Bid Number: GEM/2021/B/1552681
Dated: 26-09-2021

Bid Document

Bid Details	
Bid End Date/Time	21-10-2021 09:00:00
Bid Opening Date/Time	21-10-2021 09:30:00
Bid Life Cycle (From Publish Date)	90 (Days)
Bid Offer Validity (From End Date)	65 (Days)
Ministry/State Name	Ministry Of Petroleum And Natural Gas
Department Name	Oil India Limited
Organisation Name	Oil India Limited
Office Name	Oil India Limited
Total Quantity	12
Item Category	FABRICATION, PACKAGING, SUPPLY AND COMMISSIONING OF INDIRECT WATER BATH HEATER PACKAGE FOR PROCESSIN
MSE Exemption for Years of Experience and Turnover	No
Startup Exemption for Years of Experience and Turnover	No
Document required from seller	Experience Criteria,Bidder Turnover,Certificate (Requested in ATC),OEM Authorization Certificate,Additional Doc 1 (Requested in ATC),Additional Doc 2 (Requested in ATC),Additional Doc 3 (Requested in ATC),Additional Doc 4 (Requested in ATC) *In case any bidder is seeking exemption from Experience / Turnover Criteria, the supporting documents to prove his eligibility for exemption must be uploaded for evaluation by the buyer
Bid to RA enabled	No
Time allowed for Technical Clarifications during technical evaluation	5 Days
Inspection Required (By Empanelled Inspection Authority / Agencies pre-registered with GeM)	Yes
Inspection to be carried out by Buyers own empanelled agency	Yes
Type Of Inspection	Stage-wise Inspection
Name of the Empanelled Inspection Agency/ Authority	Board of Officers

Bid Details	
Payment Timelines	Payments shall be made to the Seller within **30** days of issue of consignee receipt-cum-acceptance certificate (CRAC) and on-line submission of bills (This is in supersession of 10 days time as provided in clause 12 of GeM GTC)
Evaluation Method	Total value wise evaluation

EMD Detail

Required	No

ePBG Detail

Advisory Bank	HDFC Bank
ePBG Percentage(%)	3.00
Duration of ePBG required (Months).	26

(a). EMD & Performance security should be in favour of Beneficiary, wherever it is applicable.

Beneficiary:
SMM
Bank Name :HDFC BANK LIMITED Branch Name :Duliajan Bank Account No.:21182320000016 Type of Account :Current Account IFSC Code :HDFC0002118 MICR Code :786240302 SWIFT Code :HDFCINBBCAL The Bank Guarantee issued by the Bank must be routed through SFMS platform as per following details: (i) MT 760 / MT 760 COV for issuance of Bank Guarantee (ii) MT 760 / MT 767 COV for amendment of Bank Guarantee The above message / intimation shall be sent through SFMS by the BG issuing Bank branch to HDFC Bank, Duliajan Branch, IFS Code – HDFC0002118; SWIFT Code - HDFCINBBCAL. Branch Address: HDFC Bank Limited, Duliajan Branch, Utopia Complex, BOC Gate, Jayanagar, Duliajan, Dibrugarh, PIN – 786602. The vendor shall submit to OIL the copy of the SFMS message as sent by the issuing bank branch along with the original bank guarantee
(Amrit Loushon Bora)

Splitting

Bid splitting not applied.

MII Purchase Preference

MII Purchase Preference	Yes

MSE Purchase Preference

MSE Purchase Preference	Yes

1. Preference to Make In India products (For bids < 200 Crore):Preference shall be given to Class 1 local supplier as defined in public procurement (Preference to Make in India), Order 2017 as amended from time to time and its subsequent Orders/Notifications issued by concerned Nodal Ministry for specific Goods/Products. The minimum local content to qualify as a Class 1 local supplier is denoted in the bid document. If the bidder wants to avail the Purchase preference, the bidder must upload a certificate from the OEM regarding the percentage of the local

content and the details of locations at which the local value addition is made along with their bid, failing which no purchase preference shall be granted. In case the bid value is more than Rs 10 Crore, the declaration relating to percentage of local content shall be certified by the statutory auditor or cost auditor, if the OEM is a company and by a practicing cost accountant or a chartered accountant for OEMs other than companies as per the Public Procurement (preference to Make-in -India) order 2017 dated 04.06.2020. Only Class-I and Class-II Local suppliers as per MII order dated 4.6.2020 will be eligible to bid. Non - Local suppliers as per MII order dated 04.06.2020 are not eligible to participate. However, eligible micro and small enterprises will be allowed to participate .In case Buyer has selected Purchase preference to Micro and Small Enterprises clause in the bid, the same will get precedence over this clause.
2. Purchase preference to Micro and Small Enterprises (MSEs): Purchase preference will be given to MSEs as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 dated 23.03.2012 issued by Ministry of Micro, Small and Medium Enterprises and its subsequent Orders/Notifications issued by concerned Ministry. If the bidder wants to avail the Purchase preference, the bidder must be the manufacturer of the offered product in case of bid for supply of goods. Traders are excluded from the purview of Public Procurement Policy for Micro and Small Enterprises. In respect of bid for Services, the bidder must be the Service provider of the offered Service. Relevant documentary evidence in this regard shall be uploaded along with the bid in respect of the offered product or service. If L-1 is not an MSE and MSE Seller (s) has/have quoted price within L-1+ 15% (Selected by Buyer)of margin of purchase preference /price band defined in relevant policy, such Seller shall be given opportunity to match L-1 price and contract will be awarded for 100%(selected by Buyer) percentage of total QUANTITY.
3. **Inspection of Stores by Nominated Inspection Authority / Agency of buyer or their authorized representatives**

An independent third party Professional Inspection Body can help buyer in mitigating buyer’s risk with pre-dispatch/post-dispatch inspection in order to ensure that equipment, components, solutions and documentation conform to contractual requirements. The buyer has a right to inspect goods in reasonable manner and within reasonable time at any reasonable place as indicated in contract. Inspection Fee/ Charges (as pre-greed between buyer and Inspection Agency) would be borne by the buyer as per their internal arrangement but may be recovered from the seller if the consignment failed to conform to contractual specification and got rejected by the Inspection Officer .If so requested and accepted by the seller , initially seller may pay for inspection charges as applicable and get the same reimbursed from buyer if consignment accepted by the Inspecting Officer . For reimbursement seller has to submit proof of payment to Inspection Agency.

Seller/OEM shall send a notice in writing / e-mail to the Inspecting officer / inspection agency specifying the place of inspection as per contract and the Inspecting officer shall on receipt of such notice notify to the seller the date and time when the stores would be inspected. The seller shall, at his own expenses, afford to the Inspecting officer, all reasonable facilities as may be necessary for satisfying himself that the stores are being and or have been manufactured in accordance with the technical particulars governing the supply. The decision of the purchaser representative /inspection authority regarding acceptance / rejection of consignment shall be final and binding on the seller.

The Seller shall provide, without any extra charge, all materials, tools, labour and assistance of every kind which the Inspecting officer may demand of him for any test, and examination, other than special or independent test, which he shall require to be made on the seller's premises and the seller shall bear and pay all costs attendant thereon.

The seller shall also provide and deliver store / sample from consignment under inspection free of charge at any such place other than his premises as the Inspecting officer may specify for acceptance tests for which seller/OEM does not have the facilities or for special/ independent tests.

In the event of rejection of stores or any part thereof by the Inspecting officer basis testing outside owing to lack of test facility at sellers premises, the seller shall, on demand, pay to the buyer the costs incurred in the inspection and/or test. Cost of test shall be assessed at the rate charged by the Laboratory to private persons for similar work.

Inspector shall have the right to put all the stores or materials forming part of the same or any part thereof to such tests as he may like fit and proper as per QAP/governing specification. The seller shall not be entitled to object on any ground whatsoever to the method of testing adopted by the Inspecting officer.

