Rs. 3 crores each.

1.4 Average turnover of the company during last three years should be more than Rs. 15 crores.

1.5 Bidder should have on their regular roles following professionals / Engineers:

a. Project Manager,
b. Pipeline/piping engineers,
c. SCM personnel,
d. Inspection engineers,
e. HSE Engineer

1.6 Bidder shall provide personnel wise list of manpower available with the Bidder in respect of above roles along with their resume & experience details.

1.7 Bidder shall submit the list & details of equipment available with them for laying & construction of pipeline/flowline & plant piping works.

1.8 Bidder shall provide the list, with backup documents (Work orders, Completion certificates etc), complying the above requirement. **Documents meeting the above requirements must be submitted along with the technical bid. These documents shall be in the form of:**

a) Copies of relevant pages of contract document showing contract number, period of contract and detailed Scope of Work etc.

b) Copies of experience Certificate (s) or payment certificates or Completion Certificate to substantiate execution of the jobs, issued by the client(s) with contact details of the issuing person/organization (e-mail address, Phone Number, Fax number etc.)

Documentary evidence in support of requirements at S. No. 1.1 to 1.8 above shall be submitted for evaluation.

6.2 COMMERCIAL EVALUATION CRITERIA

Proof of the issue of Tender Document must be sent along with "Technical & Un–Priced Commercial Bid".

1) Submission of Bid: Bids are submitted as per instruction provided in Notice Inviting of Tenders in Section – 2.

2) Acceptance of Terms & conditions: The bidder must confirm unconditional acceptance of Terms & condition of Contract as per Section-3, Price Schedule format as per Section-7 and Instruction to bidder as per Section-2.

3) Offer of following type shall liable to be rejected:

(a) Fax / e-mail / Xerox/photo/scanned copy offers

(b) Offer made by Agent /retainer/consultant / Representatives /Associates / of the foreign principal

(c) Offer do not conform to validity period as per ITB

(d) Offer without Bid bond /bank guarantee in prescribed format for amount and validity as per ITB

(e) Offer without valid GST registration

(f) Offer not accompanied with an undertaking to provide all necessary certificates / document for enabling Company to avail input GSIT/IGST credit which is payable against the supply and services (if awarded) along with documentary evidence of payment of GSIT/IGST

(g) Offer where prices are not firm during entire duration of the contract and /or with qualifications.

(h) Offer not duly signed by authorized signatory

(i) Bidders not meeting Mobilization, Delivery schedule, completion period

Note: Bidder shall confirm that quoted price including of all taxes and duties applicable including corporate tax / income tax etc. as indicated.

6.3 FINANCIAL CRITERIA

1. Average annual turnover of the Bidder during last three years (FY 2023-24 & 2024-25, 2025-26), should be more than Rs. 5 crores.
2. Net worth of the bidder should be positive last FY. Bidder shall submit CA certified Net Worth Certificate.
3. Bidder to submit audited financial statement / CA certified statement for relevant years.

6.4. Joint Venture / Consortium Bidder's Bid

6.4.1 In case of a joint venture / consortium bid, the members / partners of joint venture / consortium must meet the qualification criteria jointly as specified.

6.4.1.1 Lead consortium member should be either a piping contractor and or pipeline contractor who is meeting the technical criteria at clause no. 6.1 of BEC. Other consortium member should meet the remaining criteria of the BEC.

6.4.1.2 Lead Partner shall meet 100% requirement of average turnover and other partner shall have 50% of the average turnover required criteria.

6.4.1.3 The consortium member shall have positive net worth.

6.4.2 The overall responsibility of the Contract Management shall be of Lead member / partner of Joint Venture / Consortium.

6.4.3 In case of Joint venture / Consortium Bid, following additional requirement must also be satisfied:

ii) Indian bidders whose proposal for technical collaboration / Joint Venture / consortium involves foreign equity participation / or payment of royalty and / or a lump-sum for technical know-how and wherever Govt. approval is necessary on their application submitted to SIA (Secretariat for Industrial Assistance), are required to submit:

- A copy of Govt. approval, along with techno-commercial bid (if already granted).

OR

- Furnish an undertaking to submit a copy of the required approval prior to the date of price bid opening.

iii) Bidders should submit a Memorandum of Understanding (MOU) / Agreement with their technical collaborator / joint venture / consortium partner (in case of Joint venture or association) clearly indicating their roles and responsibility under the scope of work.

iv) MOU / Agreement concluded by the bidder with technical collaborator / joint venture / Consortium partner (in case of joint venture), should also be addressed to Sun Petro, clearly stating that the MOU / Agreement is applicable to this tender and shall be binding on them for the entire currency of period of Contract / PO. Notwithstanding the roles and responsibilities of each partner defined in the MOU / Agreement, all the partners will be jointly and severally responsible for completion of job under this contract.

A statement to this effect shall be included in the authorization / nomination/ MOU / Agreement by all members / partners of JV / consortium.

6.5 DISCOUNT

Bidders are advised not to indicate any separate discount. Discount, if any should be merged with the quoted prices.

6.5.1 GENERAL

Bidders to note following:

1. In case bidder take exception to any clause or terms condition of tender document not covered under BEC, Company shall have discretion to reject the offer on account of such exception.

2. In case any contradiction between BEC and a clause appearing elsewhere in the bidding document, provision of BEC shall supersede all such clauses

3. Inspection will be carried out by Company ‘s officers / representative / Third party at the discretion of Company.

SECTION – 7

PRICE SCHEDULE

Schedule of Rates (SOR) for laying of flow lines & plant piping works for Oil & Gas fields in Gujarat

Table A: Rate Contract for laying of flow lines & plant piping works							
				Supply		Service	
Sl. No.	DESCRIPTION OF ITEMS	UOM	Est. Qty	Unit Rate (INR)	Total Amt (INR)	Unit Rate (INR)	Total Amt (INR)
1.0	LAYING Of UNDER GROUND PIGGABLE FLOW LINES: (API 5L,3LPE COATED Seam Less Pipes) Transportation of 3LPE coated line pipes in single / double random length and other materials. Rectification of pipes from all type of damages, clearing and grading of Right of way (ROW) to the specified width. Trenching in all kinds of soil, except rocks to obtain a minimum cover of 1.20 meters over the buried line (in special cases depth to be as per direction of Engineer-In-Charge). Lining up of pipes, aligning (inclusive of supply of forged steel readymade/smooth LR bends or bends made using a cold bending machine to negotiate level, grade or alignment of trench). Welding at site with approved quality electrodes to be supplied by the contractor, cleaning (at no extra cost), In-situ corrosion coating of field joints with supply and installation of heat shrinkable sleeves compatible with 3LPE line pipes. All welding joints shall be of radiographic quality and checking the complete line by Holiday Detector at required voltage, lowering in to the trench, tie-in, coating as above, back-filling the trench with excavated earth. Hydro-static testing of the complete pipe line to the specified pressure, recording the pressure in a pressure recorder /pressure gauge, dewatering and drying. Preparation and submission of four sets of as laid drawings of the line laid, indicating chainage of line, important bench marks, location and chainage of markers, crossings along with the survey nos. along the pipeline route. Final clean-up and restoration of Right of Users (ROU) to original condition to make the job complete as per the specifications and drawings and direction of Engineer-In-Charge. Free issue pipes shall be collected by the contractor from the warehouses spread across Bhaskar Field. Rates are inclusive of all works i.e. Trenching, Welding, NDT, Line lowering, flushing cleaning, Hydrotesting and pre-						

	commissioning and commissioning etc. as per pre-approved procedure and applicable codes and standards.						
1.0 A	LAYING OF UNDER GROUND PIPE LINES: (3LPE COATED PIPES), Piggable flow lines (Hydrocarbon & Water Injection)						
1	Laying of U/G 3LPE 4-1/2" , API 5L, Grade B ,piggable hydrocarbon(HC) flowlines , Wall Thickness 6.02 mm from wells to the nearest well head manifold.(MAWP 65 Barg). Line pipes are free issue material.	Km	14.25				
2	Laying of U/G 3LPE 4-1/2", API 5L, X42 piggable flow Lines, Wall thickness 7.11 mm for water injection to wells from the nearest water injection manifold.(MAWP 100 Barg).Line pipes are free issue material.	Km	15.9				
3	Supply & installation Piggable bends 6D 45 Deg , 4-1/2", 6.02 mm WT for HC flowlines. API 5L, Grade B.	No.	100				
4	Supply & installation of Piggable bends 6D 90 Deg , 4-1/2", 6.02 mm WT for HC flowlines API 5L, Grade B.	No.	25				
5	Supply & installation Piggable bends 6D 45 Deg , 4-1/2", 7.11 mm WT for Water Injection flowlines API 5L, X42	No.	60				
6	Supply & installation of Piggable bends 6D 90 Deg , 4-1/2", 7.11 mm WT for Water Injection flowlines API 5L, X42	No.	30				
1.0 B	LAYING OF UNDER GROUND NON-PIGGABLE PIPELINES: (3LPE COATED PIPES),. Line pipes are free issue material.						
1	Laying of U/G 3LPE 4-1/2" hydrocarbon flowlines, Wall Thickness 6.02 mm from wells. (MAWP 65 Barg)	Km	4				
2	Laying of U/G 3LPE 4-1/2" flow Lines, Wall thickness 7.11 mm for water injection to wells. (MAWP 100 Barg)	Km	2				

1.0 C	Portable Pig Launchers & Receivers: Skid mounted Supply & installation of Pig Launcher/ Receiver consisting of following items: 1. Scrapper Tee Inlet Valve : Full Bore Ball valve 2. Scrapper Tee outlet Valve : Full Bore Ball valve 3. Vent Valve: 2", Globe Valve 4. Kick off valve: Reduced Bore ball valve 5. Drain Valves: 2 Nos. 2", Globe Valves with spectacle blind. 6. Scrapper Equal Tee: Type: Barred 4-1/2" 7. Kickoff line equal Tee: 8. TRV: 1" 9. Pressure Gauge (0-120 Barg), 6", Gycerine filled with needle valve 10. Pig Indicator 11. Skid with proper slope 12. Surface Coating: Off White. Refer spec. 14. Door: Flange Type with Davit with greasing nipple & Deep Galvanised Studs/nuts) 15. High Pressure hose of suitable pressure rating & size: 3 m						
1	Skid mounted Portable Pig Launcher for 4-1/2" hydrocarbon flow lines with connecting hose 3 m long (65 Barg) complete with pig indicator, isolation valves pressure gauges, flange type door with davit.	Set	1				
2	Skid mounted Portable Pig Receiver for 4-1/2" hydrocarbon flow lines with connecting hose 3 m long (65 Barg) complete with pig indicator, isolation valves pressure gauges, flange type door with davit.	Set	1				
3	Portable Pig Launcher for 4-1/2" water injection flow lines with connecting hose 3 m long (100 Barg) complete with pig indicator, isolation valves pressure gauges, flange type door with davit.	Set	1				
4	Portable Pig Receiver for 4-1/2" water injection flow lines(100 Barg) complete with connecting hose 3m long (100 Barg) pig indicator, isolation valves pressure gauges, flange type door with davit.	Set	1				

2.0	PLANT PIPING WORKS: SUPPLY & LAYING OF UNDER GROUND 3LPE COATED PIPES IN THE PLANT INCLUDING FITTINGS.(Equal tee, Unequal tee, Bends) Standard: ASME,B 31.3, ASTM A106, Gr B. Work involves as follows but not limited to : Procurement of Pipes, Storing of Pipes. Transportation of Pipes to respective Fields, excavation, trenching ,Fitment & Welding of pipes as per approved WPS/PQR, Radiography, Hydro Testing, Internal cleaning & drying as per Specification, backfilling ,levelling & Documentation. Minimum 0.50 meters clear gap shall be maintained while crossing the underground existing lines. When an underground pipe line is to be laid into the existing trench, unit rate of laying this line shall be reduced by 15 % (fifteen percent). All works shall be carried out as per applicable standards for piping works.						
1	Pipe 2" x Sch: 80	M	50				
2	Pipe 3" x Sch: 40	M	50				
3	Pipe 4" x Sch: 40	M	50				
4	Pipe 6" x Sch: 40	M	50				
5	Pipe 8" x Sch: 40	M	50				
6	Pipe1" x Sch: 160	M	50				
7	Pipe 4" x Sch: 80	M	50				
8	Pipe 6" x Sch: 80	M	50				
	Equal Tee						
9	Equal Tee 1"x Sch160	No.	10				
10	Equal Tee 3"x Sch80	No.	10				
11	Equal Tee 4"x Sch80	No.	10				
12	Equal Tee 6"x Sch80	No.	10				
13	Equal Tee 2"x Sch80	No.	10				
14	Equal Tee 2"x Sch40	No.	10				
15	Equal Tee 3"x Sch40	No.	10				
16	Equal Tee 4"x Sch40	No.	10				
17	Equal Tee 6"x Sch40	No.	10				
18	Equal Tee 8"x Sch40	No.	10				
	Unequal Tee						
19	Unequal Tee 10"x8" Sch 40	No.	10				
20	Unequal Tee 10"x6" Sch 40	No.	10				
21	Unequal Tee 10"x4" Sch 40	No.	10				
22	Unequal Tee 8"x6" Sch 40	No.	10				
23	Unequal Tee 8"x4" Sch 40	No.	10				
24	Unequal Tee 6"x4" Sch 40	No.	10				
25	Unequal Tee 6"x3" Sch 40	No.	10				

26	Unequal Tee 6"x2" Sch 40	No.	10				
27	Unequal Tee 4"x3" Sch 40	No.	10				
28	Unequal Tee 4"x2" Sch 40	No.	10				
	Bend 90 Degree						
29	90 Deg Bend 1" , Sch 160	No.	10				
30	90 Deg Bend 2" , Sch 80	No.	10				
31	90 Deg Bend 4" , Sch 40	No.	10				
32	90 Deg Bend 6" , Sch 40	No.	10				
33	90 Deg Bend 8" , Sch 40	No.	10				
	Bend 45 Degree						
34	45 Deg Bend 1" , Sch 160	No.	10				
35	45 Deg Bend 2" , Sch 80	No.	10				
36	45 Deg Bend 4" , Sch 40	No.	10				
37	45 Deg Bend 6" , Sch 40	No.	10				
38	45 Deg Bend 8" , Sch 40	No.	10				
39	45 Deg Bend 10" , Sch 40	No.	10				
3.0	SUPPLY & LAYING OF ABOVE GROUND PIPING IN THE PLANT. SPECIFICATIONS ASME B31.3, ASTM A106 Gr B : Service: Process Fluid/Oil/Gas/Utility I. Transportation of pipes and other materials from yard to work site shall be solely on Contractor's account. II.The Contractor shall paint all above ground pipe lines and fittings by applying one coat of primer and two coats of protective anti-corrosive paint, after surface preparation,, as per specifications and direction of Engineer-In-Charge, including supply of approved quality of primer and paint.(As specified in the Scope of work) IV. Before starting the welding operations, welder qualification test, and procedure qualification test are to be conducted and qualified as per API-1104 and duly approved by the Engineer-In-charge. V. All NDT i.e. DPT, Radigrahic testing, UT of pipe welds as applicable as per approved ITP is included in the rates. VI. Hydro-Testing of entire piping shall be performed as per SunPetro Approved Procedure and direction of Engineer-In-Charge. -During hydrostatic testing of pipes contractor is required to add corrosion inhibitor if needed by the Engineer – In -Charge in the testing water as per the directions of EIC. - Rates including completion of all works till commission. - The ultimate payment based on final measurements in the final bills would be						

	as per the unit rate quoted for each item of work and subjected to completion of works as mentioned in the various paragraphs of the conditions of contract, specifications and drawings. - If welding is to be carried out inside / near about the installations a flame arrestor is mandatory with all the equipment's, vehicles run on petroleum products. -Pipe support supply/fabrication and erection including pedestals.						
1	Pipe 1/2 "x Sch: 160	M	50				
2	Pipe 1/2 " XXS	M	50				
3	Pipe 3/4 "x Sch: 160	M	50				
4	Pipe 1 "x Sch: 160	M	50				
5	Pipe 2.0 "x Sch: 80	M	180				
6	Pipe 4.0 "x Sch: 80	M	660				
7	Pipe 6.0 "x Sch: 80	M	90				
8	Pipe 3" x Sch: 40	M	50				
9	Pipe 4" x Sch: 40	M	900				
10	Pipe 6" x Sch: 40	M	50				
11	Pipe 8" x Sch: 40	M	50				
12	Pipe 10" x Sch: 40	M	50				
4.0	NON-DESTRICTIVE TESTING OF WELD JOINTS (Apart from items included at S.No. 1 & 2, & 3 as directed by Engineer Incharge) Specification - API -1104 Item includes cleaning of joints to remove any dirt, dust, grease, or any foreign matter from the surface of weld and its radiographic inspection, UT, MPT, DPT as per specifications. Agency shall deploy radiography machine, qualified radiographer, radiographic films and other required equipment's to carry out the radiographic inspection of welded joints. Agency shall also submit radiographic films and inspection reports duly checked and verified by qualified ASNT Level-II radiographer to Company for approval						
1	Radiographic inspection. (Per cm length)	CM	500				
2	ULTRASONIC THICKNESS MEASUREMENT	No	100				
3	MPT	CM	100				
4	DPT	CM	100				
5.0	EXCAVATION & LINE CROSSING FOR PIGGABLE & NON-PIGGABLE LINE						
	EXTRA EXCAVATION .						
	Extra excavation over item no 1 & 2 . in ordinary soil sand and gravel at or near Nallah crossing or any other uncased crossing, stacking excavated stuff, back-						