Unless otherwise provided for in the contract, the quantity of the stores or materials expended in test will be borne by seller.

Inspecting officer is the Final Authority to Certify Performance / accept the consignment. The Inspecting officer’s decision as regards the rejection shall be final and binding on the seller.

The seller shall if so required at his own expense shall mark or permit the Inspecting officer to mark all the

approved stores with a recognised Government or purchaser's mark.

FABRICATION, PACKAGING, SUPPLY AND COMMISSIONING OF INDIRECT WATER BATH HEATER PACKAGE FOR PROCESSIN (12 pieces)

(Minimum 50% Local content required for MII compliance)

Brand Type	Unbranded

Technical Specifications

Buyer Specification Document	Download

Installation Commissioning and Testing (ICT) details for the above item:

% of Product Cost Payable on Product Delivery	70%
Min Cost Allocation for ICT as a % of product cost	1%
Number of days allowed for ICT after site readiness communication to seller	60 Days

Consignees/Reporting Officer and Quantity

S.No.	Consignee/Reporting Officer	Address	Quantity	Delivery Days
1	DIPANKAR PATHAK	786602,Oil India Limited, Duliajan, Assam	12	365

Buyer added Bid Specific Additional Scope of Work

S.No.	Document Title	Description	Applicable i.r.o. Items
1	Annexure -II View	BEC BRC & Notes to bidders	FABRICATION, PACKAGING, SUPPLY AND COMMISSIONING OF INDIRECT WATER BATH HEATER PACKAGE FOR PROCESSIN(12)

The uploaded document only contains Buyer specific Additional Scope of Work and / or Drawings for the bid items added with due approval of Buyer's competent authority. Buyer has certified that these additional scope and drawings are generalized and would not lead to any restrictive bidding.

Buyer Added Bid Specific Additional Terms and Conditions

1. Actual delivery (and Installation & Commissioning (if covered in scope of supply)) is to be done at

following address OIL INDIA LIMITED DULIAJAN DIBRUGARH ASSAM, INDIA PIN - 786602.

2. **Bidder financial standing:** The bidder should not be under liquidation, court receivership or similar proceedings, should not be bankrupt. Bidder to upload undertaking to this effect with bid.
3. Buyer Organization specific Integrity Pact shall have to be complied by all bidders. Bidders shall have to upload scanned copy of signed integrity pact as per Buyer organizations policy along with bid. Click here to view the file
4. Bidder shall submit the following documents along with their bid for Vendor Code Creation:

   a. Copy of PAN Card.

   b. Copy of GSTIN.

   c. Copy of Cancelled Cheque.

   d. Copy of EFT Mandate duly certified by Bank.

5. Installation, Commissioning, Testing, Configuration, Training (if any - which ever is applicable as per scope of supply) is to be carried out by OEM / OEM Certified resource or OEM authorised Reseller.
6. OPTION CLAUSE: The Purchaser reserves the right to increase or decrease the quantity to be ordered up to 25 percent of bid quantity at the time of placement of contract. The purchaser also reserves the right to increase the ordered quantity by up to 25% of the contracted quantity during the currency of the contract at the contracted rates. Bidders are bound to accept the orders accordingly.
7. Supplier shall ensure that the Invoice is raised in the name of Consignee with GSTIN of Consignee only.
8. The buyer organization is an institution eligible for concessional rates of GST as notified by the Government of India. The goods for which bids have been invited fall under classification of GST concession and the conditions for eligibility of concession are met by the institution. A certificate to this effect will be issued by Buyer to the Seller after award of the Contract. Sellers are requested to submit their bids after accounting for the Concessional rate of GST.
   Applicable Concessional rate of GST : 5%
   Notification No.and date : 3/2017 dated 28/06/2017
9. While generating invoice in GeM portal, the seller must upload scanned copy of GST invoice and the screenshot of GST portal confirming payment of GST.
10. Whereever Essentiality Certificate is applicable (PEL/ML), successful bidder should provide Proforma Invoice for processeing for EC application and material should be dispatche after receiving of EC rom DGH. In view of the same, an ATC may be incorporated in GeM, viz, "BIDDER/OEM must provide Proforma Invoice for processeing for EC application within 320 days from date of issue of GeM Contract and material should be dispatche after receiving of EC rom DGH."
11. Scope of supply (Bid price to include all cost components) : Supply Installation Testing and Commissioning of Goods
12. Purchase Preference linked with Local Content (PP-LC) Policy:

    The bid clause regarding “Preference to Make In India products” stands modified in this bid and shall be governed by the PPLC Policy No. FP-20013/2/2017-FP-PNG dated 17.11.2020 issued by MoP&NG as amended up to date. Accordingly, bidders with Local Content less than or equal to 20% will be treated as “Non Local Supplier”. The prescribed LC shall be applicable on the date of Bid opening. Sanctions on the bidders for false / wrong declaration or not fulfilling the Local Content requirement shall be as per the PPLC policy. Further following additional provisions are added in the certification and verification of local content provision of the Preference to Make in India clause:

    i. In case of foreign bidder, certificate from the statutory auditor or cost auditor of their own office or subsidiary in India giving the percentage of local content is also acceptable. In case office or subsidiary in India does not exist or Indian office/subsidiary is not required to appoint statutory auditor or cost auditor, certificate from practicing cost accountant or practicing chartered accountant giving the percentage of local content is also acceptable.
    ii. Along with Each Invoice: The local content certificate (issued by statutory auditor on behalf of procuring company) shall be submitted along with each invoice raised. However, the % of local content may vary with each invoice while maintaining the overall % of local content for the total work/purchase of the pro-rata local content requirement. In case, it is not satisfied cumulatively in the invoices raised up to that stage, the supplier shall indicate how the local content requirement would be met in the subsequent stages.
    iii. The bidder shall submit an undertaking from the authorized signatory of bidder having the Power of

Attorney along with the bid stating the bidder meets the mandatory minimum LC requirement and such undertaking shall become a part of the contract.

13. Purchase preference to Micro and Small Enterprises (MSEs): Purchase preference will be given to MSEs as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 dated 23.03.2012 issued by Ministry of Micro, Small and Medium Enterprises and its subsequent Orders/Notifications issued by concerned Ministry. If the bidder wants to avail the Purchase preference, the bidder must be the manufacturer of the offered product in case of bid for supply of goods. Traders are excluded from the purview of Public Procurement Policy for Micro and Small Enterprises. In respect of bid for Services, the bidder must be the Service provider of the offered Service. Relevant documentary evidence in this regard shall be uploaded along with the bid in respect of the offered product or service. If L-1 is not an MSE and MSE Seller (s) has/have quoted price within L-1+ 15% of margin of purchase preference /price band defined in relevant policy, such Seller shall be given opportunity to match L-1 price and contract will be awarded for percentage of 100% of total value.
14. Bidder's offer is liable to be rejected if they don't upload any of the certificates / documents sought in the Bid document, ATC and Corrigendum if any.

Disclaimer

The additional terms and conditions have been incorporated by the Buyer after approval of the Competent Authority in Buyer Organization. Buyer organization is solely responsible for the impact of these clauses on the bidding process, its outcome and consequences thereof including any eccentricity / restriction arising in the bidding process due to these ATCs and due to modification of technical specification and / or terms and conditions governing the bid. Any clause incorporated by the Buyer such as demanding Tender Sample, incorporating any clause against the MSME policy and Preference to make in India Policy, mandating any Brand names or Foreign Certification, changing the default time period for Acceptance of material or payment timeline governed by OM of Department of Expenditure shall be null and void and would not be considered part of bid. Further any reference of conditions published on any external site or reference to external documents / clauses shall also be null and void. If any seller has any objection / grievance against these additional clauses or otherwise on any aspect of this bid, they can raise their representation against the same by using the Representation window provided in the bid details field in Seller dashboard after logging in as a seller within 4 days of bid publication on GeM. Buyer is duty bound to reply to all such representations and would not be allowed to open bids if he fails to reply to such representations.

This Bid is also governed by the General Terms and Conditions

In terms of GeM GTC clause 26 regarding Restrictions on procurement from a bidder of a country which shares a land border with India, any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. While participating in bid, Bidder has to undertake compliance of this and any false declaration and non-compliance of this would be a ground for immediate termination of the contract and further legal action in accordance with the laws.

---Thank You---

FABRICATION, PACKAGING, SUPPLY AND COMMISSIONING OF INDIRECT WATER BATH HEATER PACKAGE FOR PROCESSING NATURAL GAS PRODUCED FROM HIGH-PRESSURE GAS WELLS

TECHNICAL SPECIFICATION

1.0 The Indirect Water Bath Heater shall be used for production of non-associated gas by preheating and expansion process. Natural gas will be heated in preheat coil and then expanded using a choke outside the bath. After reduction of pressure, the gas stream will be again heated in the expansion coil for further expansion.

2.0 SCOPE OF WORKS: Double Coiled Bath Type Indirect Heater of heating capacity 2.5 Million BTU/Hr. (0.7325 X10^6 Watt) generally as per the general drawing attached along with the tender for reference.
However, supplier must obtain approval of all the drawings having all the engineering information including any alteration/ modification to OIL's drawings, if any prior to manufacturing of the ordered items. The detailed drawings are to be submitted within thirty (30) days of receipt of detailed Purchase order for OIL's approval.

THE DETAIL SCOPE OF WORKS:

2.1 Scope of works includes fabrication, packaging, testing, supply, commissioning of the indirect water bath heater package complete with accessories and mountings for heating and expansion/pressure reduction of well stream. Details of the same are as under:

2.1.1 The bath type indirect heater suitably fabricated as per API Spec 12K. The heater should be complete with the following:

2.1.2 Shell:
a) Size: As per GAD
The shell must have adequate nozzles for inlet, outlet of coils, fire tube and mounting, various equipment & instrument for burner, level gauge/switch, drain valves etc.
Reference General Drawing: OIL/PDNG/GD-Shell Fabrication
Reference General Drawing: OIL/PDNG/GD-GAD
Reference General Drawing: OIL/PDNG/GD-Name Plate-IWBH

2.1.3 Coils (Seamless):
i) No. of Coil: 2 (two) sets of 3" (80 mm) NB coils, each set comprising of one no. preheat coil and one no. expansion coil
ii) No. of Pass: 8 (Eight) passes for preheat coil and 2 (Two) passes for the expansion coil
iii) M.O.C. of Coil: API 5L Grade B, Wall Thickness (XXS) = 0.6 Inches (15.24mm) seamless / ASTM A106 Grade B, Wall Thickness (XXS) = 0.6 Inches (15.24mm)
iv) Coil Operating Pressure: Max: 281.6 kg/cm2 (4000 psig)
v) Radiography of weld joints of Coil bundle: 100 %
vi) Coil Hydraulic Test Pressure: 1.5 times the maximum working pressure i.e. 422 kg/cm2 (6000psig)

Reference General Drawing: OIL/PDNG/GD-Coils
Reference General Drawing: OIL/PDNG/GD-GAD

2.1.4 Coil End Connection:
Flanged, 65 mm (2.5") NB x 2500 class RTJ, conforming to ANSI B16.5, with bevel ended companion flanges, ring joint gasket as per ANSI latest specifications and required Nos. of high tensile studs-nuts as per ASTM A193 Gr. B-7, ASTM A194 Gr. 2H respectively.
Reference General Drawing: OIL/PDNG/GD-Coils
Reference General Drawing: OIL/PDNG/GD-GAD

2.1.5 Fuel Scrubber:
a) Scrubber with high efficiency wire mesh type mist extractor of adequate size to cater Fuel & Servo Gas Flow requirement shall be used for supplying liquid free fuel to the burner and servo gas to the pneumatic instruments.
b) The scrubber shall be equipped with
i. Pressure indicator with isolating valve.
ii. Drain connection with isolation valve
iii.Sight glass/level gauges with gauge cocks
iv. Safety Relief valve- 2 Nos. (set at 33 kg/cm2)
c) Operating pressure of 30 kg/sq cm
d) Hydraulic Test Pressure: 1.5 times the maximum working pressure i.e. 45 kg/cm2 (640 psig)
Reference General Drawing: OIL/PDNG/GD-Scrubber Vessel Fabrication
Reference General Drawing: OIL/PDNG/GD-Name Plate-Fuel Scrubber IWBH

3.0 Accessories:

3.1 Positive Choke:

Positive choke, with suitable choke housing for holding 25.4 mm dia. choke. Housing should have provision for easy installation and removal of Honest John bean with hammer union/bean wrench similar to bean housing installed at well head X-mass tree manufactured as per API spec. 6A. End connection, flanged, welded, 65 mm (2.5") NB, ANSI2500 class to be installed between preheat outlet and expansion coil inlet. Suitable 12.7 mm NB NPT tapping should be provided up and down stream of the bean housing to measure inlet and outlet gas pressures. One each of beans ranging from 7 mm, 8 mm, 9 mm, 10 mm, 11 mm, 12 mm, 13 mm and 14 mm should be provided along with 1 No. of suitable bean wrench for installation and removal of the beans. Materials for bean body ASTM A105, for bean housing and bean similar to API-6A X-mass tree bean. Operating temperature range (-)10 Deg C to 150 Deg C.
Reference General Drawing: OIL/PDNG/GD-Choke
Reference General Drawing: OIL/PDNG/GD-Bean Adapter
Reference General Drawing: OIL/PDNG/GD-Bean

Make: Masterflo / WKM /BHEL / JVS / Parveen / Cameron

3.2 Fire Tube (Seamless):

i) M.O.C. of Fire Tube: API 5L, Gr. B (Seamless) / ASTM A 106, Gr. B
ii) Type: U Type
iii)Diameter: 610 mm (24" NB) OD (minimum)
iv) Length: 6920 mm X 2 Nos.(minimum)
v) Radiography of weld joints at 'U' Bend: 100 %
vi) Half cover plate feature. Suitable roller arrangement for fire tube and coil bundle to be provided to facilitate easy removal while dismantling.
vii)Hydraulic Test Pressure: 5 kg / Sq cm.
Reference General Drawing: OIL/PDNG/GD-Fire Tube
Reference General Drawing: OIL/PDNG/GD-GAD

3.3 Flame Arrested Burner & Accessories:

a) Flame Arrested Burner: Natural Draft Burner of heat capacity (minimum) 2.5 Million BTU/Hr. (0.7325 X 10^6 Watt)
Burner Make: Maxon / Eclipse / John Zink / ACL / G.I.E. S.r.l.
The data sheet for above to be forwarded along with the offer. (Net Calorific value of Natural Gas for fuel is 8,500 Kcal / SCM).
Heat capacity of Natural Draft Burner 2.5 Million BTU/Hr is a minimum value.

b) Flame Arrester Make: Zirco / Flameco / Cameron (Natco) / Wenco / Grit Industries/ ACL
Flame Arrester must comprise of following components:
i) 'O' / Box Type (Aluminium housing)
ii) Flame Cell
iii) Adaptor Spool
Flame Arrester must be Suitable for Burner of Heat Duty: minimum 2.5 Million BTU/Hr. (0.7325 X 10^6 Watt) with Natural Gas as Fuel.