	filling the trances after laying the line and restoration of the ROW, as directed by the Engineer-In-Charge and to original condition. Extra excavation beyond 1.5 meters depth would become payable under this item provided the consecutive length of such extra trench work should be more than 20.00 meters. The same item rate shall be considered for preparation of pits for existing line detection and width of the trench shall be as directed by the Engineer-In-Charge						
1	Extra Excavation below 1.5 m in trenches	M3	500				
6.0	UNDERGROUND LINE CROSSING: Extra over the rate for crossing of existing oil / gas trunk lines, flow lines, by new flow lines, for under mentioned sizes. The work to include gradual sloping of the new pipe line so as lay new pipeline below existing pipeline to maintain minimum gap of 500mm between the bottom of the existing pipe line and the top of the new pipe line. It will be the responsibility of the Contractor to keep the existing line safe and free from any damage and the work will be carried out under the supervision and direction of Engineer-In-Charge. Any damages done to the existing pipe line or its protective coating will have to be repaired by the contractor at his own cost. The length for this purpose will be determined between the points where the depth of the trench exceeds 1.5 meters. Required rubber insulation, as per relevant standard, shall be provided between the new flow line & the existing pipeline.						
1	3" Pipe Line crossing	M	10				
2	4" Pipe Line crossing	M	10				
3	6" Pipe Line crossing	M	10				
4	8" Pipe Line crossing	M	10				
5	10" Pipe Line crossing	M	10				
6	12" Pipe Line crossing	M	10				
7	14" Pipe Line crossing	M	10				
8	24" Pipe Line crossing	M	10				
7.0	UNCASED CROSSING with HDD : Laying of line *across the metal / pucca roads, canals* with minimum cover of 1.5 meters from the lowest level near the crossing. The job includes provisioning of necessary diversion or facility to maintain vehicular traffic unaffected, cutting the trench across the hard surface area of the road providing necessary caution boards and signals at appropriate places restoration of						

	roads portion to its original condition including metal / tar surfacing. *Pipe section under uncased crossing should be provided an additional coat and wrap*. Uncased crossing for all the sizes of pipe lines: Additional coating in case of CTE or tape coated pipe may be done either manually or at yard as per direction of Engineer -In -Charge (EIC). No extra payment will be made for this; however actual consumption of insulating material will be given to them. The length of the uncased crossing shall be 2 Mtrs on either side of the Road/ canal embankment outer edges in addition to the actual width of the road/canal (width between embankment outer edges).						
1	3" Pipe Line Laying	M	20				
2	4" Pipe Line Laying	M	20				
3	6" Pipe Line Laying	M	20				
4	8" Pipe Line Laying	M	20				
5	10" Pipe Line Laying	M	20				
8.0	OPEN CUT CROSSING WITH CASING: Item includes cutting the trench with minimum cover of 1.5 meters from the nearest lowest level. The job includes provisioning of necessary diversion or facility to maintain vehicular traffic unaffected, Item includes cutting across the hard surface area providing necessary caution boards and signals at appropriate places, laying of casing pipe of required size and laying of carrier pipe through it including supply & fixing of insulators, providing end seals, backfilling of trench, restoration of area to its original condition including metal / tar surfacing. Additional coating in case of CTE or tape coated pipe may be done either manually or at yard as per direction of Engineer -In -Charge (EIC). No extra payment will be made for this; however actual consumption of insulating material will be given to them. The length of the uncased crossing shall be width between embankment outer edges in case of canal or borrow pit outer edges in case of road.						
1	4" Pipe Line Laying	M	20				
2	6" Pipe Line Laying	M	20				
3	8" Pipe Line Laying	M	20				
4	10" Pipe Line Laying	M	20				
9.0	CASED CROSSING- Horizontal Machine Boring: (Highway/ Railway/Canal/Rivers) A: Laying the pipeline across						

	Highway/Railway/Canal/Rivers through larger diameter casing pipe as per RP-API-1102 which shall be installed by using Horizontal Machine Boring Method. The job includes preparation of approach to site, right of way to the specified width as directed by EIC including dewatering of trench if required, making pits for installation of pipe to get clear cover of minimum 1.2 Mtrs from average ground level and 1.5 Mtrs. or as per statutory or local authority requirements from Highway/Railway Track/ Canal/River bed level or as required at different crossing as shown in the drawings. The job includes Transportation of material to site, stringing the material along ROU rectification or repair of all types of pipe damages, line up & welding by qualified / approved welders as per API 1104 with approved electrodes, cleaning the casing and carrier pipe, priming the casing pipe before installation, laying of the carrier pipe as per Item no.1 to satisfaction of E.I.C., B: For insulation coating on carrier pipe, following will be followed; (i) 3LPE pre-coated pipes. (ii) Tape coat to be provided and applied by Contractor on pipes. Holiday detector at required voltage and repair holidays if any before installation, supply and installation of HDPE insulators, vent pipes. The vent pipes to be coated and wrapped / flood coated with insulation material up to underground portion and painting the over ground portion with one coat of red oxide primer and two coats of approved quality/colour synthetic enamel paint including supply of all consumables. C: Pre-hydrostatic testing of carrier pipe for minimum two hours at the specified test pressure before insertion in the casing pipes, and 24 Hrs. hydrostatic testing after insertion in the casing pipes. The job also includes sealing of casing ends with coal tar enamel soaked fibre glass, flood coating of end portion, providing neoprene rubber end seals over the enamel filled pipe ends, backfilling, restoration of land to the original condition to the satisfaction of field owners and providing concrete support as shown in the drawings. The work to be executed as per specifications, relevant drawings and directions of EIC.						
1	CASED x-ing- M/c Boring: 150 MM ND CASING with Carrier (all size)	M	20				

2	CASED x-ing- M/c Boring: 200 MM ND CASING with Carrier (all size)	M	20				
3	CASED x-ing- M/c Boring: 300 MM ND CASING with Carrier (all size)	M	20				
10.0	CASED CROSSING-MANUAL BORING (Roads & Canals): Installation of casing pipe of required size by horizontal manual boring method across roads/ canals for the purpose of laying of carrier pipe through it. The item includes cleaning and priming of casing pipes before installation, supply and installation of HDPE insulators for fixing on carrier pipe, vent pipes and providing an additional insulation coat (in case of CTE and tape coating but excluding 3 LPE coating) on carrier pipe. Rest all materials shall be supplied by Contractor to complete the work, as per drawing and direction of EIC. The vent pipes are to be coat and wrapped / flood coated with insulation materials, painting the above ground portion of vent pipes with one coat of Red Oxide primer and two coats of Aluminium paint including supply. Hydrostatic testing of carrier pipes for minimum of two hours at the specified test pressure prior to installation in casing. The job also includes sealing of casing ends with coal tar enamel soaked fibre glass, flood coating of end portion, providing neoprene rubber end seals over the enamel filled end pipe ends, backfilling, restoration of land to the original condition to the satisfaction of field owners and providing concrete support as shown in the drawings. The work to be executed as per specifications, relevant drawings and directions of EIC. The boring job to be completed as per approved drawing.						
1	150 MM ND Casing pipes : MANUAL BORING	M	20				
2	200 MM ND Casing pipes : MANUAL BORING	M	20				
3	300 MM ND Casing pipes : MANUAL BORING	M	20				
11.0	SUPPLY & INSTALLATION OF " Y "STRAINER (CS): Supply & Installation following ' Y ' types of readymade C.S. strainer, with companion flanges, studs, nuts, washers and reinforced Gaskets as per specification drawing and direction of EIC. The strainer shall be procured from the Manufactures/ authorized dealer of the valves supplier vendor as per the vendor						

	list attached and prior approval to be obtained from the EIC. The hydrostatic testing before fixing of strainer is required to be carried out at site. The item also includes installation of strainer in position, welding of companion flanges, tightening of studs, nuts and washers. The item is inclusive of supply and application of one coat of zinc chromate primer and two coats of enamel/ synthetic paint of approved colour and quality as per specification and direction of EIC. Strainer mesh size & MoC: 20/40 mesh, SS316						
1	Strainer Size: 1"x 150 Class	No	1				
2	Strainer Size: 2"x 150 Class	No	1				
3	Strainer Size: 3"x 150 Class	No	1				
4	Strainer Size: 4"x 150 Class	No	1				
5	Strainer Size: 6"x 150 Class	No	1				
6	Strainer Size: 1"x 300 Class	No	1				
7	Strainer Size: 2"x 300 Class	No	1				
8	Strainer Size: 3"x 300 Class	No	1				
9	Strainer Size: 4"x 300 Class	No	1				
10	Strainer Size: 6"x 300 Class	No	1				
12.0	SUPPLY & INSTALLATION OF "BUCKET " STRAINER (CS): Supply & Installation following ' Bucket ' types of readymade C.S. strainer, with companion flanges, studs, nuts, washers and reinforced Gaskets as per specification drawing and direction of EIC. The strainer shall be procured from the Manufactures/ authorized dealer of the valves supplier vendor as per the vendor list attached and prior approval to be obtained from the EIC. The hydrostatic testing before fixing of strainer is required to be carried out at site. The item also includes installation of strainer in position, welding of companion flanges, tightening of studs, nuts and washers. The item is inclusive of supply and application of one coat of zinc chromate primer and two coats of enamel/ synthetic paint of approved colour and quality as per specification and direction of EIC.Mesh size as required.Strainer mesh size & MoC: 20/40 mesh, SS316						
1	Strainer Size: 6"x 150 Class	No	1				
2	Strainer Size: 8"x 150 Class	No	1				
3	Strainer Size: 10"x 150 Class	No	1				
4	Strainer Size: 12"x 150 Class	No	1				
5	Strainer Size: 14"x 150 Class	No	1				
6	Strainer Size: 6"x 300 Class	No	1				
7	Strainer Size: 8"x 300 Class	No	1				

8	Strainer Size: 10”x 300 Class	No	1				
13.0	VALVES						
	SUPPLY AND INSTALLTION OF VALVES Supply of following size arid types of valves confirming to relevant API standard with companion flanges, studs, nuts, washers and reinforced Gaskets as per API 6D specification drawing and direction of EIC. The valves shall be procured from the Manufactures/ authorized dealer of the vendor as per the vendor list attached and prior approval to be obtained from the EIC. The item also includes carrying out Inspection of valves / NRV, through Third party/ specialized reputed agencies in inspection field and charges thereof shall be borne by the contractor, however hydrostatic testing before fixing of valves is required to be carried out at site. The item is inclusive of supply and application of one coat of zinc chromate primer and two coats of enamel/ synthetic paint of approved colour and quality as per specification and direction of EIC. The Mill's inspection and 'TEST' certificate shall be provided along with the inspection certificate from 'Third Party Inspection' (TPI). The items includes installation of Valves of the following sized valves in true plumb and level at places and positions required as per drawing and direction of Engineer-In-Charge; including supply and application of protective anti-corrosive paint and testing as per direction of Engineer-In-Charge. The rate to be inclusive of welding of companion flanges, tightening of bolts, providing permanent gasket, repair and rectification of all kind of leaks. Applicable API Standard: Ball Valve						
13A	Gate Valves (API 6D)						
1	1/2" Gate Valve A 105N 800#FSW x FNPT	Nos	1				
2	3/4" Gate Valve A 105N 800#FSW x FNPT	Nos	1				
3	1" Gate Valve A 105N 800#FSW x FNPT	Nos	1				
4	1.5"Gate Valve A 105N 800#FSW x FNPT	Nos	1				
5	2" Gate Valve: A216-WCB 150LB RF 3.2/6.3 Ra	Nos	1				
6	3" Gate Valve: A216-WCB 150LB RF 3.2/6.3 Ra	Nos	1				
7	4" Gate Valve: A216-WCB 150LB RF 3.2/6.3 Ra	Nos	1				
8	6" Gate Valve: A216-WCB 150LB RF	Nos	1				

	3.2/6.3 Ra						
9	8" Gate Valve: A216-WCB 150LB RF 3.2/6.3 Ra	Nos	1				
10	10" Gate Valve: A216-WCB 150LB RF 3.2/6.3 Ra	Nos	1				
11	2" Gate Valve: A216-WCB 300LB RF 3.2/6.3 Ra	Nos	1				
12	3" Gate Valve: A216-WCB 300LB RF 3.2/6.3 Ra	Nos	1				
13	4" Gate Valve: A216-WCB 300LB RF 3.2/6.3 Ra	Nos	250				
14	6" Gate Valve: A216-WCB 300LB RF 3.2/6.3 Ra	Nos	1				
15	8" Gate Valve: A216-WCB 300LB RF 3.2/6.3 Ra	Nos	1				
16	10" Gate Valve: A216-WCB 300LB RF 3.2/6.3 Ra	Nos	1				
17	2" Gate Valve: A216-WCB 600LB RF 3.2/6.3 Ra	Nos	1				
18	3" Gate Valve: A216-WCB 600LB RF 3.2/6.3 Ra	Nos	1				
19	4" Gate Valve: A216-WCB 600LB RF 3.2/6.3 Ra	Nos	150				
20	6" Gate Valve: A216-WCB 600LB RF 3.2/6.3 Ra	Nos	1				
21	8" Gate Valve: A216-WCB 600LB RF 3.2/6.3 Ra	Nos	1				
22	10" Gate Valve: A216-WCB 600LB RF 3.2/6.3 Ra	Nos	1				
13.B	Globe Valve (1/2" to 12")(API 623)						
1	1" Globe Valve A 105N 800#SW	Nos	1				
2	1.5" Globe Valve A 105N 800#SW	Nos	1				
3	2" Globe Valve: A216-WCB 150LB RF 3.2/6.3 Ra	Nos	1				
4	3" Globe Valve: A216-WCB 150LB RF 3.2/6.3 Ra	Nos	1				
5	4" Globe Valve: A216-WCB 150LB RF 3.2/6.3 Ra	Nos	1				
6	6" Globe Valve: A216-WCB 150LB RF 3.2/6.3 Ra	Nos	1				
7	8" Globe Valve: A216-WCB 150LB RF 3.2/6.3 Ra	Nos	1				
8	1" Globe Valve: A216-WCB 300LB RF 3.2/6.3 Ra	Nos	1				
9	2" Globe Valve: A216-WCB 300LB RF 3.2/6.3 Ra	Nos	1				
10	3" Globe Valve: A216-WCB 300LB RF 3.2/6.3 Ra	Nos	1				
11	4" Globe Valve: A216-WCB 300LB RF 3.2/6.3 Ra	Nos	50				
12	6" Globe Valve: A216-WCB 300LB RF 3.2/6.3 Ra	Nos	1				
13	8" Globe Valve: A216-WCB 300LB RF 3.2/6.3 Ra	Nos	1				
14	1" Globe Valve: A216-WCB 600LB RF 3.2/6.3 Ra	Nos	1				

15	2" Globe Valve: A216-WCB 600LB RF 3.2/6.3 Ra	Nos	1				
16	3" Globe Valve: A216-WCB 600LB RF 3.2/6.3 Ra	Nos	1				
17	4" Globe Valve: A216-WCB 600LB RF 3.2/6.3 Ra	Nos	30				
18	6" Globe Valve: A216-WCB 600LB RF 3.2/6.3 Ra	Nos	1				
19	8" Globe Valve: A216-WCB 600LB RF 3.2/6.3 Ra	Nos	1				
13.C	Full Bore Ball Valves (1/2" to 12" Class 150,300 and 600)(API 608)						
1	1/2" Ball Valve A 105N 800# SW FB BS EN ISO 17292 SS B&S/TFE	Nos	1				
2	3/4" Ball Valve A 105N 800# SW FB BS EN ISO 17292 SS B&S/TFE	Nos	1				
3	1" Ball Valve A 105N 800# SW FB BS EN ISO 17292 SS B&S/TFE	Nos	1				
4	2" Ball Valve: A216-WCB 150LB RF 3.2/6.3 Ra,FB API 6D	Nos	1				
5	3" Ball Valve: A216-WCB 150LB RF 3.2/6.3 Ra,FB API 6D	Nos	1				
6	4" Ball Valve: A216-WCB 150LB RF 3.2/6.3 Ra,FB API 6D	Nos	1				
7	6" Ball Valve: A216-WCB 150LB RF 3.2/6.3 Ra,FB API 6D	Nos	1				
8	8" Ball Valve: A216-WCB 150LB RF 3.2/6.3 Ra,FB API 6D	Nos	1				
9	10" Ball Valve: A216-WCB 150LB RF 3.2/6.3 Ra,FB API 6D	Nos	1				
13.D	Full Bore Ball Valves (1/2" to 8")(API 608)						
1	1/2" Ball Valve A216 WCB 300LB RF 3.2/6.3 Ra FB API 6D SS B&S/TFE	Nos	50				
2	1" Ball Valve A216 WCB 300LB RF 3.2/6.3 Ra FB API 6D SS B&S/TFE	Nos	200				
3	2" Ball Valve A216 WCB 300LB RF 3.2/6.3 Ra FB API 6D SS B&S/TFE	Nos	100				
4	3" Ball Valve A216 WCB 300LB RF 3.2/6.3 Ra FB API 6D SS B&S/TFE	Nos	1				
5	4" Ball Valve A216 WCB 300LB RF 3.2/6.3 Ra FB API 6D SS B&S/TFE	Nos	50				
6	6" Ball Valve A216 WCB 300LB RF 3.2/6.3 Ra FB API 6D SS B&S/TFE	Nos	1				
7	8" Ball Valve A216 WCB 300LB RF 3.2/6.3 Ra FB API 6D SS B&S/TFE	Nos	1				
13.E	Reduced Bore Ball Valves Class 300 (3" to 14")(API 608)						
1	1" Ball Valve: A216-WCB 300 LB RF 3.2/6.3 Ra,RB API 6D SS B&S/TFE	Nos	1				
2	2" Ball Valve: A216-WCB 300 LB RF 3.2/6.3 Ra,RB API 6D SS B&S/TFE	Nos	1				
3	3" Ball Valve: A216-WCB 300 LB RF 3.2/6.3 Ra,RB API 6D SS B&S/TFE	Nos	1				

4	4" Ball Valve: A216-WCB 300 LB RF 3.2/6.3 Ra,RB API 6D SS B&S/TFE	Nos	150				
5	6" Ball Valve: A216-WCB 300 LB RF 3.2/6.3 Ra,RB API 6D SS B&S/TFE	Nos	1				
6	8" Ball Valve: A216-WCB 300 LB RF 3.2/6.3 Ra,RB API 6D SS B&S/TFE	Nos	1				
13.F	Ball Valve Full Bore Class 600 (1/2" to 14") (API 608)						
1	1" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra, FB API 6D SS B&S/TFE	Nos	120				
2	1/2" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra, FB API 6D SS B&S/TFE	Nos	30				
3	2" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra, FB API 6D SS B&S/TFE	Nos	60				
4	3" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra, FB API 6D SS B&S/TFE	Nos	1				
5	4" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra, FB API 6D SS B&S/TFE	Nos	30				
6	6" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra, FB API 6D SS B&S/TFE	Nos	1				
7	8" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra, FB API 6D SS B&S/TFE	Nos	1				
13.G	Reduced Bore Ball Valve Class 600 (3" to 24")(API 608)						
1	1" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra,RB API 6D SS B&S/TFE	Nos	1				
2	2" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra,RB API 6D SS B&S/TFE	Nos	1				
3	3" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra,RB API 6D SS B&S/TFE	Nos	1				
4	4" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra,RB API 6D SS B&S/TFE	Nos	90				
5	6" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra,RB API 6D SS B&S/TFE	Nos	1				
6	8" Ball Valve: A216-WCB 600 LB RF 3.2/6.3 Ra,RB API 6D SS B&S/TFE	Nos	1				
13.H	Valves for High Temperature Service (250 Deg C) and Class 300	Nos	1				
13.I.1	Ball Valves (API 608)						
1	2"Ball Valves	Nos	1				
2	3" Ball Valves	Nos	1				
3	4" Ball valves	Nos	1				
13.I.2	Gate Valves (API 600)						
1	2" Gate Valves	Nos	1				
2	3" Gate Valves	Nos	1				
3	4" Gate valves	Nos	1				
13.J	BUTTERFLY VALVE (for fire water) (API 609)	Nos					
1	Butterfly Valve: 4 x 150 Class	Nos	1				
2	Butterfly Valve: 6 x 150 Class	Nos	1				
3	Butterfly Valve: 8 x 150 Class	Nos	1				

14.0	NRV for Plant piping (Flapper type) (API 594)						
1	NRV : 2 x 150 Class	Nos	1				
2	NRV : 3 x 150 Class	Nos	1				
3	NRV : 4 x 150 Class	Nos	1				
4	NRV : 6 x 150 Class	Nos	1				
5	NRV : 8 x 150 Class	Nos	1				
6	NRV : 1 x 300 Class	Nos	1				
7	NRV : 2 x 300 Class	Nos	1				
8	NRV : 3 x 300 Class	Nos	1				
9	NRV : 4 x 300 Class	Nos	100				
10	NRV : 6 x 300 Class	Nos	1				
11	NRV : 8 x 300 Class	Nos	1				
12	NRV : 4 x 600 Class	Nos	60				
13	NRV : 6 x 600 Class	Nos	1				
14	NRV : 8 x 600 Class	Nos	1				
15.0	BENDS.						
	BENDS : Supply and Installation Supply and installation of readymade / fabrication bends and welding of the following 'specials' in true plumb and level as per direction of Engineer-In-Charge (EIC), including testing and supply application of anticorrosive painting /coating as indicated by EIC. The rate to be inclusive of cutting and bevelling of pipe ends to which the Fittings are to be welded. Specification: ASTM A-106, Gr-B / A-234, WPB						
1	45 degree Bend: 2 x 40 Sch	Nos	1				
2	45 degree Bend: 3 x 40 Sch	Nos	1				
3	45 degree Bend: 4 x 40 Sch	Nos	100				
4	45 degree Bend: 6 x 40 Sch	Nos	1				
5	45 degree Bend: 8 x 40 Sch	Nos	1				
6	45 degree Bend: 1/2 x 160Sch	Nos	1				
7	45 degree Bend: 3/4 x 160 Sch	Nos	1				
8	45 degree Bend: 1 x 160 Sch	Nos	1				
9	45 degree Bend: 1 1/2 x 80 Sch	Nos	1				
10	45 degree Bend: 2 x 80 Sch	Nos	1				
11	90 degree Bend: 2 x 40 Sch	Nos	1				
12	90 degree Bend: 3 x 40 Sch	Nos	1				
13	90 degree Bend: 4x 40 Sch	Nos	400				
14	90 degree Bend: 6 x 40 Sch	Nos	1				
15	90 degree Bend: 8 x 40 Sch	Nos	1				
16	90 degree Bend: 1/2 x 160 Sch	Nos	1				
17	90 degree Bend: 3/4 x 160 Sch	Nos	1				
18	90 degree Bend: 1 x 80 Sch 160 Sch	Nos	1				
19	90 degree Bend: 11/2 x 80 Sch	Nos	1				
20	90 degree Bend: 2 x 80 Sch	Nos	1				

21	90 degree Bend: 3 x 80 Sch	Nos	1				
22	90 degree Bend: 4 x 80 Sch	Nos	225				
23	90 degree Bend: 6 x 80 Sch	Nos	1				
24	90 degree Bend: 8 x 80 Sch	Nos	1				
25	90 degree Bend: 2 x 160 Sch	Nos	120				
16.0	REDUCERS :supply and installation supply and installation of readymade Reducer & welding of the following 'specials' in true plumb and level as per specifications and direction of Engineer-In-Charge(EIC), including testing and supply application of primer and anticorrosive painting /coating as indicated by EIC. The rate to be inclusive of cutting and bevelling of pipe ends to which the Fittings are to be welded. Specification: ASTM A-106, Gr-B / A-234, WPB						
16.A	CONCENTRIC REDUCER ASTM A-106, Gr-B / A-234, WPB (Sch 40 and 80; Size 1/2" to 10")						
1	10 to 8 x 40 Sch..	Nos	1				
2	10 to 6 x 40 Sch..	Nos	1				
3	10 to 4 x 40 Sch..	Nos	1				
4	10 to 3 x 40 Sch..	Nos	1				
5	8 to 6 x 40 Sch..	Nos	1				
6	8 to 4 x 40 Sch..	Nos	1				
7	8 to 3 x 40 Sch..	Nos	1				
8	8 to 2 x 40 Sch..	Nos	1				
9	6 to 4 x 40 Sch..	Nos	1				
10	6 to 3 x 40 Sch..	Nos	1				
11	6 to 2 x 40 Sch..	Nos	1				
12	4 to 3 x 40 Sch..	Nos	1				
13	4 to 2 x 40 Sch..	Nos	50				
14	3 to 2 x 40 Sch..	Nos	1				
15	3 to 1 x 40 Sch..	Nos	1				
16	2 to 1 x 40 Sch..	Nos	1				
17	2 to 3/4 x 40 Sch.	Nos	1				
18	2 to 1/2 x 40 Sch.	Nos	1				
19	1.5 to 1" x 40 Sch	Nos	1				
20	1.5 to 3/4" x 40 Sch	Nos	1				
21	1.5 to 1/2" x 40 Sch	Nos	1				
22	1 to 3/4" x 40 Sch.	Nos	1				
23	1 to 1/2" x 40 Sch.	Nos	1				
24	3/4" to ½ "x 40 Sch	Nos	1				
25	8 to 6 x 80 Sch..	Nos	1				
26	8 to 4 x 80 Sch..	Nos	1				
27	8 to 3 x 80 Sch..	Nos	1				
28	8 to 2 x 80 Sch..	Nos	1				
29	6 to 4 x 80 Sch..	Nos	1				

30	6 to 3 x 80 Sch..	Nos	1				
31	6 to 2 x 80 Sch..	Nos	1				
32	4 to 3 x 80 Sch..	Nos	1				
33	4 to 2 x 80 Sch..	Nos	30				
34	4 to 1 x 80 Sch..	Nos	1				
35	3 to 2 x 80 Sch..	Nos	1				
36	3 to 1 x 80 Sch..	Nos	1				
37	2 to 1 x 80 Sch..	Nos	1				
38	2 to 3/4 x 80 Sch.	Nos	1				
39	2 to 1/2 x 80 Sch.	Nos	1				
40	1.5 to 1" x 80 Sch	Nos	1				
41	1.5 to 3/4" x 80 Sch	Nos	1				
42	1.5 to 1/2" x 80 Sch	Nos	1				
43	1 to 3/4 x Sch 160	Nos	1				
44	1 to 1/2 x 160 Sch.	Nos	1				
45	3/4 to ½ x 160 Sch	Nos	1				
16.B	ECCENTRIC REDUCER ASTM A-106, Gr-B / A-234, WPB (Sch 40 and 80; Size 1/2" to 10")						
1	10 to 8 x 40 Sch..	Nos	1				
2	10 to 6 x 40 Sch..	Nos	1				
3	10 to 4 x 40 Sch..	Nos	1				
4	10 to 3 x 40 Sch..	Nos	1				
5	8 to 6 x 40 Sch..	Nos	1				
6	8 to 4 x 40 Sch..	Nos	1				
7	8 to 3 x 40 Sch..	Nos	1				
8	8 to 2 x 40 Sch..	Nos	1				
9	6 to 4 x 40 Sch..	Nos	1				
10	6 to 3 x 40 Sch..	Nos	1				
11	6 to 2 x 40 Sch..	Nos	1				
12	4 to 3 x 40 Sch..	Nos	1				
13	4 to 2 x 40 Sch..	Nos	1				
14	3 to 2 x 40 Sch..	Nos	1				
15	3 to 1 x 40 Sch..	Nos	1				
16	2 to 1 x 40 Sch..	Nos	1				
17	2 to 3/4 x 40 Sch.	Nos	1				
18	2 to 1/2 x 40 Sch.	Nos	1				
19	1.5 to 1" x 40 Sch	Nos	1				
20	1.5 to 3/4" x 40 Sch	Nos	1				
21	1.5 to 1/2" x 40 Sch	Nos	1				
22	1 to 3/4 x 40 Sch.	Nos	1				
23	1 to 1/2 x 40 Sch.	Nos	1				
24	3/4 to ½ x 40 Sch	Nos	1				
25	10 to 8 x 80 Sch..	Nos	1				
26	10 to 6 x 80 Sch..	Nos	1				
27	10 to 4 x 80 Sch..	Nos	1				
28	10 to 3 x 80 Sch..	Nos	1				

29	8 to 6 x 80 Sch..	Nos	1				
30	8 to 4 x 80 Sch..	Nos	1				
31	8 to 3 x 80 Sch..	Nos	1				
32	8 to 2 x 80 Sch..	Nos	1				
33	6 to 4 x 80 Sch..	Nos	1				
34	6 to 3 x 80 Sch..	Nos	1				
35	6 to 2 x 80 Sch..	Nos	1				
36	4 to 3 x 80 Sch..	Nos	1				
37	4 to 2 x 80 Sch..	Nos	1				
38	4 to 1 x 80 Sch..	Nos	1				
39	3 to 2 x 80 Sch..	Nos	1				
40	3 to 1 x 80 Sch..	Nos	1				
41	2 to 1 x 80 Sch..	Nos	1				
42	2 to 3/4 x 80 Sch.	Nos	1				
43	2 to 1/2 x 80 Sch.	Nos	1				
44	1.5 to 1" x 80 Sch	Nos	1				
45	1.5 to 3/4" x 80 Sch	Nos	1				
46	1.5 to 1/2" x 80 Sch	Nos	1				
47	1 to 3/4 x 160 Sch	Nos	1				
48	1 to 1/2 x 160 Sch	Nos	1				
49	3/4 to ½ x 160 Sch	Nos	1				
17.0	SUPPLY & INSTALLATION OF TEE: Supply and Installation of Tee on the line at places and positions as required and /or as per the direction of Engineer -In - Charge. The rate to be inclusive of cutting in the main line, required either equal or unequal "Tee" formation Tee Specification: ASME B 16.9						
17.A	Butt Weld Reducing Tee 150# , 300# ,600#						
1	12 to 10 x Sch80	Nos	1				
2	12 to 8 x Sch 80	Nos	1				
3	12 to 6x Sch.80	Nos	1				
4	10 to 8 x Sch80	Nos	1				
5	10 to 6 x Sch80	Nos	1				
6	8 to6 x Sch80	Nos	1				
7	8 to 4 x Sch80	Nos	1				
8	6 to 4 x Sch 80	Nos	150				
9	6 to 3 x Sch 80	Nos	1				
10	4 to 2 x Sch 80 x 160	Nos	30				
11	8 to 6 Sch40	Nos	1				
12	8 to 4 Sch40	Nos	1				
13	6 to 4 Sch40	Nos	1				
14	6 to 3 Sch40	Nos	1				
15	4 to 3 Sch40	Nos	1				
16	4 to 2 Sch40 x 80	Nos	200				
17	3 to 2 Sch40	Nos	1				
17.B	Socket weld reducing Tee Class 6000						

1	1.5x 1"	Nos	1				
2	1.5X 3/4"	Nos	1				
3	1.5x 1/2"	Nos	1				
4	1x 3/4"	Nos	1				
5	1x 1/2"	Nos	1				
6	3/4x 1/2"	Nos	1				
17.C	Socket weld reducing Tee Class 9000						
1	1.5x 1"	Nos	1				
2	1.5X 3/4"	Nos	1				
3	1.5x 1/2"	Nos	1				
4	1x 3/4"	Nos	1				
5	1x 1/2"	Nos	1				
6	3/4x 1/2"	Nos	1				
17.D	Butt weld EQUAL TEE						
1	10" ; 40	Nos	1				
2	8" ; 40	Nos	1				
3	6" ; 40	Nos	1				
4	4" ;40	Nos	350				
5	3";40	Nos	1				
6	10" ; 80	Nos	1				
7	8" ; 80	Nos	1				
8	6" ; 80	Nos	1				
9	4" ; 80	Nos	120				
10	2" ; 80	Nos	1				
11	1"; 80	Nos	1				
12	1"; 40	Nos	1				
17.E	Butt weld EQUAL BARRED TEE						
1	4”; 40	Nos	100				
2	4”; 80	Nos	60				
3	6”; 80	Nos	60				
17.F	Socket weld equal tee						
1	3/4" 160	Nos	1				
2	1"; 160	Nos	1				
3	1.5 "; 160	Nos	1				
18.0	END CAPS.						
18.A	End Caps-Socket weld						
1	1/2" 160	Nos	1				
2	1/2" 160	Nos	1				
3	3/4" Class 160	Nos	1				
4	1" Class 160	Nos	1				
5	1.5 '"Class 160	Nos	1				
18.B	Cap - Butt weld seamless for pipe sizes						
1	Pipe 2. "x Sch: 80	Nos	1				
2	Pipe 3" x Sch: 40	Nos	1				
3	Pipe 4" x Sch: 40	Nos	1				
4	Pipe 6" x Sch: 40	Nos	1				
5	Pipe 8" x Sch: 40	Nos	1				

6	Pipe 10" x Sch: 40	Nos	1				
7	Pipe 12" x Sch: 40	Nos	1				
8	Pipe 3" x Sch: 80	Nos	1				
9	Pipe 4" x Sch: 80	Nos	1				
10	Pipe 6" x Sch: 80	Nos	1				
11	Pipe 8" x Sch: 80	Nos	1				
12	Pipe 10" x Sch: 80	Nos	1				
19.0	PLUG. Plug Hexagonal head NPT Class 300						
1	size 1/2"	Nos	240				
2	size 3/4"	Nos	1				
3	size 1"	Nos	1				
4	size 1.5"	Nos	1				
5	size 2"	Nos	1				
20.0	SOCKOLET. A105 B 31.3, B16.5						
1	Socklet 4" x 1" 3000#	Nos	1				
20.A	SOCKOLET. A105 B 31.3, B16.5 Sockolets ;Cl 6000						
1	12"x 1/2"	Nos	1				
2	12"x 3/4"	Nos	1				
3	12"x 1"	Nos	1				
4	10"x 1/2"	Nos	1				
5	10"x 3/4"	Nos	1				
6	10"x 1"	Nos	1				
7	8"x 1/2"	Nos	1				
8	8"x 3/4"	Nos	1				
9	8"x 1"	Nos	1				
10	6 x 1/2"	Nos	1				
11	6"x 3/4"	Nos	1				
12	6"x 1"	Nos	1				
13	4x 1/2"	Nos	1				
14	4"x 3/4"	Nos	1				
15	4"x 1"	Nos	200				
16	4"x 1.5"	Nos	60				
17	3x 1/2"	Nos	1				
18	3"x 3/4"	Nos	1				
19	3"x 1"	Nos	1				
20	2x 1/2"	Nos	1				
21	2"x 3/4"	Nos	1				
22	2"x 1"	Nos	1				
20.B.1	Sockolets Socket weld ;Cl 9000						
1	12"x 1/2"	Nos	1				
2	12"x 3/4"	Nos	1				
3	12"x 1"	Nos	1				
4	10"x 1/2"	Nos	1				
5	10"x 3/4"	Nos	1				
6	10"x 1"	Nos	1				
7	8"x 1/2"	Nos	1				

8	8"x 3/4"	Nos	1				
9	8"x 1"	Nos	1				
10	6 x 1/2"	Nos	1				
11	6"x 3/4"	Nos	1				
12	6"x 1"	Nos	1				
13	4x 1/2"	Nos	1				
14	4"x 3/4"	Nos	1				
15	4"x 1"	Nos	90				
16	4"x 1.5"	Nos	60				
17	3x 1/2"	Nos	1				
18	3"x 3/4"	Nos	1				
19	3"x 1"	Nos	1				
20	2x 1/2"	Nos	1				
21	2"x 3/4"	Nos	1				
22	2"x 1"	Nos	1				
20.B.2	Weldolet A105 B 31.3, B16.5						
1	4" x 1" SCH 40 x 80	Nos	50				
2	4" x 1" SCH 80 x 160	Nos	60				
3	4" x 1.5" SCH 40 x 80	Nos	50				
4	4" x 1.5" SCH 80 x 160	Nos	60				
5	4" x 2" SCH 40 x 80	Nos	50				
6	4" x 2" SCH 80 x 160	Nos	60				
7	6" x 1" SCH80 X 160	Nos	1				
8	6" x 1.5" SCH80 X 160	Nos	1				
9	6" x 2" SCH80 X 160	Nos	1				
10	Elbolet 4” x 1.5" SCH 160	Nos	50				
20.B.2	Coupling A105 B 31.3, B16.5						
1	1/2" NPT, 6000#	Nos	200				
2	1" NPT, 6000#	Nos	1				
3	1/2" NPT, 9000#	Nos	60				
4	1" NPT, 9000#	Nos	1				
21.0	NIPPOLET. Nippolet Cl 6000						
1	12"x 1.5"	Nos	1				
2	10"x 1.5"	Nos	1				
3	8"x 1.5"	Nos	1				
4	6"x 1.5"	Nos	1				
5	4"x 1.5"	Nos	1				
6	3"x 1.5"	Nos	1				
7	2"x 1.5"	Nos	1				
22.0	FLANGES						
	SUPPLY & INSTALLATION FLANGES : Supply of the following size raised face slipon/Weld-neck and blind flanges as per ANSI B-16.6 PCD , bolt hole dia shall correspond to the dimension of matching flanges of valves / equipment. Supply of flanges as per ASTM A-105 Installation of Slip-on and weld-neck flanges in position, assembling and welding them to pipe / Fittings etc., in true plumb, line and level, as per specification.						