4.0 INSTRUMENTATION & CONTROL SYSTEM:
Reference General Drawing: As per Schematic
4.1 Instruments to be mounted on Shell

a) Liquid Level Switch:
Water bath should be equipped with low water level shut down device with the following specification:
i) Type: Pneumatic
ii) Action: ON/OFF
iii)Output: 15 psig
iv) Supply: 20 psig
v) Type: Float less pneumatic switch with differential pilot (0-500 mm WC).
v) Make: Kimray / Fisher / ACL

b) Temperature Indicators:
i) Temperature Range: 0 to 150 Deg C

ii) Thermowell Connection: 1 Inch NPT
iii)Insertion Length: 300 mm (12 Inch)
iv) Type: Bimetallic/ Mercury Filled
v) Sensing Element Connection: 1/2" NPT
vi) Material of Construction: All Stainless Steel
vii)Accuracy: +- 0.5 Deg C
viii)Make: Wika/ Odin / Waree / Ashcroft/ Icon
c) Level Gauge: The Level gauge shall be of the following specifications:
i) Type: Reflex Type
ii) Connection Size: 1/2"
iii)Isolation Valves: Required (Needle/Ball Valves)
iv) Max. working Pressure: 2 Kg/Sq.cm
v) Test Pressure: 10 Kg/Sq.cm
vi) Max. working Temperature: 100 Deg C
vii)Make: Pratolina/ Levcon/ Daniel/Chemtrol/V Automat

d) Water Filling Float Valve, 25 mm (1") NB, MoC: SS
Water inlet nozzle on the must be provided with a float operated industrial valve to avoid water over flow.

4.2 Instruments to be mounted on Coil Inlet & Outlet:
a) Temperature Indicator: Inlet and Outlet temperature indicators in each of the preheat and expansion coils with suitable thermowells.

i) Temperature Range: 0 to 110 Deg C (6 nos.) & (-)20 Deg C to 100 Deg C (2 nos.)
ii) Thermowell connection: 1" NPT
iii) Type: Bimetallic/ Mercury Filled
iv) Sensing Element Connection: 1/2"NPT
v) Material of construction: All Stainless Steel
vi) Accuracy: +- 0.5 Deg C
vii) Make: Wika / Odin / Waree / Ashcroft/ Icon

b) Pressure Indicators: Inlet and Outlet pressure indicators shall be provided in each of the preheat and expansion coils as under:

i) Dial Size: 150 mm (6") Minimum
ii) Range: 0 to 425 Kg/Sq. cm (2 nos.)
: 0 to 210 Kg/Sq. cm (2 nos.)
iii) Pressure Element: SS Bourdon tube
iv) Material of construction: All SS
v) Accuracy: +- 1% of reading
vi) End Connection: 1/2" NPT
vii) Isolation Valves: Required (Needle Valve)
viii)Make: Wika / Odin / Waree / Ashcroft/ Icon

4.3 PNEUMATIC BURNER CONTROL SYSTEM:

4.3.1 CONTROL PHILOSOPHY:

The Indirect Heaters shall be equipped with the pneumatic control system to carry out the following functions:
a) Remote Ignition of Pilot Burner (all the systems for the remote ignition shall be encased in Flame-proof JB (DGMS Approved), which shall be installed 20 meters away from the Heaters through High-Voltage Ignition Cables and Connectors). Any JB required for the Ignition System shall be Flame-proof JB (DGMS Approved).
b) Pilot Flame sensing through pneumatic pilot guard.
c) Main flame shall be shut down in case of
a. Pilot flame failure through pneumatic pilot guard
b. Low Liquid Level through liquid level controller
c. High water temperature through Temperature Indicating Controller (TIC) and Temperature Control Valve (TCV).
d) Temperature Control of the water bath shall be through Indicating type temperature controller (TIC) and Temperature Control valve (TCV) as shown in the Reference General Drawing: Schematic Drg.
e) A provision must be kept to ignite the pilot burner through a Hand-held High Energy Igniter; in the event of a failure of the high energy battery operated remote igniter.
Reference General Drawing: OIL/PDNG/GD-ICD
Reference General Drawing: OIL/PDNG/GD-RIS
Reference General Drawing: OIL/PDNG/GD-SDIS-I
Reference General Drawing: OIL/PDNG/GD-SDIS-II

4.3.2 BILL OF MATERIAL FOR BURNER CONTROL SYSTEM

A) HIGH ENERGY BATTERY OPERATED REMOTE IGNITER:

The purpose of the remote Igniter is to ignite pilot flame of burner assembly. The system shall consist of the following items.
a) Function: To ignite the pilot flame in Natural Gas fired burners
b) Features: Flameproof and Battery operated
c) Battery: 24V, Rechargeable type with compatible Solar Battery Charger Kit*
d) Output Voltage: Sufficient for establishing flame in pilot burner at a distance of more than 20 mtrs.
e) The Ignitor should be housed in a flameproof box.
f) High Voltage Connector to provide connection between the High Voltage cable and the Ignition Electrode. & High Voltage cable and the Remote Ignition FLP Enclosure with IP 65 (minimum).

Make of Remote Igniter: Chentronics / Smitsvonk Durag GmbH / GBA Flare Systems / Meggitt / Combustex-Canalta Controls / ACL / Sigma Controls Systems / G.I.E. S.r.l.

Note: Solar Battery Charger Kit of repute make complete with Solar Battery Charger Panels, Solar Charge Controllers for overcharging protection and mounting brackets for mounting panel that can be adjusted for a range of angle.

B) High Voltage Remote Ignition Cable:
i) Length: 20 meters
ii) Insulation Voltage: 11 KV (min)
iii)Conductor: Fireproof, multistrand copper conductor
iv) Insulation: PTFE insulated with mica tapping & fibre glass top
v) Heat resistant up to 400 Deg C

C) PILOT BURNER ASSEMBLY with Ignition Electrode:
(Make: Maxon / Eclipse / Natco (Cameron)/ ACL/ Zeeco / Combustex-Canalta Controls /Sigma Controls/ Smitsvonk Durag GmbH / G.I.E. S.r.l.)
Pilot Burner assembly complete with ignition electrode of above make shall consist of following with mounting arrangement for Pilot Guard Sensor Lead/Element.
a) Mixer
i) Connection: 1/2 or 1/4 inch Female connector
ii)Function: To maintain air-fuel ratio to the pilot burner
b) Orifice
i) Suitable for Gas Mixer
ii) Function: To maintain air-fuel ratio for the pilot burner.
iii) Material of construction: Brass or SS
c) Pilot Burner Nozzle
i) Function: To provide pilot flame in the Natural Gas fired heater vessel
ii) Material of construction: SS 310 or suitable for high temperature applications
d) Ignition Electrode
i) Function: The ignition electrode is to be mounted on the body of the pilot burner to keep a fixed gap between the electrode tip and the pilot burner nozzle for proper ignition.
ii) Provision for clamping & length adjustment of the electrode.
iii) Holder Strap: To hold the Ignitor Rod Assembly with Pilot line.
iv) Insulation: It should have necessary CERAMIC insulation.

D) Hand-Held High Energy Igniter:
i) Battery: 12V/24V DC, Rechargeable including charger
ii) Output Power: min 1.5 Joules, 5 SPS
iii) Igniter Tips: 3 feet
iv) Weight: 3 kg
Make: Chentronics / Smitsvonk / G.I.E. S.r.l./ Smitsvonk Portable Igniter of Durag GmbH
E) Pilot Guard:
i) Function: Shut-off Gas Supply to the Pilot and Main Burner in the event of Pilot Flame out
ii) Temperature Sensing: Thermocouple
ii) Supply Inlet: 10 to 20 psig
iii)Thermocouple leads/Cable: 3 meter (10 feet) minimum
Make: FMC Invalco, CM7 / ACL-2000/ Kimary / Smitsvonk Durag GmbH

F) Fuel Shut-off Valve
i) End Connection: 1" NPT (F) / Flanged
ii) Type: ON/OFF

iii) Actuator: Diaphragm
iv) Operating Signal: 3 to 15 psig
vi) Gas Flow Rate: 40-130 SCM/Hr
vii) Inlet Pressure: 1.0 - 3.5 Kg/Sq.cm
viii)Design Pressure: 10 Kg/Sq.cm
ix) Test Pressure: 15 Kg/Sq.cm
Make: Invalco/Samson/ Fisher/ Forbes Marshall /Combustex/ Murphy/ Kimray

G) Temperature Control Valve:
i) End Connection: 1" NPT / Flanged
ii) Type: Proportional
iii) Actuator: Pneumatic Diaphragm Operated
iv) Operating signal: 3 to 15 psig
Make: Invalco/ Fisher /Samson/Forbes Marshall/ Combustex / Kimray

H) Pilot Gas Regulator:
i) Input Supply: 1 - 3.5 Kg/cm2
ii) Output: 0 to 15 psig adjustable
iii)Connection: 1/4" NPT
Make: Invalco /Samson/ Fisher/ Kimray

I) Main Fuel Gas Regulator:
i) Input Supply: 30 Kg/Sq.cm
ii) Output: 0 to 3.5 Kg/Sq. cm adjustable
iii)Connection: 1" NPT / Flanged
iv) Flow rate of Natural Gas: 40 to 130 SCM/Hr.
v) Type: Spring Loaded
Make: Invalco / Samson/ Fisher/ Kimray

J) Pressure Indicators (2 nos.) in main fuel line before and after Regulator
i) Range: 0 to 40 Kg/Sq.cm (before Regulator), 0 to 3.5 Kg/Sq.cm (after Regulator)
ii) Dial Size: 100 mm (4")
iii)Connection Size: 1/2"
iv) Material of Construction: All Stainless Steel
Make: Wika/ Odin / Waree / Ashcroft

K) Pressure Indicators in pilot line after the regualtor:
i) Range: 0 to 3.5 Kg/Sq.cm
ii) Dial Size: 100 mm (4")
iii) Connection Size: 1/4"
iv) Material of Construction: All Stainless Steel
Make: Wika/ Odin / Waree/ Ashcroft

L) Indicating Type Temperature Controller:
i) Type: Pneumatic Indicating PID Controller
ii) Range: 0 to 150 Deg C
iii)Sensor: Mercury Filled
iv) Sensor Connection: 1/2" NPT

v) Thermowell: Required
vi) Thermowell Connection: 1" NPT
vi) Insertion Length: 300 mm (12")
vii) Input Supply: 20-30 psig
viii) Output Signal: 3 to 15 psig
Make & Model: Fisher 4196B or Fisher 4196C or Samson Type 3430 or ABB 440 R Series

M) Strainer:
i) Sp. Gravity of Natural Gas: 0.6
ii) Flow rate of gas: 130 SCM/Hr.
iii) Mesh: 80 Mesh SS 304
iv) End Connection: 1" NPT
v) Working Pressure: 15 Kg/Sq.cm
vi) Test Pressure: 25 Kg/Sq.cm
Make: Zoloto/Leader/Sant or equivalent

N) Instrumentation Tubes & Fittings:
i) MOC: SS
ii) Make: Swagelok, Parker or Hylok.

4.4 Notes:
a) All the pneumatic instruments shall be suitable for operating in compressed natural gas as servo supply.
b) Servo Gas Pressure Regulators of Fisher Model 67 CFR / Norgren / Maxitrol shall be provided for all pneumatic instruments requiring 20 psig supply pressure.
c) The Temperature Control Valve and the Fuel Shut-off Valve shall have isolation and bypass Valves as per Ball Valve Spec sheet attached. MOC of all the Needle valves for the package shall be SS suitable for intended application and design as per ASME B16.34.
d) Operation and Maintenance manuals of all the instruments shall be provided along with the supply of materials.
e) Three (03) additional thermowells of 1" NPT of 300 mm length shall be fixed on the shell for provision of insertion other instruments.
f) Step by step operating procedure of remote ignition and no flame shutdown system shall be separately inscribed in a non-erasable placard in the area where its operation would be carried out.

5.0 Earthing Provision:
Two (2) nos. of 3/4" studs with nuts (1 each at one of the legs and the vessel) to be welded for electrical earthing.

6.0 General Notes:
i) All the valves on the Fuel System shall be Fire safe design as per API 607
ii) The fuel gas line and controller etc. should be suitably anchored / supported to the outside shell wall.
iii) The fuel gas shall have preheating arrangement through the bath heater. Fuel gas preheating piping/coil shall be seamless, 3000 psig rating.
iv) The Indirect Heater shall have suitable lifting lugs attached for lifting and placing the same at site.

v) Materials whenever not mentioned will conform to API spec 12K standard for the vessel.
vi) The following documents of bidders shall be forwarded with the bid:
a) Process and Instrumentation diagrams
b) General Arrangement Diagram (GAD) of the unit.
c) Sectional drawing showing the internals of the indirect heater.
d) Sectional drawing showing the internals of the Fuel Scrubber.
e) Drawings showing details of Remote Ignition System of Pilot Burner and Flame Failure shutdown system.
f) Circuit Diagram of Remote Ignition System with details of electronic components and Battery.
g) Drawing showing Bean housing and Bean Holder.
h) Instrument data sheets along with make and model.
i) Make/ Models of all the bought-out items along with technical literature, GAD etc.
j) Calculation/ datasheet from OEM for selection of Main Burner sizing for heat duty of 2.5 MMBTU/Hr considering the various parameters viz. Fuel Gas Calorific Value, Fuel Gas Pressure to Burner Inlet, Chimney Height, Fire Tube Dia & Length etc.
k) Calculation/ datasheet sheet from OEM for selection of Flame Arrester sizing with required air flow rate for Main Burner heat duty of 2.5 MMBTU/Hr considering Burner efficiency.

viii) The scope of the bidder also includes proper selection of the Main Burner Inspirator and Nozzle size and Fame Arrester Assembly size to ensure that the indirect water bath package meets the minimum heat duty requirement of 2.5 MM BTU/Hr taking into account all the parameters viz. Chimney height, fire tube diameter & length, air flow through the flame arrester, natural gas calorific value, burner efficiency etc.
ix) Welding shall be done as per ASME Section IX.
x)OIL's purchase Order no. and date shall be inscribed along with Manufacturer's name, pressure rating, capacity, code of manufacture, unit serial no. on the vessels along with other details as per Reference General Drawing:

7.0 Painting and Insulation:

Surface cleaning of Bath heater, external surface by sand blasting to Sa2 -1/2 grade conforming to Swedish Standard SIS - 05 5900 - 1967 followed by 2 coats of heat resistant primer. Insulation/protection as required shall be provided.

Inner surface will be cleaned by wire brushing and will be provided with 2 coats of heat resistant primer. Each coat will have min DFT of 35 microns.

The heater body and piping shall be thermally insulated by rock wool (Density 120) and aluminium sheet (20 gauges) covered with tight sealing, to prevent heat loss and external insertion of water and foreign elements.

8.0 Inspection & Testing:

A) Third Party inspection: OIL will/may arrange for Third Party Inspection of the materials (at any stage of order execution) at Bidder's/Manufacturer's plant by any of its approved third party inspection agency. Scope of Third party Inspection will include but not limited to the following:

a) Inspection of raw materials.

b) Inspection of radiography of welded joints
c) Inspection of Hydraulic testing of Process/Pressure coils
d) Inspection of Hydraulic testing of Fire Tube
e) Water fill test of the shell.
f) Inspection of bought-out items
g) Inspection of certificates in respect of raw materials, bought-out items, radiography etc.
h) Inspection of Hydraulic testing of Fuel Scrubber.
i) Inspection of Hydraulic testing of Fuel Gas Pre-Heat Coil along with Fuel Gas piping.