	The rates are inclusive of marginal, other cuttings as required, bevelling, testing of the flange joint etc. And cleaning, supply & application of one coat of red oxide zinc chromate primer and two coats of Aluminium/ enamel synthetic paint as per specification: ASME B 16.5, ASTM A-105						
22.A	SLIPON FLANGE						
1	FLANGE : 1/2 x 150 Class	Nos	1				
2	FLANGE : 3/4 x 150 Class	Nos	1				
3	FLANGE : 1 x 150 Class	Nos	1				
4	FLANGE : 1.5 "x 150 Class	Nos	1				
5	FLANGE : 2 x 150 Class	Nos	1				
6	FLANGE : 3 x 150 Class	Nos	1				
7	FLANGE : 4 x 150 Class	Nos	1				
8	FLANGE : 6x 150 Class	Nos	1				
9	FLANGE : 8 x 150 Class	Nos	1				
10	FLANGE : 10x 150 Class	Nos	1				
11	FLANGE : 1/2 x 300 Class	Nos	200				
12	FLANGE : 3/4 x 300 Class	Nos	1				
13	FLANGE : 1 x 300 Class	Nos	200				
14	FLANGE : 1.5 " x 300 Class	Nos	100				
15	FLANGE : 2 x 300 Class	Nos	1				
16	FLANGE : 3 x 300 Class	Nos	1				
17	FLANGE : 4 x 300 Class	Nos	1				
18	FLANGE : 6 x 300 Class	Nos	1				
19	FLANGE : 8 x 300 Class	Nos	1				
20	FLANGE : 10 x 300 Class	Nos	1				
21	FLANGE : 1/2 x 600 Class	Nos	1				
22	FLANGE : 3/4 x 600 Class	Nos	1				
23	FLANGE: 1 x 600 Class	Nos	120				
24	FLANGE: 1.5" x 600 Class	Nos	60				
25	FLANGE: 2 x 600 Class	Nos	1				
26	FLANGE: 3x 600 Class	Nos	1				
27	FLANGE:4 x 600 Class	Nos	1				
28	FLANGE: 6 x 600 Class	Nos	1				
29	FLANGE: 8 x 600 Class	Nos	1				
30	FLANGE: 10 x 600 Class	Nos	1				
22.B	WELD- NECK FLANGE						
1	FLANGE : 1/2 x 150 Class	Nos	1				
2	FLANGE : 3/4 x 150 Class	Nos	1				
3	FLANGE : 1 x 150 Class	Nos	1				
4	FLANGE : 1.5 "x 150 Class	Nos	1				
5	FLANGE : 2 x 150 Class	Nos	1				
6	FLANGE : 3 x 150 Class	Nos	1				
7	FLANGE : 4 x 150 Class	Nos	1				
8	FLANGE : 6x 150 Class	Nos	1				
9	FLANGE : 8 x 150 Class	Nos	1				

10	FLANGE : 10x 150 Class	Nos	1				
11	FLANGE : 1.5 x 300 Class	Nos	100				
12	FLANGE : 2 x 300 Class	Nos	100				
13	FLANGE : 3 x 300 Class	Nos	1				
14	FLANGE : 4 x 300 Class	Nos	950				
15	FLANGE : 6 x 300 Class	Nos	1				
16	FLANGE : 8 x 300 Class	Nos	1				
17	FLANGE : 10" x 300 Class	Nos	1				
18	FLANGE: 2 x 600 Class	Nos	120				
19	FLANGE: 3x 600 Class	Nos	1				
20	FLANGE:4 x 600 Class	Nos	570				
21	FLANGE: 6 x 600 Class	Nos	60				
22	FLANGE: 8 x 600 Class	Nos	1				
23	FLANGE: 10 x 600 Class	Nos	1				
22.C	Flange Socket Weld RF						
1	FLANGE : 1/2 x 150 Class	Nos	1				
2	FLANGE : 3/4 x 150 Class	Nos	1				
3	FLANGE : 1 x 150 Class	Nos	1				
4	FLANGE : 1.5 "x 150 Class	Nos	1				
5	FLANGE : 1/2 x 150 Class	Nos	1				
6	FLANGE : 1/2 x 300 Class	Nos	75				
7	FLANGE : 3/4 x 300 Class	Nos	1				
8	FLANGE : 1 x 300 Class	Nos	1				
9	FLANGE : 1.5 "x 300 Class	Nos	1				
10	FLANGE : 1/2 x 600 Class	Nos	45				
11	FLANGE : 3/4 x 600 Class	Nos	1				
12	FLANGE : 1 x 600 Class	Nos	1				
13	FLANGE : 1.5 "x 600 Class	Nos	1				
22.D	BLIND FLANGE A105 B16.5, B 31.3						
1	FLANGE : 1/2 x 150 Class	Nos	1				
2	FLANGE : 3/4 x 150 Class	Nos	1				
3	FLANGE : 1 x 150 Class	Nos	1				
4	FLANGE : 1.5 "x 150 Class	Nos	1				
5	FLANGE : 2 x 150 Class	Nos	1				
6	FLANGE : 3 x 150 Class	Nos	1				
7	FLANGE : 4 x 150 Class	Nos	1				
8	FLANGE : 6x 150 Class	Nos	1				
9	FLANGE : 8 x 150 Class	Nos	1				
10	FLANGE : 10x 150 Class	Nos	1				
11	FLANGE :12 x 150 Class	Nos	1				
12	FLANGE : 1/2 x 300 Class	Nos	50				
13	FLANGE : 3/4 x 300 Class	Nos	1				
14	FLANGE : 1 x 300 Class	Nos	100				
15	FLANGE : 1 x 300 Class 1/2" NPT	Nos	150				
16	FLANGE : 1.5 " x 300 Class	Nos	100				
17	FLANGE : 2 x 300 Class	Nos	100				
18	FLANGE : 3 x 300 Class	Nos	1				

19	FLANGE : 4 x 300 Class	Nos	450				
20	FLANGE : 6 x 300 Class	Nos	1				
21	FLANGE : 8 x 300 Class	Nos	1				
22	FLANGE : 10 x 300 Class	Nos	1				
23	FLANGE : 12 x 300 Class	Nos	1				
24	FLANGE : 1/2 x 600 Class	Nos	1				
25	FLANGE : 3/4 x 600 Class	Nos	1				
26	FLANGE: 1 x 600 Class	Nos	1				
27	FLANGE: 1 x 600 Class 1/2" NPT	Nos	60				
28	FLANGE: 1.5" x 600 Class	Nos	30				
29	FLANGE: 2 x 600 Class	Nos	60				
30	FLANGE: 3x 600 Class	Nos	1				
31	FLANGE:4 x 600 Class	Nos	210				
32	FLANGE: 6 x 600 Class	Nos	60				
33	FLANGE: 8 x 600 Class	Nos	1				
34	FLANGE: 10 x 600 Class	Nos	1				
35	FLANGE: 1 x 300 Class 3/4" NPT	Nos	1				
36	FLANGE: 1 x 600 Class 3/4" NPT	Nos	1				
37	2”X1500 Class	Nos	1				
38	3”X1500 Class	Nos	1				
39	4”X1500 Class	Nos	1				
23.0	SUPPLY & INSTALLATION OF ORIFICE FLANGES: Supply, Installation and fixing of the following size upto ASA 600 raised face orifice flanges set as per ANSI B-16.6 PCD, bolt hole dia shall corresponding to the dimension of matching flanges set of required size & schedule. Installation of flanges in position and welding them to pipe / Fittings etc., in true plumb, line and level, including application of protective anti-corrosive paint. The rates are inclusive of marginal cuttings and supply of a set of studs, nuts to assemble the two flanges together tightening with supply of orifice plate, steel washer, gaskets, paint etc. ‘Set’ here means all the studs and nuts required to suit the flange. Supply of flanges as per ASTM A-105						
1	ORIFICE FLANGE : 4 x 300 Class	Nos	1				
2	ORIFICE FLANGE : 6x 300 Class	Nos	1				
3	ORIFICE FLANGE : 4 x 600 Class	Nos	1				
4	ORIFICE FLANGE : 6x 600 Class	Nos	1				
24.0	SUPPLY & INSTALLATION OF ORIFICE PLATE Supply of Orifice Plate of Desired Flange Size . MOC: SS-316. Drilling of desired Hole & chamfering based on requirement.						
1	ORIFICE PLATE FOR FLANGE SIZE: 4 x 300 Class	Nos	1				

2	ORIFICE PLATE FOR FLANGE SIZE: 6x 300 Class	Nos	1				
3	ORIFICE PLATE FOR FLANGE SIZE: 4 x 600 Class	Nos	1				
4	ORIFICE PLATE FOR FLANGE SIZE: 6x 600 Class	Nos	1				
25.0	STUDS & NUTS						
	SUPPLY and Installation OF STUDS - NUTS: Hot Dip Galvanised ,Stud : ASTM A193 Gr. B-7, Hex. Nuts: A194 Gr.2H, threaded full length with 2 heavy Hex head nuts ,thread UNC upto 1"and 8 UN series above for Class 150 and 300 RF for flange size.(Set comprises of all the studs with two nuts required for one pair of flange)(H), Hot Dip Galvanised.						
1	Flange size : 1/2 x 150 Class	Sets	1				
2	Flange size : 3/4 x 150 Class	Sets	1				
3	Flange size : 1 x 150 Class	Sets	1				
4	Flange size : 1.5 x 150 Class	Sets	1				
5	Flange size : 2 x 150 Class	Sets	1				
6	Flange size : 3 x 150 Class	Sets	1				
7	Flange size : 4 x 150 Class	Sets	1				
8	Flange size : 6x 150 Class	Sets	1				
9	Flange size : 8 x 150 Class	Sets	1				
10	Flange size : 10x 150 Class	Sets	1				
11	Flange size :12 x 150 Class	Sets	1				
12	Flange size : 1/2 x 300 Class	Sets	300				
13	Flange size : 3/4 x 300 Class	Sets	1				
14	Flange size : 1 x 300 Class	Sets	1400				
15	Flange size : 1.5 x 300 Class	Sets	800				
16	Flange size : 2 x 300 Class	Sets	800				
17	Flange size : 3 x 300 Class	Sets	1				
18	Flange size : 4 x 300 Class	Sets	10000				
19	Flange size : 6 x 300 Class	Sets	1				
20	Flange size : 8 x 300 Class	Sets	1				
21	FLANGE : 1/2 x 600 Class	Sets	240				
22	FLANGE : 3/4 x 600 Class	Sets	1				
23	FLANGE: 1 x 600 Class	Sets	1200				
24	FLANGE: 1.5 x 600 Class	Sets	480				
25	FLANGE: 2 x 600 Class	Sets	960				
26	FLANGE: 3x 600 Class	Sets	1				
27	FLANGE:4 x 600 Class	Sets	6090				
28	FLANGE: 6 x 600 Class	Sets	1				
29	FLANGE: 8 x 600 Class	Sets	1				
30	FLANGE: 10 x 600 Class	Sets	1				
31	FLANGE: 2-1/16 X 1500 Class	Sets	1				
32	FLANGE: 2-9/16 X 1500 Class	Sets	1				

	Stud Nuts with Washer (RTJ 2 1/16" x#5000) 7/8" x 160mm HDG A193 B7, A 194 GR 2H	Sets	80				
26.0	GASKETS - SPIRALWOUND Supply and installation of spiral wound gaskets to suit ASME B 16.5 designed to ASME B 16.20, conforming to IS - 2712 to suit the following sizes of flange sets as per specifications and direction of Engineer-In-Charge. Gasket shall be 4.5 mm thick , graphite filled with 3 mm thick inner and outer centering ring.						
1	FLANGE : 3/4 x 150 Class	Nos	1				
2	FLANGE : 1 x 150 Class	Nos	1				
3	FLANGE : 1.5 x 150 Class	Nos	1				
4	FLANGE : 2 x 150 Class	Nos	1				
5	FLANGE : 3 x 150 Class	Nos	1				
6	FLANGE : 4 x 150 Class	Nos	1				
7	FLANGE : 6x 150 Class	Nos	1				
8	FLANGE : 8 x 150 Class	Nos	1				
9	FLANGE : 10x 150 Class	Nos	1				
10	FLANGE :12 x 150 Class	Nos	1				
11	FLANGE : 1/2 x 300 Class	Nos	50				
12	FLANGE : 3/4 x 300 Class	Nos	1				
13	FLANGE : 1 x 300 Class	Nos	900				
14	FLANGE : 1.5 x 300 Class	Nos	400				
15	FLANGE : 2 x 300 Class	Nos	200				
16	FLANGE : 3 x 300 Class	Nos	1				
17	FLANGE : 4 x 300 Class	Nos	1350				
18	FLANGE : 6 x 300 Class	Nos	1				
19	FLANGE : 8 x 300 Class	Nos	1				
20	FLANGE : 10 x 300 Class	Nos	1				
21	FLANGE : 12 x 300 Class	Nos	1				
22	FLANGE : 1/2 x 600 Class	Nos	260				
23	FLANGE : 3/4 x 600 Class	Nos	1				
24	FLANGE: 1 x 600 Class	Nos	240				
25	FLANGE: 1.5 x 600 Class	Nos	120				
26	FLANGE: 2 x 600 Class	Nos	180				
27	FLANGE: 3x 600 Class	Nos	1				
28	FLANGE: 4 x 600 Class	Nos	750				
29	FLANGE: 6 x 600 Class	Nos	60				
30	FLANGE: 8 x 600 Class	Nos	1				
31	FLANGE: 10 x 600 Class	Nos	1				
32	FLANGE: 12 x 600 Class	Nos	1				
33	FLANGE: 4 x 900 Class RTJ	Nos	1				
34	RTJ FLANGE: 2-1/16 RX 24 Ring Gasket 2 1/16" X #5000 A105 B 31.3	Nos	124				
35	FLANGE: 2-9/16 X 1500 Class RTJ	Nos	1				

27.0	SPECTACLE BLIND.: SUPPLY AND INSTALLATION Spectacle Blind Material ASTM 516 Gr 70						
1	For 2" Class 150 Flange	Nos	1				
2	For 3" Class 150 Flange	Nos	1				
3	For 4" Class 150 Flange	Nos	1				
4	For 6" Class 150 Flange	Nos	1				
5	For 8" Class 150 Flange	Nos	1				
6	For 10" Class 150 Flange	Nos	1				
7	For 12" Class 150 Flange	Nos	1				
8	For 1/2" Class 300 Flange	Nos	1				
9	For 3/4" Class 300 Flange	Nos	1				
10	For 1" Class 300 Flange	Nos	1				
11	For 2" Class 300 Flange	Nos	1				
12	For 4" Class 300 Flange	Nos	1				
13	For 6" Class 300 Flange	Nos	1				
14	For 8" Class 300 Flange	Nos	1				
15	For 10" Class 300 Flange	Nos	1				
16	For 2" Class 600 Flange	Nos	1				
17	For 4" Class 600 Flange	Nos	1				
18	For 6" Class 600 Flange	Nos	1				
19	For 8" Class 600 Flange	Nos	1				
20	For 10" Class 600 Flange	Nos	1				
28.0	SPADES: SUPPLY AND INSTALLATION						
1	For 4" Class 300 Flange	Nos	1				
2	For 6" Class 300 Flange	Nos	1				
3	For 8" Class 300 Flange	Nos	1				
4	For 10" Class 300 Flange	Nos	1				
5	For 12" Class 300 Flange	Nos	1				
6	For 1/2" Class 600 Flange	Nos	1				
7	For 3/4" Class 600 Flange	Nos	1				
8	For 1" Class 600 Flange	Nos	1				
9	For 1.5" Class 600 Flange	Nos	1				
10	For 2" Class 600 Flange	Nos	1				
11	For 3" Class 600 Flange	Nos	1				
12	For 4" Class 600 Flange	Nos	1				
13	For 6" Class 600 Flange	Nos	1				
14	For 8" Class 600 Flange	Nos	1				
15	For 10" Class 600 Flange	Nos	1				
29.0	Line Blind (Spade : Material ASTM 516 Gr 70) SUPPLY AND INSTALLATION						
1	For 2" Class 150 Flange	Nos	1				
2	For 3" Class 150 Flange	Nos	1				
3	For 4" Class 150 Flange	Nos	1				
4	For 6" Class 150 Flange	Nos	1				
5	For 8" Class 150 Flange	Nos	1				
6	For 10" Class 150 Flange	Nos	1				
7	For 12" Class 150 Flange	Nos	1				