B) **All cost towards the engagement of Third Party Inspection Agency shall be borne by OIL. BIDDER SHALL NOT QUOTE / INCLUDE THE COST OF THIRD PARTY INSPECTION IN THEIR OFFER. For details, bidder(s) are requested to refer to the Special Notes.**

C) The Inspector will be OIL's authorized / recognized inspecting agencies i.e. M/s Lloyds or M/s Bureau Veritas or RITES or M/s IRS or M/s DNV or any other to be decided by OIL.

D) Inspection by OIL:
OIL will carry out inspection of the units during fabrication, assembly and testing. OIL representative must be provided all reasonable opportunities to inspect the unit(s) and material at their convenient. It prefers to inspect the unit and materials at the works during the following stages:

1st stage inspection: After completion of fabrication of Shell and internals including Pressure Coil, Fire Tube, Chimney, Nozzles etc. after Third Party Inspection but before final assembly. The supplier has to intimate OIL at least 15 to 20 days prior to offering the inspection date.

2nd stage inspection: Final inspection will be carried out by OIL when the IWBH Packages are completed (prior to painting of the unit) and mounted on the skid and the pipe works are almost ready. The supplier has to intimate OIL at least 15 to 20 days prior to offering the inspection date. OIL Engineer will inspect/witness the following:

a) To review the hydraulic test records & pressure recorder charts of Fire tube, Pressure Coils, Fuel Scrubber, Fuel Pre-heat Coil, Shell and Fuel Gas piping works etc.
b) To inspect the radiographic plates and reports. All these documents are to be sent to OIL along with the packages.
c) To inspect the post weld heat treatment/stress relieving report and chart which are to send to OIL later on along with the packages.
d) To witness the functioning of all pneumatic control gears and control valves, for which the supplier is to supply instrument air during inspection.
e) Relevant test records and documents- in respect of various equipment/ accessories shall be offered for verification.
f) To check all the bought out items as per Purchase Order and approved datasheet. Also to inspect purchase documents and quality certificates of bought out items.
g) Inspection of remote ignition system with solar high energy battery operated remote igniter & Hand-held High Energy Igniter as per Purchase Order and approved datasheet.
h) Any modifications of general arrangement, if required after inspection shall be carried out by the vendor.

Manufacturer/bidder shall facilitate above inspections without any cost to OIL. However, Cost of travel, accommodation and other expenses of OIL's inspection team will be borne by OIL.

E) Third Party inspection:

I) The materials shall also be offered for third party inspection for the following scope:

a) Inspection of certificates in respect of raw materials, bought-out items, radiography etc.
b) To review qualification of the welder and welding procedure specifications (WPS) as per ASME code.
c) Verification of physical and chemical properties of raw materials.
d) To witness fabrication works to ensure that the bidder has complied with respect to OIL's approved drawing for fabrication of the package.
e) To review the stage wise inspection of sub-assemblies viz. Nozzles, Shell, Fire Tube, Chimney, Bean Housing assembly, Companion Flanges etc. before final assembly.
f) To review and certify the radio-graphed film of weld joints as per ASME code and heat treatment chart and certifying
g) Inspection & witnessing of the hydraulic tests of Fire tube, Pressure Coils, Fuel Scrubber, Fuel Pre-heat Coil and Fuel Gas piping works will be separately tested. The testing will be as such (except testing of Shell), First to test the items/ piping assembly at 1.5 times the Design pressure / Maximum Working Pressure for 30 minutes and reduced to design pressure/ Maximum Operating Pressure. At the design pressure, testing will be for 24 hrs. The hydraulic test certificates report and recorder charts are to be sent to OIL.
h) Water fill test of the Shell
i) Inspection of all the bought out items as per Purchase Order and approved datasheet. Also to review purchase documents and quality certificates of bought out items.
j) To witness final dimensional inspection and ensure proper workmanship.
k) To document and issue inspection certificate.
l) To review Operating & Maintenance Manuals for the package.
m) The above inspection is for general guide line only. If third party desire to carry out any additional inspection as per ASME code / API specification and the same should be included under intimation to Oil India Limited.

II) **All cost towards the engagement of Third Party Inspection Agency shall be borne by OIL. BIDDER SHALL NOT QUOTE / INCLUDE THE COST OF THIRD PARTY INSPECTION IN THEIR OFFER. For details, bidder(s) are requested to refer to the Special Notes.**

III) The Inspector will be OIL's authorized / recognized inspecting agencies i.e. M/s Lloyds or M/s Bureau Veritas or RITES or M/s IRS or M/s DNV or any other to be decided by OIL.

F) Quality Assurance Plan:

a) Quality Control (QC), shall mean all the tests, measurement, checks and calibration which are to be carried out in Bidder's shop in order to compare the actual characteristics of the equipment/unit/system with the specified ones, along with furnishing of the relevant documentation (certificates/records) containing the data or result of these activities. The bidders are required to furnish a detailed & comprehensive list of the inspection facilities available at their shop along with the bids.
b) As a minimum the following points shall be included in the Quality Control Plan to supplement QAP Sample provided in the Tender:
i) Review of material certificates and verification of the materials of construction for conformity with requisition requirements

ii) Review of material certificates and verification for heat marks for pipes and flanges for conformity to the specification
iii)Verification for the Vendors welding procedure and procedure qualification for the equipment in accordance with the design code
iv) Dimensional check in accordance with approved "final" drawings
v) Painting and lining requirement as detailed in this specification shall be inspected
vi) Final release

9.0 Installation and Commissioning:

a) Commissioning of the indirect heater unit shall be in the supplier's scope. The supplier will give a tentative period for commissioning the unit. OIL will intimate the supplier concerned before 7 days of commissioning. The supplier will arrange for commissioning the unit within quoted time.
b) It is the supplier's responsibility to inspect the supply at OIL's work site along with OIL's representative(s). Accordingly, the materials will be inspected in presence of supplier's representative at OIL's work site after delivery, but before commissioning to ensure immediate replacement of any short supply/transit damage.
c) OIL will provide illumination, water & Fuel Gas (for Package Burner) only at site during commissioning of packages.
d) The supplier will have to arrange for transportation, boarding & lodging and security of the supplier's personnel(s) during their stay at Duliajan/site for commissioning the unit(s).
e) Commissioning charges should be quoted separately.
f) Installation & commissioning doesn't include grouting job, however, supplier will have to provide necessary manpower to do necessary cleaning/grading of area demarcated for installation for ensuring a level base for erecting IWBH Packages, if required.
g) Commissioning of all the 12 Nos. of Water Bath Heater under the tender may be carried out at one stretch or in phased manner within 60 days from the date of delivery of complete package.
h) OIL will allow the supplier to start the installation & commissioning of the complete package within 60 days from the date of delivery of complete package.

Note:
OIL will try best to collaborate with vendor to have commissioning of Packages smoothly and as such there should not be any inconvenience from OIL side if delivery of packages is complete in all respect. OIL will allow the vendor to start the installation & commissioning of the complete package within 60 days from the date of delivery of Complete Package. If any component of any package is short supplied or damaged during transit, the same shall not be considered as delivery of complete package. Each lot/batch of supplied materials will be inspected in presence of supplier's representative at OIL's work site to check the delivery of each package in all respects before installation & commissioning to ensure immediate replacement of any short supply/transit damage.

10.0 The bidders will have to provide the commissioning spares at their cost along with the Equipment. The bid should include a list of such spares. List of commissioning spares indicating the qty, description must be shown separately. Unused/leftover commissioning spares will be handed over to OIL after completion of the installation/ commissioning job.

11.0 Bids and all related documents shall be in English language. Supporting documents and printed literature furnished by the bidder may be in another language provided they are accompanied by an accurate translation of the relevant passages in English, in which case for purpose of interpretation of the bid, the translation in English shall prevail.

12.0 Warranty: The equipment/materials will be guaranteed for a period of 12 (twelve) months from the date of commissioning. The supplier shall repair or replace any item or equipment found defective in materials or workmanship or performance within the above period free of charge. The warranty is applicable to bought out items also.

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ANNEXURE III

CHECK LIST

(A) TECHNICAL CHECK LIST

THE CHECK LIST MUST BE COMPLETED AND RETURNED WITH YOUR OFFER. PLEASE ENSURE THAT ALL THESE POINTS ARE COVERED IN YOUR OFFER. THESE WILL ENSURE THAT YOUR OFFER IS PROPERLY EVALUATED. PLEASE TICK MARK 'YES' OR 'NO' TO THE FOLLOWING QUESTIONS, IN THE RIGHT HAND COLUMN.

Sl No.	Description	NIT requirement	Yes/No		Remarks
1	**IH is manufactured to handle**				
	a) Coil inlet pressure	281.6 kg/cm^2	Yes	No	
	b) Gas outlet pressure	70 kg/cm2	Yes	No	
	c) Gas Inlet Temp (min)	15 Deg C	Yes	No	
	d) Water Bath Temp	80 Deg C	Yes	No	
	e) Heat Duty (minimum)	2.5 Million BTU/Hr	Yes	No	
2	**Shell**:				
	a) Design standard	API Spec 12 K	Yes	No	
	b) Size (min)	As per Reference General Drawings	Yes	No	
	c) Additional Thermowell (3 nos.)	1" NPT, 300 mm length each	Yes	No	
	d) Nozzles for coil inlet, outlet, fire tube etc	As per Requirement	Yes	No	
	e) Test	Water Fill Test	Yes	No	
3	**Coils (Seamless)**:				
	a) Number of set of coils	2 (Two)	Yes	No	
	b) Number of passes per coil set	Split, 8 x 2	Yes	No	
	c) Coil size	3 Inch (80 mm) NB	Yes	No	
	d) M.O.C. of Coil	API 5L, Gr.B, seamless / ASTM A106 Gr. B	Yes	No	
	e) Wall Thickness	0.6 Inches (15.24mm)	Yes	No	
	f) Radiography	100%	Yes	No	
	g) Coil Hydro test Pressure	422 kg/cm^2 (6000psig)	Yes	No	
	h) End Connection	Flanged, 65 mm NB x 2500class RTJ, ANSI B16.5, , with Companion Flanges, BE RTJ, ring joint gasket , high tensile studs-nuts as per ASTM A193 Gr. B-7,ASTM A194 Gr. 2H.	Yes	No	
4	**Coil Accessories: Choke**				
	a) Choke with Housing	Positive Fixed choke	Yes	No	
	b) Choke Size (OD)	25.4 mm NB	Yes	No	
	c) Housing end connection	Flanged, welded, 65mm (2.1/2") NB, ANSI 2500 Class	Yes	No	
	d) Bean of various sizes	As per NIT Specification	Yes	No	
	e) MOC of bean housing	As per API 6A	Yes	No	
	f) Make	As per List of OEM for Bought-out Items	Yes	No	

Sl No.	Description	NIT requirement	Yes/No		Remarks
5	**Fire Tube** :				
	a) M.O.C. of Fire Tube	API 5L, Gr. B/ ASTM A106, Seamless	Yes	No	
	b) Half cover plate feature	As per NIT Specification	Yes	No	
	c) Type	U Type	Yes	No	
	d) Diameter	As per Reference General	Yes	No	
	e) Length	Drawings	Yes	No	
	f) Radiography at U Bend	100%	Yes	No	
	g) Hydraulic Test Pressure	5 kg/cm2	Yes	No	
6	**Flame Arrested Burner and Accessories**:				
	a) Data Sheet from OEM	Submitted	Yes	No	
	b) Burner capacity/size for	2.5 Million BTU/Hr	Yes	No	
	c) Make	As per List of OEM for Bought-out Items	Yes	No	
	Pilot Burner Assembly with Ignition Electrode: Make	As per List of OEM for Bought-out Items	Yes	No	
7	**a) Flame Arrester comprising of following:**	**Make:** As per List of OEM for Bought-out Items	Yes	No	
	i) 'O' / Box Type (Aluminum housing)				
	ii) Flame Cell				
	iii) Adaptor Spool				
	b) Flame Arrester Capacity:	Suitable for Burner of Heat Duty: minimum 2.5 Million BTU/Hr. (0.7325 X 10^6 Watt) with Natural Gas as Fuel	Yes	No	
8	**Instrumentation for Shell**:				
	a) Liquid Level Switch				
	i) Type	Pneumatic	Yes	No	
	ii) Action	ON/OFF	Yes	No	
	iii) Output	15 psig	Yes	No	
	iv) Supply	20 psig	Yes	No	
	v) Type	Float less pneumatic switch with differential pilot (0-500 mm WC).	Yes	No	
	v) Make	As per List of OEM for Bought-out Items	Yes	No	
9	**Instrumentation for Coil**:				
	a) Temperature indicators	As per NIT Specification	Yes	No	
	b) Pressure indicators	As per NIT Specification	Yes	No	
10	**Pneumatic Burner Control System**:				
	a) Fuel Shut off Valve	As per NIT Specification	Yes	No	
	b) Temp. Control Valve	As per NIT Specification	Yes	No	
	c) Pilot Gas Regulator	As per NIT Specification	Yes	No	
	d) Main Fuel Gas Regulator	As per NIT Specification	Yes	No	
	e) Pressure Gauges	As per NIT Specification	Yes	No	
11	**High Energy Battery Operated Remote Igniter**				
	a) Flameproof Box	IP 65 (min.)	Yes	No	

Sl No.	Description	NIT requirement	Yes/No		Remarks
	b) Battery	24V, Rechargeable type with suitable charger (Electric /Solar with solar panel)	Yes	No	
	c) Output Voltage	Sufficient for establishing flame in pilot burner at a distance of more than 20 mtrs	Yes	No	
	d) Make	As per List of OEM for Bought-out Items	Yes	No	
	Hand-Held High Energy Igniter: i) Battery ii) Output Power iii) Igniter Tips iv) Weight: v) Make:	12V/24V DC, Rechargeable including charger min 1.5 Joules, 5 SPS 3 feet 3 kg As per List of OEM for Bought-out Items	 Yes Yes Yes Yes Yes	 No No No No No	
12	High Voltage Remote Ignition Cable	As per NIT specifications	Yes	No	
13	Flame Failure Shutdown switch	Make: As per List of OEM for Bought-out Items	Yes	No	
14	Temp. Indicating Controller	Fisher 4196B or Fisher 4196C or Samson Type 3430 or ABB 440 R Series	Yes	No	
15	Servo gas pressure regulators for all pneumatic instruments	As per List of OEM for Bought-out Items	Yes	No	
16	Isolation and Bypass Valves for Fuel Shutoff Valve & Temperature Control Valve	As per NIT & Valve datasheet	Yes	No	
17	All requisite and standard accessories quoted	As per NIT	Yes	No	
18	All valves of fire safe design as per API 607	To be confirmed	Yes	No	
19	Documents to be forwarded along with the bid a) Process and Instrumentation diagrams b) General Arrangement Diagram (GAD) of the unit. c) Sectional drawing showing the internals of the indirect heater. d) Drawings showing details of Remote Ignition System of Pilot Burner and Flame Failure shutdown system. e) Circuit Diagram of Remote Ignition System with details of electronic	 Submitted Submitted Submitted Submitted	 Yes Yes Yes Yes	 No No No No	