8	For 2" Class 300 Flange	Nos	1				
9	For 3" Class 300 Flange	Nos	1				
10	For 4" Class 300 Flange	Nos	1				
11	For 6" Class 300 Flange	Nos	1				
12	For 8" Class 300 Flange	Nos	1				
13	For 10" Class 300 Flange	Nos	1				
14	For 12" Class 300 Flange	Nos	1				
15	For 2" Class 600 Flange	Nos	1				
16	For 3" Class 600 Flange	Nos	1				
17	For 4" Class 600 Flange	Nos	1				
18	For 6" Class 600 Flange	Nos	1				
19	For 8" Class 600 Flange	Nos	1				
20	For 10" Class 600 Flange	Nos	1				
30.0	REINFORCEMENT PADS.SUPPLY AND INSTALLATION						
1	4 " Pipe Dia	Nos	1				
2	6 "Pipe Dia	Nos	1				
3	8" Pipe Dia	Nos	1				
4	10" Pipe Dia	Nos	1				
5	12" Pipe Dia	Nos	1				
31.0	SPACER.SUPPLY AND INSTALLATION (As per length of required valve)						
1	4" Class 300	Nos	1				
2	6" Class 300	Nos	1				
3	8" Class 300	Nos	1				
4	10" Class 300	Nos	1				
5	12" Class 300	Nos	1				
6	4" Class 600	Nos	1				
7	6" Class 600	Nos	1				
8	8" Class 600	Nos	1				
9	10" Class 600	Nos	1				
10	12" Class 601	Nos	1				
32.0	SOCKET & NIPPLE FITTING SEAMLESS A106 B 31.3 (FOR NEEDLE VALVE FITTING) : SUPPLY AND INSTALLATION 1/2" SOCKET & NIPPLE FITTING Supply , installation and fixing of following ancillary fittings of suitable working pressure on pipe line and positions as directed by the Engineer-In-Charge (EIC), so as to facilitate installations of Needle Valve for Pressure gauge fitting.						
1	1/2" Sch 160 x 100 mm Long	Nos	300				
2	1" Sch 160 x 100 mm Long	Nos	250				
3	1.5" Sch 160 x 150 mm Long	Nos	100				
4	2" Sch 80 x 100 mm Long	Nos	200				
5	2" Sch 80 x 150 mm Long	Nos	200				
6	1/2" Sch 160 x 150 mm Long	Nos	120				
7	1" Sch 160 x 100 mm Long	Nos	60				

8	1.5" Sch 160 x 150 mm Long	Nos	60				
9	2" x Sch 160 x 150 mm Long	Nos	60				
10	3" x 40 Sch Pipe Line	Nos	1				
12	4" x 40 Sch Pipe Line	Nos	1				
13	6" x 40 Sch Pipe Line	Nos	1				
14	8" x 40 Sch Pipe Line	Nos	1				
15	10" x 40 Sch Pipe Line	Nos	1				
16	12" x 40 Sch Pipe Line	Nos	1				
33.0	SAMPLE POINT ASSEMBLY SUPPLY AND INSTALLATION Supply and fixing of Sample Point including Supply & fitment of Socket, Nipple, Ball Valve & Long Nipple for sample collection. Following ancillary fittings of suitable working pressure, on pipe line and positions as directed by the Engineer-In-Charge (EIC),						
1	1/2" x 40 Sch	Nos	1				
2	3/4" x 40 Sch	Nos	1				
3	1" x 40 Sch	Nos	1				
4	1/2" x 80 Sch	Nos	1				
5	3/4" x 80 Sch	Nos	1				
6	1" x 80 Sch	Nos	1				
34.0	THERMOWELL FITTING SUPPLY AND INSTALLATION Supply and fixing of following ancillary fittings of suitable working pressure on pipe line near well head in places and positions as directed by the Engineer-In-Charge (EIC), so as to facilitate installations of thermometer along with suitable temperature gauge (0-100 Deg C) with hydraulic oil.						
1	4" x 40 Sch Pipe Line	Nos	1				
2	6" x 40 Sch Pipe Line	Nos	1				
3	8" x 40 Sch Pipe Line	Nos	1				
4	10" x 40 Sch Pipe Line	Nos	1				
5	10" x 80 Sch Pipe Line	Nos	1				
6	12" x 40 Sch Pipe Line	Nos	1				
7	12" x 80 Sch Pipe Line	Nos	1				
35.0	SUPPLY AND FIXING OF PRESSURE GAUGE The Gauge should be Glycerine filled with Bourdon type sensing element, having equipped with over range protection and accuracy of ± 1% FSD. The Gauge should be of SS of 100/600 MM dial size with safety glass and threaded connection.						
1	Range: 0 à 50 PSI	Nos	1				
2	Range: 0 à 100 PSI	Nos	1				
3	Range: 0 à 10 bar	Nos	1				
4	Range: 0 à 25 bar	Nos	1				

5	Range: 0 à 50 bar	Nos	1				
6	Range: 0 à 100 bar	Nos	1				
36.0	THERMAL INSULATION :SUPPLY AND APPLICATION THERMAL INSULATION FOR PIPE LINE (50 mm Thick Insulation) For following pipe lines, vessels, Equipment at all levels as per latest edition of IS 7413. The work includes cleaning of surface from rust, oil, grease or any other foreign particles, supply & application of two coats of anti-corrosive heat resistant paint wrapping with resin bonded fiber glass wool. All the material required in the job has to be supplied by the contractor along with manufacturer's test certificates. The work to be executed as per specifications and directions of EIC						
1	Pipe Dia: 2”	M^2	1				
2	Pipe Dia: 3”	M^2	1				
3	Pipe Dia: 4”	M^2	1				
4	Pipe Dia: 6”	M^2	1				
5	Pipe Dia: 8’	M^2	1				
6	Pipe Dia: 10”	M^2	1				
7	Pipe Dia: 12”	M^2	1				
37.0	PIPELINE MARKER :SUPPLY AND INSTALLATION Supply, fabrication, installation of M.S. pipe line markers as per Drawing and/or as per direction of Engineer-in-Charge, at every 0.50 Kms. chainage in straight section along the pipe line and at every turning point. The work also includes necessary excavation of pits, grouting of post, painting the over ground portion with suitable paint of yellow colour, marking the number, direction, chainage and size of the pipe line over it. The work is to be executed as per the Drawing, Specifications and the direction of Engineer-in-Charge.						
1	Supply, fabrication, installation of M.S. pipe line marker.	No	1000				
2	Supply & Installation of RCC Boundary markers	No	1000				
38.0	STRUCTURAL FABRICATION SUPPLY, FABRICATION AND ERECTION OF STRUCTURAL STEEL Specification: IS: 226/2062 The item includes fabrication and erection of structural members at all levels as per drawings, dimensions and specifications using electrodes of approved quality. The item includes cleaning, supply and						

	painting with one coat of zinc chromate primer and two coats of aluminium / enamel paint as per specifications and directions of EIC. All the test certificates and other relevant documents shall be submitted as per direction of EIC						
1	Supply , Fabrication & Erection of Structural Steel (Plates & structural members) as per drawing	KG	10,000				
2	Gratings (Deep Galvanised)	KG	2,000				
3	Galvanised Railings (1.5")	KG	1,000				
4	Chequered Plates (5mm)	KG	1,000				
39.0	ERECTION OF VESSEL/ TANK/ UNIT / STRUCTURE STEEL						
	ERECTION OF VESSEL/ TANK/ UNIT / STRUCTURE STEEL Erection includes shifting of material from store/Location to desired foundation. Levelling of Vessel/Tank/Unit/Structure by spirit Level. Tightening of Foundation Bolt & Earth Strip Lifting Equipment in the scope of Contractor						
1	Vessel	Kg.	1,000				
2	Tank	Kg.	500				
3	Pump & Motor / Air Compressor/ DG Set/ Heat Exchanger/Panels	Kg.	500				
4	Structure /Skid	Kg.	500				
40.0	SUPPLY & FIXING OF PIPE SUPPORT & CLAMPS FOR PIPE LINE Fixing of I-Beam on Cement Structure by Grouting Bolt. Wrapping Readymade Adhesive Neoprene tape across Pipe Line of desired width. Fixing of Bracket / U-clamp on Pipe of desired size. Bracket /U-Clam shall be deep Galvanised with double Nut on each side plus Spring Washer						
40.A	SINGLE CLAMP (Neoprene Coated / With Neoprene Sleeve)						
1	Pipe Dia: 1"	Nos	50				
2	Pipe Dia: 2”	Nos	150				
3	Pipe Dia: 3”	Nos	50				
4	Pipe Dia: 4”	Nos	1000				
5	Pipe Dia: 6”	Nos	250				
6	Pipe Dia: 8’	Nos	50				
7	Pipe Dia: 10”	Nos	50				
8	Pipe Dia: 12”	Nos	50				
40.B	BRACKET CLAMP						
1	Pipe Dia: 1"	Nos	50				

2	Pipe Dia: 2”	Nos	50				
3	Pipe Dia: 3”	Nos	50				
4	Pipe Dia: 4”	Nos	100				
5	Pipe Dia: 6”	Nos	50				
6	Pipe Dia: 8’	Nos	50				
7	Pipe Dia: 10”	Nos	50				
8	Pipe Dia: 12”	Nos	50				
41.0	Stainless Steel Piping & Fittings, Class 150, Schedule 10S, RF A312 TO 316 (ASME B31.3)						
41.A	Pipe, Seamless, BE, SS ASTM A312 TP 316, Dimensions to ASME B38.19						
1	½”	M	10				
2	1”	M	10				
3	1.5”	M	10				
4	2”	M	10				
5	3"	M	10				
6	4"	M	10				
7	6"	M	10				
8	8"	M	10				
41.B	Fittings						
41.B.1	Cap, Smls, SS ASTM A403, WP316 Butt Weld , Dimensions to ASME B 16.9						
1	½”	Nos	1				
2	1”	Nos	1				
3	1.5”	Nos	1				
4	2”	Nos	1				
5	3"	Nos.	1				
6	4"	Nos.	1				
7	6"	Nos.	1				
8	8"	Nos.	1				
41.C	Elbow 45 Deg, BW, Smls SS ASTM A403 WP316, Dimensions to ASME B 16.9						
1	½”	Nos	1				
2	1”	Nos	1				
3	1.5”	Nos	1				
4	2”	Nos	1				
5	3"	Nos.	1				
6	4"	Nos.	1				
7	6"	Nos.	1				
8	8"	Nos.	1				
41.D	Elbow 90 LR Deg, BW, Smls SS ASTM A403 WP316, Dimensions to ASME B 16.9						
1	½”	Nos	1				
2	1”	Nos	1				
3	1.5”	Nos	1				
4	2”	Nos	1				
5	3"	Nos.	1				

6	4"	Nos.	1				
7	6"	Nos.	1				
8	8"	Nos.	1				
41.E	Concentric Reducer BW Smls SS ASTM A403 WP 316 Dimensions to ASME B 16.9						
1	1”	Nos	1				
2	1.5”	Nos	1				
3	2”	Nos	1				
4	3"	Nos.	1				
5	4"	Nos.	1				
6	6"	Nos.	1				
7	8"	Nos.	1				
41.F	2" Swaged Nipple Cons Smls LEB/SEP SS ASTM A312 TP316Dims to MSS SP	Nos.	1				
41.G	Reducer Ecc BW Smls SS ASTM A403 WP 316 Dimensions to ASME B 16.9						
1	1”	Nos	1				
2	1.5”	Nos	1				
3	2”	Nos	1				
4	3"	Nos.	1				
5	4"	Nos.	1				
6	6"	Nos.	1				
7	8"	Nos.	1				
41.H	2" Swaged Nipple Ecc Smls LEB/SEP SS ASTM A312 TP316, Dims to MSS SP	Nos.	1				
41.I	Tee Equal BW Smls SS ASTM A493 WP316, Dims to ASME 16.9						
1	1”	Nos	1				
2	1.5”	Nos	1				
3	2”	Nos	1				
4	3"	Nos.	1				
5	4"	Nos.	1				
6	6"	Nos.	1				
7	8"	Nos.	1				
41.J	Sockolet, Cl WP 310 SS ASTM A182 Dims to MSS						
1	½”	Nos	1				
2	1”	Nos	1				
3	1.5”	Nos	1				
4	2”	Nos	1				
5	3	Nos.	1				
6	4	Nos.	1				
7	6	Nos.	1				
8	8	Nos.	1				
41.K	Tee Branch Reducer BW Smls SS ASTM A403 WP310, B 16.9						
1	1”x1/2”	Nos	1				
2	2”x1”	Nos	1				
3	2”x1.5”	Nos	1				

4	3"x2"	Nos.	1				
5	4"x2"	Nos.	1				
6	4"x3"	Nos.	1				
7	6" x 3":	Nos.	1				
8	6" x 4":	Nos.	1				
9	8" x 4"	Nos.	1				
10	8" x 6"	Nos.	1				
11	10"x6"	Nos.	1				
12	10"x8"	Nos.	1				
41.L	Weldolet SS ASTM A182 F316 MSS SP						
1	½”	Nos	1				
2	1”	Nos	1				
3	1.5”	Nos	1				
4	2”	Nos	1				
5	3"	Nos.	1				
6	4"	Nos.	1				
7	6"	Nos.	1				
8	8"	Nos.	1				
41.M	Nipolet Plain CL 6000 SS ASTM A162 F316						
1	½”	Nos	1				
2	1”	Nos	1				
3	1.5”	Nos	1				
4	2”	Nos	1				
5	3"	Nos.	1				
6	4"	Nos.	1				
7	6"	Nos.	1				
8	8"	Nos.	1				
41.N	Pipe Nipple Smls ASTM A312 TP316, 100 mm long						
1	½”	Nos	1				
2	1”	Nos	1				
3	1.5”	Nos	1				
4	2”	Nos	1				
5	3"	Nos.	1				
6	4"	Nos.	1				
7	6"	Nos.	1				
8	8"	Nos.	1				
41.O	Flanges, WN CL 150, RF 125-250 Microinch(3.2 -6.3 micro m)roughness fin. ASTM A182, F316 Dims to B16.5						
1	1”	Nos	1				
2	1.5”	Nos	1				
3	2”	Nos	1				
4	3	Nos.	1				
5	4	Nos.	1				
6	6	Nos.	1				
7	8	Nos.	1				

41.P	Blind Flange CL 150, RF 125-250 Microinch(3.2 -6.3 micro m) roughness fin. ASTM A182, F316 Dims to B16.5						
1	1”	Nos	1				
2	1.5”	Nos	1				
3	2”	Nos	1				
4	3	Nos.	1				
5	4	Nos.	1				
6	6	Nos.	1				
7	8	Nos.	1				
41.Q	Spectacle Blind Cl 150 to suit ASME B16.5 RF 125-250 Microinch(3.2 -6.3 micro m) roughness fin. SS ASTM A240 GR 316,						
1	1”	Nos	1				
2	1.5”	Nos	1				
3	2”	Nos	1				
4	3	Nos.	1				
5	4	Nos.	1				
6	6	Nos.	1				
7	8	Nos.	1				
41.R	Ball Valves: A351-CF8M,150 LB, RF3.2/6.3 Ra MRO 175 RB API 6D SS B&S/TFE						
1	1”	Nos	1				
2	1.5”	Nos	1				
3	2”	Nos	1				
4	3	Nos.	1				
5	4	Nos.	1				
6	6	Nos.	1				
7	8	Nos.	1				
41.S	Check Valve: A351-CF8M,150 LB, RF3.2/6.3 Ra MRO 175 API 504 Dual Plate 316 SS Plate						
1	1”	Nos	1				
2	1.5”	Nos	1				
3	2”	Nos	1				
4	3	Nos.	1				
5	4	Nos.	1				
6	6	Nos.	1				
7	8	Nos.	1				
41.T	Globe Valves: A351-CF8M,150 LB, RF3.2/6.3 Ra MRO 175 BS 1873 316SS Trim HW						
1	1”	Nos	1				
2	1.5”	Nos	1				
3	2”	Nos	1				
4	3	Nos.	1				
5	4	Nos.	1				
6	6	Nos.	1				

7	8	Nos.	1				
41.U	Needle Valve: SS316 , RF3.2/6.3 Ra MRO 175 API 6D						
1	1/2" NPT, 6000#	Nos.	150				
2	3/4" NPT, 6000#	Nos.	1				
3	1" NPT, 6000#	Nos.	1				
4	1/2" NPT, 3000#	Nos.	1				
5	3/4" NPT, 3000#	Nos.	1				
6	1" NPT, 3000#	Nos.	1				
42.0	MATERIAL HANDLING ((In addition of above SOR items)) Material Handling include shifting of Material from one place to other within 100 m radius ,						
1	Material Handling .	Kg.	10,000				
43.0	SCAFFOLDING WORK ((In addition of above SOR items)) Pipe: Galvanised Clamps: Galvanised Plank: Light weight MS / Aluminium Scafolder: Certified						
1	Scaffolding Work	Cu. M	500				
44.0	INSTRUMENT TUBING & FITTINGS WORK(SS316L) All Fitting are to be suitable for 5000 PSI						
1	Fitting: 1/4" NPT to 1/4 Tubing Fitting	No	50				
2	Fitting: 1/2" NPT to 1/4 Tubing Fitting	No	50				
3	Fitting: Connector 1/4" Tubing to 1/4 Tubing Fitting	No	50				
4	Fitting: 90 degree Bend 1/4" NPT to 1/4 Tubing Fitting	No	50				
5	1/4" NPT x 5000 PSI Check Valve	No	50				
6	1/4" NPT x 5000 PSI Needle Valve	No	50				
7	1/2" X 80 Sch Tubing	m	100				
8	1/4" X 80 Sch Tubing	m	100				
9	Fitting: 1/2" NPT to 1/2 Tubing Fitting	No	50				
10	Fitting: 1/2" NPT to 1/4 Tubing Fitting	No	50				
11	Fitting: Connector 1/2" Tubing to 1/2" Tubing Fitting	No	50				
12	Fitting: 90 degree Bend 1/2" NPT to 1/2 Tubing Fitting	No	50				
13	1/2" NPT x 5000 PSI Check Valve	No	50				
14	1/2" NPT x 5000 PSI Needle Valve	No	50				
45.0	SURFACE COATING (PAINTING)						
1	Steel Structures: Refer Attached Painting specification	m2	100				
2	Steel Decking/Non-slip steel surfaces Refer Attached Painting specification	m2	50				
3	Un-insulated exterior surfaces of CS vessels, storage Tanks, piping & other equipment or process skid units	m2	100				

	(including support structures not exceeding 120 Degree Centigrade.						
4	Uninsulated exterior Carbon Steel surfaces with Temperature exceeding 250ºC like Flare stacks, Chimneys, Exhausts, vents, and pipework up to 450ºC. Refer Attached Painting specification	m2	30				
5	Galvanised Steel Surfaces Refer Attached Painting specification	m2	30				
6	Surface Coating of Aluminium Cladding sheet for Insulation a. Surface Preparation: Solvent de-grease, d. Finish Coat1 coat: Aliphatic Polyurethane, DFT 50 – 75 microns.	m2	50				
7	Letter Writing / Arrow Signage 1) Letter Writing On Tank, Vessel, Heat Exchanger, Pipe Line, Valves.	m2	20				
8	For Colour coding scheme for pipes , equipment, machinery and structures refer attached painting specifications.	m3	20				
46.0	CIVIL WORKS						
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sq.m on plan) including disposal of excavated earth, lead upto 50 m and lift upto 1.5m, disposed earth to be levelled and neatly dressed (other than that included in installation works.)	M3	100				
47.0	PROVIDING AND LAYING OF PCC. Providing and laying cement concrete in foundations , footings and bases for columns excluding the cost of centering and shuttering.						
1	PCC 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	M3	50				
2	PCC 1:3:6 (1cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)	M3	50				
3	PCC 1:4:8 (1cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size)	M3	50				
4	PCC 1:5:10 (1cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	M3	50				
48.0	PROVIDING AND LAYING OF RCC: Providing and laying reinforced cement concrete (cement: coarse sand: graded stone aggregate 20 mm nominal size) upto floor two level including cost of centring and shuttering, reinforcement and finishing in columns, Pillars, pier, abutments, posts and struts & rebar.						

1	Providing and laying reinforced cement concrete 1:2:4	M3	50				
2	Providing and laying reinforced cement concrete 1:1½:3	M3	50				
3	Providing and laying reinforced cement concrete 1:1:2	M3	50				
4	Rebars	Kg	1000				
49.0	Brick work in cement mortar using burnt clay building brick having crushing strength not less than 35 kg/cm2 In foundation and plinth						
1	Brick work in Cement mortar 1:4 (1 cement: 4 coarse sand)	M3	100				
2	Brick work in Cement mortar 1:6 (1 cement: 6 coarse sand)	M3	100				
50.0	Providing cement plaster for the civil works.						
1	12 mm cement plaster of mix 1:4(1 cement: 4 fine sand)	M3	100				
2	12 mm cement plaster of mix 1:6(1 cement: 6 fine sand)	M3	100				
51.0	White washing						
1	Supply and white wash with Lime on new work, wall surface area of Valve chamber / platform / C.C. supports etc., with two coats to give an even shade including thoroughly brooming the surface to remove all dirt, dust, mortar drops and other fine particles etc. Area	Sq. M	100				
2	White washing with lime to give an even shade to New work (three or more coats), including thoroughly brooming the surface to remove all dirt, dust, mortar drops and other fine particles etc. Area	Sq. M	100				
52.0	Pipeline Coating and Wrapping ((In addition of above SOR items) Specification: Surface Preparation: External surface of pipe shall be cleaned before initial priming by blast cleaning (Sa 21/2) Primer: Zink Silicate/Zink Chromate Wrapping: Inner Wrap: Inner layer of butyl rubber to bond to the primer, Butyl rubber thickness (mm) 0.2 min. Outer Wrap: The outer wrap shall be polyethylene plastic tape suitable for machine application over the inner wrap. It shall give protection against mechanical damage over inner wrap during pipe lowering-in and back-fill operations. Thickness (mm) 0.375 min.						
1	Pipeline from 2" to 4" dia.	M2	10				
2	Pipeline from 6 " to 8" dia.	M2	10				
53.0	Installation of valves						

1	Installation of 4"-6" valves on the piping	No.	1				
2	Installation of 8"-10" valves on the piping	No.	1				
3	Installation of 10"-12" valves on the piping	No.	1				
54.0	Supply of skilled /unskilled manpower (In addition of above SOR items)						
1	Skilled Technicians like Millwright Fitters, Welder etc (Tools & tackles shall be provided by company)	Man days	100				
2	Unskilled workers	Man days	100				
55.0	Corrosion survey with thickness measurement:- Corrosion survey on existing buried pipeline to check the health of pipeline and corrosion on pipe surface. Job includes excavation of inspection pit of required size, removing of existing coating wrapping, cleaning the pipe for visual inspection and ultrasonic thickness measurement (with recording facility) in four clock positions of 12 O'clock, 3 O'clock, 6 O'clock & 9 O'clock. After inspection, coating and wrapping, backfilling of the pit and final clean-up etc., as per direction on Engineer-In-Charge. Detailed report to be submitted by the contractor.						
1	Corrosion survey with thickness measurement: Underground lines	Point	50				
2	Corrosion survey with thickness measurement: Overground lines (two nos. at 3 o clock and 6 o clock position)	Point	50				
3	Corrosion survey with thickness measurement of Vessel & Tank.	Point	50				
56.0	Providing & Laying of HDPE pipes Providing & Laying of HDPE pipes for chemical dozing at work site and laying of the following sizes of over ground pipe lines in position to correct line and level, assembling, welding by butt fusion welding machine with tools, tackles and complete pipe line of following sizes, testing of line pipe as per specifications, line diagram and drawings. the rate is to include all marginal cuttings, testing of pipe lines at 1.5 times the working pressure, cleaning as per direction of EIC. pipe should conform to IS- 4984-PE 100, PN10						
1	Supply & installation of HDPE pipe IS;4984-PE 100, 3"OD	M	50				
2	Supply & Installation of HDPE pipe IS;4984-PE 100, 3" OD Elbow	No.	5				
3	Supply & Installation of HDPE pipe IS;4984-PE 100, 3" OD Coupler	No.	5				

4	Supply & Installation of HDPE pipe IS;4984-PE 100, 3" OD – Tee	No.	50				
5	Supply & installation Flanges of HDPE pipe IS;4984-PE 100, 3"	Pair	5				
6	Supply & Installation of Union Supply of HDPE pipe IS;4984-PE 100, 3"	No.	50				
57.0	Supply & erection of UPVC, Sch.40, ASTM Standard D 1785						
1	3" UPVC Pipe	M	50				
2	3" Tee, Ell, Bend, Socket, Union, reducer	No.	10				
58.0	METAL CUTTING JOB (In addition of above SOR items)						
1	Gas cutting – MS/CS (Unit: Length in Cm x Thickness in mm.)	unit	100				
2	Cold Cutting CS/MS (Unit: Length in Cm x Thickness in mm.)	unit	100				
3	Cold Cutting – SS (Unit: Length in Cm x Thickness in mm.)	unit	50				
59.0	Erection of the equipment / vessels. Erection of the equipment / vessels on the prepared foundation, in true plumb and level. The item also includes tightening of foundation bolts / nuts etc., providing packing plates as required for levelling of equipment as per direction on Engineer-In-Charge ((In addition of above SOR items))						
1	Erection of Equipment (Including shifting from ware house/existing location in the plant)	Ton	10				
2	Dismantling of Equipment from foundation / platform.	Ton	10				
60.0	Supply and fixing of Guy-rope 6mm x 36 steel core with suitable U clamps with turn buckle ((In addition of above SOR items)	M	100				
61.0	Hiring of Hydra, Earth Mover	Hour	100				
62.0	Sprinkler for Fire water system	No.	10				
63.0	HYDROTESTING OF EXISTING PIPELINES & Vessels: Mobilization of requisite manpower, materials and machinery including water supply at site and conducting hydro testing of pipeline. The hydro test procedure shall be as per relevant specification. The work includes dismantling & re-fixing of any type of flanges, valves, line pipe connection, cutting welding for inter -connection or removal of connection of line pipe to make the line ready for testing at both the ends as per specifications and direction of EIC. The item also includes final hook-up after completing the work, clean up and restoration of ROU to original condition to make the job complete. Hydro testing						

	shall be carried out at a pressure of 1.5 times the flange rating of pipe.						
1	4" Pipeline	M	1000				
2	6" Pipeline	M	1000				
3	Vessels/Tanks	M^3	100				
64.0	Installation of Nozzles on CS vessels (In addition of above SOR items)						
1	2"	No.	5				
2	3"	No.	5				
3	4"	No.	5				
65.0	Additional welding (Not included in any item above) on pipes & vessels						
1	SMAW for CS material	InDia	100				
2	Welding for SS material	InDia	50				
66.0	Removal of existing underground Pipelines/Flowlines : Excavation, cutting, transportation & storage of pipelines at designated location in the field. Restoration of excavated area in original condition & obtaining NOC from the farmer/Land owner.						
66.1.	RECOVERY OF U/G & AG LINE						
1	RECOVERY OF 4" U/G LINE	M	1,000				
2	RECOVERY OF 6" U/G LINE	M	100				
3	RECOVERY OF 8" U/G LINE	M	10				
4	RECOVERY OF 10" U/G LINE	M	10				
66.2	RECOVERY OF A/G LINE						
1	RECOVERY OF 2" A/G LINE	M	50				
2	RECOVERY OF 4" A/G LINE	M	50				
3	RECOVERY OF 6" A/G LINE	M	50				
4	RECOVERY OF 8" A/G LINE	M	50				
5	RECOVERY OF 10" A/G LINE	M	50				
	Total Cost (Rs.) – Part-A						

Table B: Deployment of Team for Piping / Pipeline Activities & additional resources / material subject to requirement

Sr No	Description	UOM (Month)	Qty (INR)	Unit Rate (INR)	Total Amount (INR)
1	Deployment of single mechanical crew at site on monthly basis including of food, accommodation, transportation to site. Welder-1, Fitter-1, Rigger-2, Helper-3, Grinder-1, Supervision/Coordinator/QA-QC/Inspector-1	L.S	12		
2	Deployment of equipment related to said welding work for single crew including of tractor trolley, driver, DG, welding machine, argon set, cutting machine, grinding, cable, other all tools and tackles	L.S	12		
3	Over Head	L.S	12		
	Deployment of additional resources / material subject to requirement				

4	NDT Crew (Trip Basis) Unit Charge (1 Unit= UT/X-Ray/Gamma Ray/MPT) (8 Hrs)	Per Day / Per Unit	84		
5	NDT Crew trip basis Travelling (Up-Down from Ahmedabad)	Per Trip	84		
6	X-Ray / Gamma Ray Film Charges	Running Inch	26400		
	Total Cost (Rs.) – Part-B				

Notes for Table-A:

1. Rate of Supply and services mentioned in SOR are included all cost of Loading, Transportation, Unloading, Installation resources i.e. Man, Machinery, tools and tackles, Lifting and Shifting equipment's i.e. Crane, trailer etc and all requirements to execute the Job of required quality as approved ITP, good hydrocarbon industry practices, codes and specifications, HSE requirements i.e making scaffolding, welding booths wherever required etc all in respect other than specified in the contract.
2. Company have right to supply Materials if available in SunPetro inventory to execute the Job in such cases only Services rates will be applicable.
3. Rates are incl. of all taxes, duties, levies etc. except GST which shall be payable extra as applicable.
4. Rates are incl. of all expenses whatsoever and no other payment shall be made apart from the rates quoted above.
5. For Lump sum rate, in case of increase/decrease of quantity, payment shall be made proportionately.
6. Payment shall be made for actual supply of material and services (Item wise & actual quantity) governed by each line item under each sub-group.
1. Price shall be inclusive of all taxes and duties except GST/IGST which will be paid extra as applicable. Company will help Contractor in obtaining Essentiality Certificate for availing duty benefit for the eligible items in case of applicable.
2. Quantities mentioned are tentative, exact quantities shall be worked out by Contractor after detailed survey.
3. All the materials & manpower required for fabrication is in the scope of the Contractor.
4. All the construction shall be carried out as per Company approved drawings.
5. The above rates are inclusive of all charges including transportation cost till our specified site location in Gujarat. No additional charges towards freight / transportation / insurance / loading / unloading etc. shall be payable.
6. The above prices shall be inclusive of all considering delivery, installation, commissioning & testing at designated site of Sun Petro.
7. All packages must bear labels mentioning name of product, name of manufacturer, date of manufacturing, batch no, tare weight, gross weight and net weight of material.
8. Delivery Period: As per SOW.
9. The contractor has to quote the above rates in price bid format inclusive of all as defined above in scope of work including design, manufacturing, test & supplies along with applicable taxes and duties etc. The contractor will be paid only for price quoted above.
10. No other charges are payable other than mentioned in the above price schedule.
11. Bid should be complete in all respect covering all the scope of work and should conform to the technical specifications indicated in the bid documents.
12. **Warranty Period:**
    Eighteen (18) months from date of supply or Twelve (12) months from date of commissioning whichever is earlier. However, bidder can quote the warranty period beyond 18 months. Bidder to specify visits of the operator during warranty period for routine checkups and troubleshooting.

Notes for Table-B:

1. GST extra and Payment shall be made on actual usage against certification of invoice from SunPetro representative.
2. Separate callout will be issued for deployment of resources / material & Fuel charges extra
3. Above rates are inclusive of mobilization of all resources, Manpower Travelling, Food & Accommodation.
4. Fuel and all consumables will be in scope of SunPetro

SECTION – 8

Quality Control & Quality Assurance

and

Packing, Marking, Documentation and Delivery Instructions

QUALITY CONTROL & QUALITY ASSURANCE

1. General

1.1 The Goods supplied by Supplier shall be strictly in accordance with technical specification set forth in SOS and PO issued. Trade names of products which have been identified by COMPANY accepted as meeting COMPANY's requirements will be given along with the specifications, where applicable.

1.2 Supplier shall be responsible for quality control of the Goods.

1.3 The PO issued pursuant to the Contract will specify whether or not the Goods are subject to inspection by COMPANY or its authorized representative(s).

1.4 Upon reasonable notice given to Contractor, Supplier shall ensure that COMPANY has the opportunity to inspect the Goods at any time, either at Supplier's facilities or at the facilities of Supplier's Suppliers, or wherever else the Goods may be located. Such inspection shall be in accordance with the requirements in Scope of Supply (SOS) and shall not relieve Supplier of any obligations under the Contract and PO issued thereto.

1.5 All Goods furnished by Supplier shall be available for inspection at all reasonable times by COMPANY or their representatives. For such purpose Supplier shall allow or procure for COMPANY and/or its above mentioned authorized representative access to all workshops and other places where Goods are being manufactured (including the premises of Supplier's Suppliers) and COMPANY reserves the right to finally survey quality and place of final acceptance in accordance with Clause 3.3.10 (Title and Risk) of General terms & Conditions. COMPANY's inspection, failure to inspect or waiver of inspection of any part of the Goods shall not constitute acceptance thereof nor relieve Supplier of its obligation to comply with the provisions of the Price Agreement. If, upon inspection, any Goods are considered by COMPANY not to be of an acceptable standard in accordance with the Contract specifications, Supplier shall on receipt of notice from COMPANY, repair or replace the same at its own cost and to COMPANY's satisfaction and Supplier shall be allowed no extension of time on account of such performance or replacement. In the event of Supplier's failure, following written notification from COMPANY, to repair or replace within a reasonable period of time any Goods considered unacceptable by COMPANY, COMPANY may repair (or have repaired) or replace the Goods at Supplier's expense and deduct the cost thereof from the Price Agreement.

1.6 If in compliance with the provisions of the Price Agreement, or by COMPANY's instructions or by reason of any applicable law any Goods are required to be tested or inspected, Supplier shall give COMPANY timely notice of Supplier's readiness for test/inspection thereof and, if the same is to be witnessed by someone other than COMPANY of the date fixed there for. Supplier will be reimbursed at cost for any tests / inspections not detailed or specified in the Price Agreement/PO.

1.7 In the event of a complete or partial failure in any tests referred to in Paragraph "1.6" above, or for any other reason, COMPANY may request special tests. Supplier shall be responsible for all costs and any schedule impacts associated with such special tests, however, in the event that these tests disclose the Goods to be in accordance with the Price Agreement, such costs shall be to COMPANY's account and where such tests have an adverse effect on the delivery schedule, the Due Date for Delivery shall be extended by the time spent on such special tests.

1.8 All instruments, machines and equipment (including the testing laboratory) shall be subject to examination by or on behalf of COMPANY before they are used for the purpose of any tests.

1.9 If COMPANY appoints an Inspector, Supplier shall coordinate with such Inspector and treat its authorized representatives in the same manner, as COMPANY's authorized representatives, for inspection and testing of Goods under the provision of this Price Agreement.

2. Goods Subject to Inspection by COMPANY

1.1 COMPANY or its Inspector will carry out intermediate and final inspections depending on the nature of the Goods. COMPANY will provide the Supplier with the name and address of the Inspector.

1.2 Supplier shall provide at its expense:

1.2.1 All facilities required by the Contract and PO(s) issued thereto for the Inspector to inspect the Goods.

1.2.2 Any required certificates including test and material certificates.

1.3 In the event of inspection requirement by COMPANY or its authorized representative(s), Supplier shall advice Inspector and COMPANY of the date on which and the location where the Goods are ready for Inspection. Such advice shall be by fax and shall name COMPANY's Inspector. The Goods shall be set up in Supplier's or Suppliers' facilities, as far as necessary to carry out inspection.

1.4 Goods inspection shall be handled as follows:

1.4.1 The Inspector shall reject all Goods that are found to be of unacceptable quality or workmanship, or fail to comply fully with the requirements of "A/B" and shall write and issue, on-the spot, to the Contractor, a "Note of Non-acceptance". Note of Non-acceptance shall clearly state the basis for the rejection. Supplier shall submit to COMPANY the Inspector's notes.

1.4.2 Subject to COMPANY's approval, Supplier shall take corrective action on rejections at Supplier's sole expense and with due regard to its obligation to deliver the Good in time.

1.4.3 The cost of additional inspections caused by Supplier's non-compliance with Scope of Supply (SOS) and PO issued thereto shall be to Supplier's account.

3. Goods Subject to Inspection by Supplier / Manufacturer

Supplier shall, at its sole cost and expense, carry out all inspection and testing and shall provide certificates that may be required under the provisions of the Price Agreement. Such certificates shall be sent to COMPANY or its authorized representative(s) within one week from the date on which the Goods have been tested or inspected. Non-compliance will result in payment being deferred until certificates have been received.

PACKING, MARKING, DOCUMENTATION AND DELIVERY INSTRUCTIONS

1. DOMESTIC SHIPMENT

1.1 PACKING AND PROTECTION INSTRUCTIONS

SUPPLIER shall be responsible for packing and protection of the goods whilst in transit to the destination shown on page one (1) of the Contract.

1.2 MARKING INSTRUCTIONS

1.2.1 Stencil on two sides and one end in clear characters, at least centimeters high (where case size permits, otherwise use optimum size for each package dimension), the marks set out hereunder. If goods are to be shipped in shipping line containers then marking may be stenciled on one end only. However, packages must be stowed in a manner, which exposes these marks.

1.2.2 Packages containing fragile articles must be packed with special precaution against risk of breakage. Such containers must be stenciled on all sides "FRAGILE – HANDLE WITH CARE". This marking must be in English. Where cases are not to be overturned SUPPLIER must show on the cases clear and readily visible identification to ensure they are kept in the correct position.

1.2.3 Packages/equipment of five tons or more must be marked with slinging points and also clearly show on all sides the center of gravity. This is of paramount importance for pressure vessels and heat exchangers.

1.2.4 For hazardous/dangerous of restricted material, mark as specified by relevant international standards and regulation. Specific reference is made to most recent regulations of the International Civil Aviation Organization (for airfreight) and the International Maritime Cargo Organization (for sea freight).

1.2.5 Metal tags or labels must be stamped or indelibly marked with full shipping marks and must be securely attached using 6 twists of stainless steel wire to all loose bundles or uncrated items, alternatively marking boards can be securely strapped to bundles.

1.2.6 Each package and contents must clearly show the country of origin of the goods.

1.2.7 Number packages consecutively, i.e. 1 of 10, 2 of 10, etc. Do not duplicate package numbers.

1.2.8 All material must also bear the following **SHIPPING MARKS** in full: -

- **Marks according to final destination.**
- **Supplier's Name (in full) _____**
- **Contract No. (in full) _____**
- **Tag No. (if applicable) _____**
- **Contract Item Nos. _____**
- **Box No.: _____ of _____**
- **NDC Materials & Purchasing Department –**
- **FOR (Destination as Page 1 of Contract).**
- **Gross Weight _____ kilos.**
- **Net Weight _____ kilos.**
- **Length x Width x Height _____ centimeters.**
- **Total Volume _____ cubic meters.**
- **Country of Origin _____**

Where appropriate, description signs such as 'FRAGILE", "GLASS", "THIS WAY UP", "HAZARDOUS", "RESTRICTED", "FLASH POINT", etc. shall be prominently marked.
Delete as applicable (please check with Freight Forwarder prior to marking).

1.2.9 Two packing lists detailing actual contents and listing all rust prevention agents and removal solutions, should be enclosed in each package. A master list detailing all packages, listing

Contract and Item Nos. For each item contained in the complete consignment, should be included in package No. 1.

1.3 SHIPPING AND DOCUMENTATION INSTRUCTIONS

1.3.1 Immediately the goods are in all respects ready for shipment, SUPPLIER shall contact NDC Purchasing Coordinator (for Contracts issued on a delivered NDC Operating Unit basis) or NDC's Freight Forwarder (for Contracts placed on a delivered Freight Forwarder basis). Twenty-four (24) hours Prior Notification shall be given for delivery.

1.3.2 In addition to any other requirements of these instructions, an original and one (1) copy of the Packing List must a Company each shipment together with an original and one (1) copy of the delivery note. It is Supplier's responsibility to obtain a receipt for proof of delivery.

2. OVERSEAS SHIPMENT

The following instructions are intended as minimum requirements, and adherence to these instructions in no way absolves or relieves SUPPLIER of any responsibility or obligation outlined in the Contract.

a. Shipment shall be effected by either a Conference Line vessel or a vessel acceptable to COMPANY's insurers.

b. Sea carrier's certificate issued by Owners, Agents or Master of vessel to the effect that the carrying vessel is neither Israeli owned nor calling at/passing by any Israeli port during the voyage.

2.1 PACKING AND PROTECTION INSTRUCTIONS

2.1.1 Due to climatic extremes encountered in India (i.e. extreme heat, high humidity and fine drifting sand) and the complex transport operation (i.e. truck, sea or air), it is essential that protection and packing is of the highest standard. SUPPLIER S must ensure that this will adequately protect material during the total transport operation from factory to job-site including short-time storage on site. Liability for damage to goods due to defective/or insufficient packing, as well as for corrosion due to insufficient protection, is to be borne by SUPPLIER.

2.1.2 High quality wooden cases and/or crates shall be used. These should be constructed of top quality softwood or rigid plywood and be solid and robust. Ends should be screwed or nailed in a manner where no sharp pieces are exposed.

2.1.3 UNDER NO CIRCUMSTANCES SHALL FIBREBOARD, CARDBOARD OR SIMILAR CARTONS BE USED AS OUTSIDE PACKING.

2.1.4 All items of fragile nature shall be suitably packed with special precaution against risk of breakage. Where material is encased or otherwise completely enclosed, the SUPPLIER shall be responsible for suitable inner packing, protection and wrapping of any items subject to damage from moisture and/or corrosion. Provision must also be made to include desiccant materials, i.e. silica-gel where appropriate.

2.1.5 Hay, straw or similar vegetable fibres subject to disease or fungus shall not be used in packing.

2.1.6 All heavy equipment shall be securely fastened to the bottom of the case with coach-bolts and wing-nuts and shall be blocked and braced to prevent movement. All exposed ends and open flanges shall be protected and covered against damage, using caps sealed with waterproof tape and blanks bolted over each flange face using a suitable gasket material to ensure a watertight joint. Large equipment which does not require to be completely enclosed by packing shall be palletized or skidded.

2.1.7 Cases weighing more than 136 kgs. shall have raised skid platform or pallet base, to permit sling or forklift truck handling.

2.1.8 Do not consolidate any two or more orders in any one package, before prior agreement with COMPANY.

2.1.9 All hazardous material must be prepared in adherence to the detailed requirements relating to packing, marking and labelling set out in the most recent report of the Board's Standard Advisory Committee on the Carriage of Dangerous Goods in ships (The Blue Book), for sea freight and the restricted articles regulations, laid down by the International Air Transport Association, for airfreight.

2.1.10 Two packing lists detailing actual contents and listing all rust prevention agents removal solutions should be enclosed in each package. A master list detailing all packages, listing Contract and Item Nos. for each item listed in the complete consignment should be included in package number 1.

2.1.11 The preparation for export shipping (including packing) may be subject to inspection by COMPANY or appointed representative at Supplier's plant prior to shipment and at dockside prior to Loading aboard ship. Inspection shall not relieve SUPPLIER of any responsibilities or obligations under the terms and conditions of the Contract.

2.1.12 All spare parts (such as commissioning spares or one year operational spares) when available at time of shipment of main equipment, must be either packed and clearly marked and included in main packing case attached to base boards, or, if size and dimensions deem separate shipment then shall be properly protected for short term storage in accordance with relevant Contract Specification and then packed in accordance with Paragraphs 2.1.2 or 2.1.3 (above).

2.1.13 If SUPPLIER is in any doubt as to the correct method of protection or packing, please contact the COMPANY by telex or fax with a copy to the appointed Forwarding Agent.

Note: SUPPLIER should ensure that marking and preparation for shipment instructions which are listed by commodity of equipment and attached to each Contract are passed on to their dispatch departments, or sub-SUPPLIER s, prior to commencement of packing.

2.2 MARKING INSTRUCTIONS

2.2.1 Stencil on two sides and one end in clear characters at least 5 centimeters high (where case size permits, otherwise use optimum size for each package dimension), the marks set out above (If goods are to be shipped in shipping line containers then marking may be stenciled on one end only. However, packages must be stowed in a manner which exposes these marks).

2.2.2 Packages containing fragile articles must be packed with special precaution against risk of breakage. Such containers must be stenciled on all sides "Fragile - Handle with Care". This marking must be in English. Where cases are not to be overturned SUPPLIER must show on the cases clear and readily visible identification to ensure they are kept in the correct position.

2.2.3 Packages/equipment of five tons or more must be marked with slinging points and also clearly show on all sides the center of gravity. This is of paramount importance for Pressure Vessels and Heat Exchangers.

2.2.4 For hazardous/dangerous or restricted material, mark as specified by relevant.

2.2.5 All spares orders must be clearly marked as spares and shall not be simply included unmarked with main equipment.

2.2.6 Metal tags or labels must be stamped or indelibly marked with full shipping marks and must be securely attached using 6 twists of stainless steel wire to all loose bundles or uncrated items, alternatively marking boards can be securely strapped to bundles.

2.2.7 Each package and contents must clearly show the country of origin of goods.

2.2.8 Number packages consecutively i.e. 1 of 10, 2 of 10 etc. Do not duplicate package number.

2.2.9 All materials must also bear the following shipping marks in full within a yellow coloured:

MARKS:- According to final destination:-
P.O. No. (in full)

Tag No. _____ (if applicable)
P.O. Items No's - _____
Box No. _____ of _____
COMPANY Port Mark India Seaport
Gross _____ Kilos
Net _____ Kilos
Length x width x height in centimetres
Total Cube in _____ Cubic Meters
Made in _____ (Country of Origin)
And where appropriate description signs such as:
"Fragile", "Glass", "This Way Up", "Hazardous", "Restricted", "Flash Point", etc.
* Delete as applicable (please check with nominated forwarding agent prior to marking).

2.3 DOCUMENTATION

2.3.1 Shipping Invoices and Packing Lists

2.3.1.1 Combined Invoice/Packing Lists must clearly describe each Contract item. Export marks, including all weights and dimensions, must be shown. If goods are packed in containers then exact details of materials in each container and container number must be shown on Combined Invoice/Packing List. Description of each item on these documents must match the Contract Description.

2.3.1.2 Combined Invoice/Packing Lists must be typewritten and the original and all copies must be manually and individually signed in ink by Supplier's authorized signatory as follows:

-I/We hereby certify that this Invoice is true and correct and that these materials are of _____ origin, (Specific Country of Origin) of goods e.g. United Kingdom, France, U.S.A., etc. - E.E.C. EFTA or any other group of countries is not acceptable) and manufactured by (Name and Address of Manufacturer(s)).
-Signed

2.3.1.3 Additionally, the following details shall be provided on all Combined Invoice/Packing Lists :

-Contract number.
-Delivery Terms of Contract, (i.e. CFR., etc.).
-Item number, quantity and complete description of goods precisely in accordance with the Contract including any tag, item coding or stock numbers as specified. The description must match the packing list.
- Itemized net price, both unit and total, of the goods, wherever applicable. Prices and extensions must be accurate but no discount shall be shown.
-Marks, numbers, quantity of packages and contents of each package.
-Gross and net weight in Kg, and dimensions of each package in cu. m.
-Name(s) and address(es) of actual manufacturer(s).
-"Partial Shipment" or "Final Shipment" if delivered in partial consignments, separate documents must be raised and issued for each separate consignment. Final shipment against this order must be marked "Final Shipment-Order Complete".

2.3.1.4 Hazardous materials must be identified on a separate Combined Invoice/Packing List, from non-hazardous materials. All hazardous materials must be identified by the appropriate hazardous class and technical and proper shipping name. All Combined Invoices/Packing Lists for hazardous materials shall contain the following statements:-

"This is to certify that the above named materials are properly classified, described, packaged, marked and labelled, and are in proper condition for transportation according to the appropriate Government of International Transportation Regulations".

NAME _____ COMPANY NAME_____
TITLE_____ _____ SIGNATURE
HAZARD CLASS U.S. NO. _____
TECHNICAL SHIPPING NAME_____

SUPPLIER must produce necessary hazardous cargo certificates in accordance with the appropriate regulations for all shipments. On application to the Project Freight Forwarder these forms will be supplied for completion.

2.3.1.5 SUPPLIER must provide all information shown in Paragraphs 2.3.1.1–2.3.1.4 to enable COMPANY to produce the Combined Invoice/Packing List, should COMPANY decide to handle certification & legalization of these shipping documents.

2.3.2 Certificate of Origin

2.3.2.1 This document is crucial for the clearing of all materials into Abu Dhabi. Utmost care must be exercised to ensure that all information is absolutely clear and correctly represented and that the origin is always true.

India Customs check certificates of origin very carefully and also physically inspect materials for manufacturers name and country of origin.

2.3.2.2 The SUPPLIER shall arrange for the timely preparation, certification and legalization of all Certificates of Origin. SUPPLIER must supply such information and docume0ntation as required to COMPANY's Freight Forwarding Agent. Failure to do so will delay shipment and payment.

2.3.2.3 Where materials are supplied as separate units which are manufactured by separate sub-SUPPLIER and included in one consignment, those separate manufacturer's names and addresses must be declared on the Certificate of Origin.

2.3.2.4 ALL Suppliers' Company names must be shown in full. Initials are not acceptable. If your Company trades using its initials, the full Company name must be shown and in brackets after it, the initials.

2.3.2.5 Where materials are purchased from sub-SUPPLIER s for incorporation into one final unit product and the sub-SUPPLIER s have manufactured the items in the same country as the producer of the final unit product, declare the name and address of the manufacturer of the final product.

2.3.2.6 Where materials are manufactured as one final product which contains materials from sources outside the producing country, declare the percentage by country of the constituent materials.

2.3.2.7 In cases where a certain country's commercial law prohibits the name and address of the Manufacturer being shown on the body of the Certificate of Origin, a separate Manufacturer's Declaration shall be completed and legalized.

2.3.2.8 The Declaration shall be drawn up on Supplier's Company letterhead and state: - "We hereby certify that the goods covered in Invoice Number _____ and Certificate of Origin Number _____ have been manufactured by _____ (full name and address of actual manufacturer(s) and are of _____ (country) origin." Contract reference and description of goods shall also be included.

This Declaration shall be signed in ink by authorized signatory of SUPPLIER

2.4 SHIPPING INSTRUCTIONS

2.4.1 COMPANY will advise the Forwarding Agent to arrange shipping of project goods after release/waiver of inspection, packing & receipt of correct documentation from SUPPLIER.

2.4.2 Shipment direct from the sub-SUPPLIER may only be arranged after written agreement with COMPANY.

If shipment of GOODS is to be made directly from sub-SUPPLIER works, it is Supplier's responsibility to ensure that sub-SUPPLIER pack and mark all materials and equipment in accordance with these instructions, together with any specific instructions for preparation and marking prior to shipment.

SECTION – 9

ANNEXURES

ANNEXURE - 1

BIDDERS RESPONSE ACKNOWLEDGMENT FORM FOR RECEIPT OF TENDER DOCUMENT

As a delegated authority/representative of the organization named below, I have reviewed the contents of the package and on behalf of my Company, acknowledge the receipt of the same and advise that we will:

BID_____
NOT BID_____

Reason for no Bid
(optional):_____
_____
_____
_____
_____

For
Name of Company: _____
Signature : _____
Title : _____
Date : _____

Transmittal via facsimile:

ATTENTION
Head –Supply Chain Management
Sun Petrochemicals Private Limited
8th Floor, ATL Corporate Park, Opp. L&T Gate no. 7,
Saki Vihar Road, Chandivali, Powai
Andheri (E), Mumbai – 400072, Maharashtra [INDIA]
Email: dheeraj.paroch@sunpetro.com
Tel: (022)-69325300,

ANNEXURE – 2

BID BOND FORMAT

TO: SUNPETRO a division of Sun Petrochemicals Private Limited, a Company incorporated under the provisions of the Companies Act, 1956 and having its registered office at at 8th,9th & 10th Floor, ATL Corporate Park, Saki Vihar Road, Powai, Mumbai - 400 072, Maharashtra, BHARAT (hereinafter referred to as "Company").
Mumbai –, India. (hereinafter referred to as "Company").

WHEREAS:
.....(hereinafter referred to as "Tenderer") has submitted a proposal dated .....("hereinafter referred to as Proposal") against **TENDER NO.:** _____ _____ dated _____for _____(hereinafter referred to as the "Tender").

NOW, THEREFORE,
(1) In response to the request made by the Tenderer, we (Name of Banker/Insurer :) _____ (hereinafter called the "Guarantor") hereby irrevocably and unconditionally guarantee the sum of Indian Rupees _____/- (INR_____ for Indian Bidders) and US $ _____United States Dollars _____ only – for Foreign Bidders) in Favor of Company, if Tenderer fails to perform its obligations as set forth below:

(i) The Tenderer agrees to keep the Proposal open for acceptance by Company during the period of validity (150 days from the Closing Date) specified in the Tender.

(ii) The Tenderer, having been notified of acceptance of its Proposal by Company during the period of Tender validity:

(a) Fails or refuses to execute the agreed Contract, if required; or
(b) Fails or refuses to furnish the Performance Bank Guarantee in accordance with the format provided in the Tender document; or
(c) Seeks Variation or modification of Proposal, modifications to the agreed terms and conditions
(d) Tries to influence Company on bid evaluation, bid comparison or Contract award decision.

The sum shall become payable by us immediately on first demand by Company without proof or conditions notwithstanding any constitution or protest by the Tenderer or any other third party.

(2) Company shall have the fullest liberty without our consent and without affecting in any manner, our obligation hereunder, to relax any of the terms and conditions of the aforesaid Tender, from time to time, or to postpone any time any of the Contract were exercisable by Company against the said Tenderer and Guarantor shall not be relieved from its liabilities by reason of any such relaxation being granted to the Tenderer by Company or any indulgence by Company to the said Tenderer or by any such matters or things whatsoever.

(3) The Guarantor shall not be discharged or released from this Guarantee by any Contract made between the Tenderer and Company with or without the consent of the Guarantor or by any alteration in the obligations undertaken by the Tenderer or by any change in name or constitution of Company or the Tenderer.

(4) The Guarantee herein shall not be affected by any change in the constitution of the Bank or the Tenderer.

(5) This Guarantee shall not be revoked during its currency and shall remain in effect for One Hundred and fifty (150) days from the Tender Closing Date.

(6) This Guarantee shall be governed and construed in accordance with the laws of India and all of

the parties to this Guarantee hereby irrevocably submit to the non-exclusive jurisdiction of the High Court of Mumbai.

IN WITNESS whereof this Guarantee has been duly executed by GUARANTOR the _____ day of _____ for and on behalf of (_____)

Name : _____
Designation : _____
Banker's Seal : _____
Address : _____

NOTE :

1. Bid bond required as Tender Security deposit /Earnest money

It is a condition precedent to the acceptance of any Tender by the Company that the Tenderer shall provide a Bid Bond by means of a Bank Guarantee for an amount stated in the Invitation to Tender in the prescribed format and valid for a period of 150 days from the Closing Date. The Tender may be disqualified in the absence of a Bid Bond in the prescribed format. In providing such a Bid Bond the bank shall also undertake to issue the Performance Bank Guarantee as required by Company in the event that the Tender is accepted.

2. Conditions for Invoking of Bid Bond Guarantee

The following conditions would also lead to the invoking of Bid Bond Guarantee:

a) If the Tender is withdrawn during the validity period or any extension thereof.
b) If the Tender is varied or modified in a manner not acceptable to Company during the validity or agreed extension validity period duly agreed by the Tenderer or after notification of award by Company and prior to signing of the Contract.
c) If the successful Tenderer is seeking modifications to the agreed terms and conditions after notification of award or declines to accept the Letter of Intent/Award.
d) If the successful Tenderer fails to furnish Performance Bank Guarantee within 10 days of the issue of the Letter of Intent/Award.
e) Any effort by the Tenderer to influence Company on bid evaluation, bid comparison or Contract award decision.

The formats for any of the Bank Guarantees shall not be changed except for any minor variations that the Bank may require. Failure to comply with this requirement may entail disqualification of the Tender.

ANNEXURE - 3

CHECK LIST FOR BIDDING

This portion of the Tender is intended to serve as a checklist to ensure that all information necessary to evaluate your proposal has been included. Please indicate Yes / No or Acceptable / Not Acceptable, whichever is not applicable.

TECHNICAL

1. Has the bidder quoted for full scope of work as specified in the tender?
YES / NO

2. Has the bidder furnished the list of equipment that will be used in the performance of the work, along with their make, technical data, catalogue/ brochure of the manufacturer, etc.?
YES / NO

3. Has the bidder furnished the minimum personnel proposed to be assigned to this work in the format provided at Annexure 12?
YES / NO

4. Quality Control Manual and/ or Quality Control Program along with the Unpriced Techno Commercial Bid
YES / NO

COMMERCIAL

5. Confirm whether the bidder has submitted a Bid Bond as per Clause mentioned in the Instructions to Bidders.
YES / NO

6. Confirm whether the bidder agrees to furnish a performance Bank Guarantee
YES / NO

7. Confirm that the prices quoted are firm and are inclusive of all taxes, duties, levies etc., applicable to personnel, equipment and materials to be used for execution of the Contract.
YES / NO

8. Confirm whether the prices quoted are firm and applicable even if the work is awarded only in part.
YES / NO

9. Confirm acceptance of Insurance liability as per Clause of the Model Contract.
YES / NO

10. Confirm acceptance of Force Majeure provision as per mentioned in the Model Contract.
YES / NO

11. Confirm acceptance of Liquidated Damages provision as per the Model Contract.
YES / NO

12. Confirm acceptance provision for Arbitration as per Clause of the Model contract.
YES / NO

13. Confirm acceptance Taxes and Duties provision as per of the Model Contract.
YES / NO

14. Confirm whether Unprized Technical bid with all annexures and enclosures have been furnished in duplicate (1Original + 1 copy) in a separate sealed cover. Ensure that Price Schedule of the Unprized Technical bid is blank.
YES / NO

15. Confirm whether Priced Commercial Bid (1 Original +1 Copy) comprising only the Price Schedule has been furnished
YES / NO

16. Has bidder ensured that there is no over-writing in the offer? Have corrections, if any, been properly attested/ initialled by the bidder
YES / NO

17. Has bidder ensured that the all pages of the bid documents including additional sheets, if any, attached by the bidder signed by the duly authorized officer of the bidder?
YES / NO

18. Bidder ensured that proof of the signing authority
YES / NO

19. Does the bidder accept bid validity period?
YES / NO

20. If the bid is submitted by a consortium, confirm whether the MOU of the consortium / JVC has been furnished.
YES / NO

21. Have all the exceptions/deviations/conditions taken by the bidder, having cost impact or not, been listed in the format provided as Annexure 4 and attached with the Un priced Techno Commercial Bid, without including the cost impact, if any?
YES / NO

22. Has the cost impact, if any, of the exceptions taken been attached with the Priced Commercial Bid?
YES / NO

23. Confirm whether the bidder agrees for applicability of Indian Laws
YES / NO

ANNEXURE – 4

EXCEPTION / DEVIATION / CONDITIONS PROFORMA

Any and all exceptions/deviations/conditions to the terms and conditions of Tender No.- _____should be indicated here and submitted along with the Unpriced Techno Commercial Bid without any price impact. Price impact, if any, of the exceptions/ deviations shall be duly completed, in this proforma, and attached to the Priced Commercial Bid only. If the bidder does not intend to take any exception / deviation then he shall mark "No Exceptions Taken" in this proforma. If the proforma is left blank or if this sheet is not attached to the bid, then it will be presumed that bidder has not taken any exception/deviation/condition to the terms and conditions of the TENDER DOCUMENT. Company shall not take cognisance of any exception/deviation/condition (if any) indicated elsewhere except in this proforma.

Tender No. -

Technical Part (attach to Unpriced Techno Commercial Bid)

Section No, Page No. and Clause No.	Description of exception/ deviation/ condition	Reason(s) for exception/ deviation/ condition	Whether there is a Cost impact? ** (Yes / No)	Effect on Commencement Date

** Please do not indicate the price impact, if any, here.

Tender No.-

Commercial Part (attach to Priced Commercial Bid)

Currency : _____

ANNEXURE -5

CUT-OUT SLIPS FOR TECHNICAL & UNPRICED COMMERCIAL BID

DO NOT OPEN - THIS IS A TENDER QUOTATION

(TECHNICAL & UN-PRICED COMMERCIAL BID)

Client : SUN PETROCHEMICALS PRIVATE LIMITED

Tender No. : _____

Project Name: _____

Bid Due Date: _____

From: **To:**

(Bidder's Details)	**Head-Commercial & Supply Chain Management** **SUN PETROCHEMICALS PRIVATE LIMITED (SunPetro)** 8th, 09th & 10th Floor, ATL Corporate Park, Opp. L&T Gate no. 7, Saki Vihar Road, Chandivali, Powai, Andheri (E), Mumbai – 400072, Maharashtra [INDIA] Tel: (022)-69325300, Kind Attn: Mr Dheeraj Paroch

ANNEXURE -6

CUT-OUT SLIPS FOR PRICED OFFER

DO NOT OPEN - THIS IS A TENDER QUOTATION

(PRICED COMMERCIAL BID)

Client : SUN PETROCHEMICALS PRIVATE LIMITED

Tender No. : _____

Project Name: _____

Bid Due Date: _____

From: **To:**

(Bidder's Details)	**Head-Commercial & Supply Chain Management** **SUN PETROCHEMICALS PRIVATE LIMITED (SunPetro)** 8th , 09th & 10th Floor, ATL Corporate Park, Opp. L&T Gate no. 7, Saki Vihar Road, Chandivali, Powai, Andheri (E), Mumbai – 400072, Maharashtra [INDIA] Tel: (022)-69325300, Kind Attn: Mr Dheeraj Paroch

ANNEXURE -7

CUT-OUT SLIPS FOR OUTER ENVELOPE

DO NOT OPEN - THIS IS A TENDER /QUOTATION

(OUTER ENVELOPE CONTAINING TECHNICAL & UN-PRICED COMMERCIAL BID + PRICED COMMERCIAL BID)

Client : SUN PETROCHEMICALS PRIVATE LIMITED

Tender No. : _____

Project Name: _____

Bid Due Date: _____

From: **To:**

(Bidder's Details)	**Head-Commercial & Supply Chain Management** **SUN PETROCHEMICALS PRIVATE LIMITED (SunPetro)** 8th , 09th & 10th Floor, ATL Corporate Park, Opp. L&T Gate no. 7, Saki Vihar Road, Chandivali, Powai, Andheri (E), Mumbai – 400072, Maharashtra [INDIA] Tel: (022)-69325300, Kind Attn: Mr. Dheeraj Paroch

TO BE OPENED BY ADDRESSEE ONLY

ANNEXURE –8

PROFORMA OF PERFORMANCE BANK GUARANTEE

[To be executed on Stamp Paper of Rs. 100/- or such higher value as per the Stamp Act of the State in which the Guarantee is issued. Stamp Paper should be in the name of the Bank Issuing the Guarantee.]

To,
SUN XXXX LTD.
XXXX
XXXX
Mumbai - 400072, India

Bank Guarantee No.
Date:
Expiry Date:

This Guarantee is made on this _____ day of _____ 2025 by, _____ (Bank name and incorporation details) having its registered office at _____ (address of issuing branch) (hereinafter referred to as the "GUARANTOR", which expression shall unless repugnant to the context or meaning thereof include its successors, administrators, executors and assigns) in favour **of Sun Petrochemicals Pvt. Ltd.,** a company registered under Part IX of the Companies Act, 1956 (CIN: U24219GJ1995PTC028519) and having its registered office at Ground Floor, Synergy House No. 1, Subhanpura Road, Vadodara, Gujarat - 390 003, India and its corporate office at 8th,9th & 10th Floor, ATL Corporate Park, Saki Vihar Road, Powai, Mumbai - 400 072, Maharashtra, BHARAT, India (hereinafter referred to as the "**COMPANY**", which expression shall unless repugnant to the context or meaning thereof include its successors, administrators and assigns).

WHEREAS:

A. The COMPANY has issued Contract / contract No. _____ dated _____ hereinafter referred to as the "P.O. / Contract") in favour of _____, a company registered under the laws of _____ having its registered office at _____ (hereinafter referred as the "**CONTRACTOR**" which expression shall unless repugnant to the context or meaning thereof include its successors, administrators and permitted assigns) for the supply of _____ (hereinafter referred to as the "PRODUCT").

B. In accordance with the terms and conditions of the said P.O. the CONTRACTOR has agreed to provide a Guarantee for Performance of the P.O. in form of Bank Guarantee issued by a nationalized/Scheduled Bank for the sum specified therein.

In consideration of the COMPANY having entered into a contract vide P.O. with the CONTRACTOR for the supply of the PRODUCT; we, the _____, the GUARANTOR do hereby unconditionally and irrevocably guarantee and undertake:

I) to pay merely on written demand by the COMPANY to extent of Rs. _____/- (Rupees _____ only) against any loss, damage, costs, charges and expenses caused to or suffered by or that may be caused to or suffered by the COMPANY in the event of non-performance of the PRODUCT supplied against the P.O., without any demur, reservations, recourse, contest or protest and without any reference to the COMPANY. Any such demand made by the COMPANY on the GUARANTOR shall be conclusive and binding, absolute and unequivocal not withstanding any disputes raised/pending before any court, tribunal, arbitration or any other authority.

II) to make the payment hereby guaranteed to the COMPANY not later than the expiry of 48 hours from the receipt of the written demand made by the COMPANY.

1. We, the Bank further agrees that:

i) the COMPANY shall be entitled at his option to enforce this guarantee against the GUARANTOR as a principal debtor, in the first instance notwithstanding any other Security or guarantee that it may have in relation to the CONTRACTOR's liabilities.

ii) this guarantee shall be without prejudice to the other rights, available to the COMPANY against the CONTRACTOR in the event of any breach of the terms and conditions of the said P.O. or unsatisfactory performance or failure or malfunctioning of the PRODUCT supplied against the said P.O. and giving of time by the COMPANY for repayment thereof, shall not in any way relieve the GUARANTOR of his liability under this guarantee.

iii) this guarantee shall not in any way be affected by the change in the constitution of the CONTRACTOR or by the fact that the CONTRACTOR has been wound up or any orders for winding up are passed or closed its business nor shall be affected by the change in the constitution, amalgamation, absorption or reconstruction of the GUARANTOR or the COMPANY or otherwise but shall ensure for and be available to and enforceable by the absorbing, amalgamated or reconstructed Company of the COMPANY.

iv) this guarantee shall continue to be in force notwithstanding the discharge of the CONTRACTOR by operation of law and shall cease only on payment of the full amount by the GUARANTOR to the COMPANY of the amount hereby secured and on the claim of the COMPANY against the CONTRACTOR in respect of the said P.O. being satisfied.

v) this guarantee shall be in addition to and not in substitution for any other guarantee or security from the CONTRACTOR to be given to the COMPANY in respect of the said P.O.

2. The guarantee herein contained shall remain in full force and effect till discharged by the COMPANY or upto _____ whichever is earlier and the GUARANTOR undertake not to revoke this guarantee during its currency except with previous consent of the COMPANY in writing.

3. Notwithstanding anything contained herein:
I) our liability under this bank guarantee shall not exceed Rs. _____/- (Rupees _____ only);
II) this bank guarantee shall be valid upto _____ and
III) we are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only if you serve upon us a written claim or demand on or before _____.

IN WITNESS WHEREOF the _____ (please specify the name of the Bank), through its authorized officer/constituted attorney, has executed these presents as of the day and year first above written.

SIGNED AND DELIVERED FOR AND ON BEHALF OF _____ (Name of the Bank).
PLACE:
DATE :
Address:

IN PRESENCE OF :

1.

2.

ANNEXURE -9

LIST OF APPROVED BANKS

Guarantee issued from following banks will be accepted as PBG/SD/EMD/BID BOND

1. All Nationalised Banks including Public Sector Banks-IDBI Ltd

2. Private Sector Banks- Axis Bank, ICICI Bank and HDFC Bank

3. Commercial Banks:
   - I. Kotak Mahindra Bank
   - II. Yes Bank
   - III. RBL Bank (The Ratnakar Bank Ltd)
   - IV. IndusInd Bank
   - V. Karur Vysya Bank
   - VI. DCB Bank
   - VII. Fedrel Bank
   - VIII. South Indian Bank

4. Co-operative and Rural Banks:
   - I. The Kalupur commercial co-operative bank Ltd
   - II. Rajkot Nagrik Sahakari Bank Ltd
   - III. The Ahmedabad Mercantile Co-operative Bank Ltd
   - IV. The Mehsana Urban Co-operative Bank Ltd
   - V. Nutan Nagrik Sahakari Bank Ltd
   - VI. Dena Gujarat Gramin Bank

ANNEXURE - 10

CUSTOMS NOTIFICATION

Custom Notifications will be applicable as per latest and relevant guidelines for goods imported in connection with the contract signed with the Government of India as applicable under the relevant Production Sharing Contract (PSC) / New Exploration Licensing Policy (NELP).

ANNEXURE - 11

CHECK LIST POST AWARD OF WORK

This check list is preliminary for vital compliance to be fulfilled by successful bidder at immediate post award stage and not limited to followings:

Commercial / Financial

a. Performance bank guarantee – value and validity

b. PAN / TAN / GSTN number

c. Bank Account number with documentary proof

Operational

a. Detailed sequence of operations with ballpark time estimates

b. Availability of services & materials with timelines

c. Lead time of critical spares

d. Interface management of various services

e. Logistics control

f. Discussion and finalisation on incentives – Bonus/Malus

g. Organogram with HSE set up

General

a. Overall inputs required for meeting all operational needs

ANNEXURE-12A:
PERSONNEL DEPLOYMENT PLAN

Minimum Personnel to be provided by the Contractor

Classification	Number On Location	Total Number

ANNEXURE-12B

PERFORMA FOR EXPERIENCE OF CONTRACTOR'S PERSONNEL

Sr. No.	Name & address of the person with position	Age, Date Of Birth	Educational qualification & Year of Passing	Previous experience (Name & Address of previous Client)	Period		Type of Work /Job Responsibility	Remarks
					From	To		

Note:

1. Bidder is free to identify more personnel for each category as an alternative.
2. Bidders need to attach the bio-data along with the bid. Certificates to be enclosed along with this Performa.

ANNEXURE-13

PROVISIONAL ACCEPTANCE CERTIFICATE

CONTRACT / CONTRACT NO: .....

Date:.....

DESCRIPTION OF SUPPLIES / SERVICE:

.....

The above SUPPLIES / SERVICES have been provisionally accepted with effect from ..... on behalf of _____(COMPANY) in good order with the exceptions as described in Appendix-1(if applicable), subject to the Delivery and Warranty conditions contained in the AGREEMENT, effective from .....

For and on behalf of:_____

(COMPANY)

Name

Designation

Signature

Date

Appendix-1

EXCEPTIONS TO COMPLETION

Ref : PROVISIONAL ACCEPTANCE CERTIFICATE

COMPANY to detail below any and all exceptions to the completion of the SUPPLIES/SERVICES described in this PROVISIONAL ACCEPTANCE CERTIFICATE.

ANNEXURE-14

FINAL ACCEPTANCE CERTIFICATE

AGREEMENT/CONTRACT NO: .....

Date:.....

DESCRIPTION OF WORK

.....

The above WORK have been finally accepted on behalf of ----------(COMPANY) in apparent good order, subject to the Warranty conditions contained in the AGREEMENT, with effect from .....20.....

For and on behalf of: _____

(COMPANY)

Name

Designation

Signature

Date Date

END OF TENDER DOCUMENT