Sl No.	Description	NIT requirement	Yes/No		Remarks
	components and Battery.				
	f) Drawing showing Bean housing and Bean Holder.	Submitted	Yes	No	
	g) Instrument data sheets along with make and model.	Submitted	Yes	No	
	h) Make/ Models of all the bought-out items along with technical literature, GAD etc.	Submitted	Yes	No	
	i) Calculation/ datasheet from OEM for selection of Main Burner sizing for heat duty of 2.5 MMBTU/Hr considering the various parameters viz. Fuel Gas Calorific Value, Fuel Gas Pressure to Burner Inlet, Chimney Height, Fire Tube Dia & Length etc.	Submitted	Yes	No	
	j) Calculation/ datasheet sheet from OEM for selection of Flame Arrester sizing with required air flow rate for Main Burner heat duty of 2.5 MMBTU/Hr considering Burner efficiency.	Submitted	Yes	No	
	The scope of the bidder also includes proper selection of the Main Burner Inspirator and Nozzle size and Fame Arrester Assembly size to ensure that the indirect water bath package meets the minimum heat duty requirement of 2.5 MM BTU/Hr taking into account all the parameters viz. Chimney height, fire tube diameter & length, air flow through the flame arrester, natural gas calorific value, burner efficiency etc.	Confirmed	Yes	No	
20	Welding shall be done as per ASME Section IX	Confirmed	Yes	No	
21	Painting and Insulation of Shell, Chimney & Fire Tube	As per NIT	Yes	No	
22	Inscription on the vessel	As per NIT	Yes	No	
23	**INSPECTION & TESTING**				
	a) Third party inspection	As per NIT	Yes	No	
	b) Third party inspection charges shall be quoted separately	Quoted	Yes	No	
	c) Name of Third party inspector	M/s Lloyds or M/s Bureau Veritas or RITES or M/s IRS or M/s DNV.	Yes	No	
	d) OIL's inspection	As per NIT	Yes	No	
24	**COMMISSIONING:**				
	a) Commissioning	As per NIT	Yes	No	
	b) Inspection of material at site by the supplier	As per NIT	Yes	No	
	c) Commissioning charges quoted separately.	Quoted	Yes	No	

Sl No.	Description	NIT requirement	Yes/No		Remarks
25	**EXPERIENCE:** a) Experience details	As per BRC	Yes	No	
26	Warranty: The equipment/materials will be guaranteed for a period of 12 (twelve) months from the date of commissioning. The supplier shall repair or replace any item or equipment found defective in materials or workmanship or performance within the above period free of charge. The warranty is applicable to bought out items also.	To be confirmed	Yes	No	

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List of Original Equipment Manufacturer (OEM) for Bought-out Items
Indirect Water Bath Heater Package For Processing Natural Gas Produced From High-Pressure Gas Wells

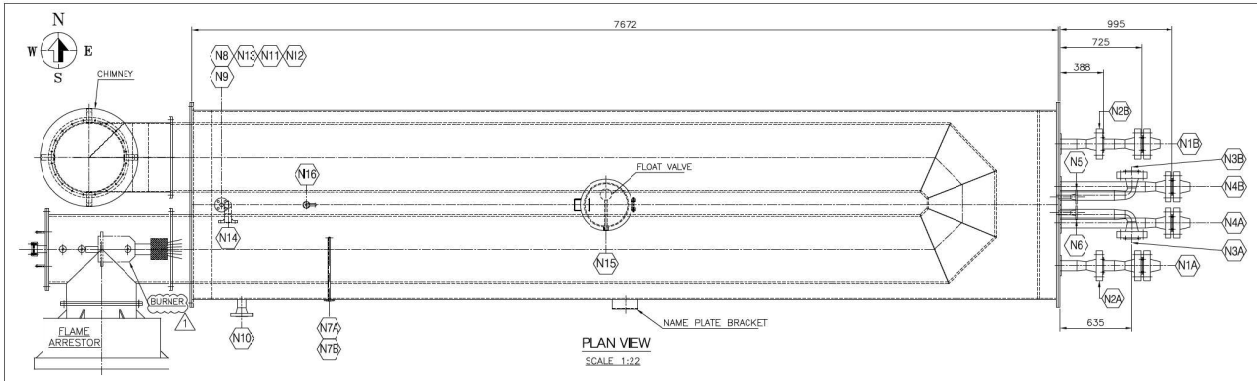
Sl No	Description	Make
1	Flame Arrested Burner	Maxon / Eclipse / John Zink / ACL / G.I.E. S.r.l./ Profire Energy
2	Flame Arrester	Zirco / Flameco / Cameron (Natco) / Wenco / Grit Industries / ACL/ Profire Energy
3	PILOT BURNER ASSEMBLY with Ignition Electrode	Make : Maxon / Eclipse / Natco (Cameron)/ACL/ Zeeco / Combustex-Canalta Controls /Sigma Controls / G.I.E. S.r.l./ Smitsvonk Durag GmbH / Profire Energy
4	High Energy Battery Operated Remote Igniter	Chentronics / Smitsvonk Durag GmbH / GBA Flare Systems / Meggitt / Combustex-Canalta Controls /Sigma Controls Systems / G.I.E. S.r.l./ Profire Energy
5	Hand-Held High Energy Igniter:	Chentronics/ Smitsvonk Durag GmbH /Combustex-Canalta Controls / Smitsvonk / G.I.E. S.r.l./ Profire Energy
6	Indicating Type Temperature Controller	Fisher 4196B or Fisher 4196C or Samson Type 3430 or ABB 440 R Series
7	Fuel Shut-off valve	Invalco/Samson/ Fisher/ Forbes Marshall /Combustex/ Murphy/ Kimray / Marsh Bellofarm/ CVS Controls Ltd.
8	Temperature Control Valve	Invalco/ Fisher /Samson/Forbes Marshall/ Combustex / Kimray / Marsh Bellofarm / CVS Controls Ltd.
9	Pilot guard	FMC Invalco , CM7 / ACL-2000 / Kimary / Smitsvonk Durag GmbH
10	Liquid Level Switch	Kimray / Fisher /ACL/ Marsh Bellofarm
11	Main Fuel Gas Regulator	Invalco/Samson/ Fisher/Invalco / Marsh Bellofarm/ CVS Controls Ltd.
12	Pilot Gas Regulator	Invalco/Samson/ Fisher/Invalco / Marsh Bellofarm/ CVS Controls Ltd.
13	Servo Gas Pressure Regulators	Fisher Model 67 CFR / Norgren / Maxitrol / Marsh Bellofarm/ CVS Controls Ltd.
14	Temperature Indicators	Wika/ Odin / Waree / Ashcroft/ CVS Controls Ltd.
15	Pressure Indicators	Wika / Odin / Waree / Ashcroft/ CVS Controls Ltd.
16	Positive Choke Housing, Bean Adapter & Bean	Masterflo / WKM /BHEL / JVS / PARVEEN
17	Level Gauge	Pratolina/ Levcon/ Daniel/Chemtrol/ V Automat
18	Strainer	Zoloto/Leader/Sant or equivalent
19	Instrumentation Tubes & Fittings i) MOC ii) Make:	 SS Swagelok, Parker or Hylok.

List of Drawings
Indirect Water Bath Heater Package For Processing Natural Gas Produced From High-Pressure Gas Wells

Sl No	Description
1	Reference General Drawing: OIL/PDNG/GD-GAD
2	Reference General Drawing: OIL/PDNG/GD-Shell Fabrication
3	Reference General Drawing: OIL/PDNG/GD-Coils
4	Reference General Drawing: OIL/PDNG/GD-Fire Tube
5	Reference General Drawing: OIL/PDNG/GD-Choke
6	Reference General Drawing: OIL/PDNG/GD-Bean
7	Reference General Drawing: OIL/PDNG/GD-Scrubber Vessel Fabrication
8	Reference General Drawing: OIL/PDNG/GD-P&ID
9	Reference General Drawing: OIL/PDNG/GD-ICD
10	Reference General Drawing: OIL/PDNG/GD-RIS
11	Reference General Drawing: OIL/PDNG/GD-SDIS-I
12	Reference General Drawing: OIL/PDNG/GD-SDIS-II
13	Reference General Drawing: OIL/PDNG/GD-Name Plate-Fuel Scrubber IWBH
14	Reference General Drawing: OIL/PDNG/GD-Name Plate-IWBH

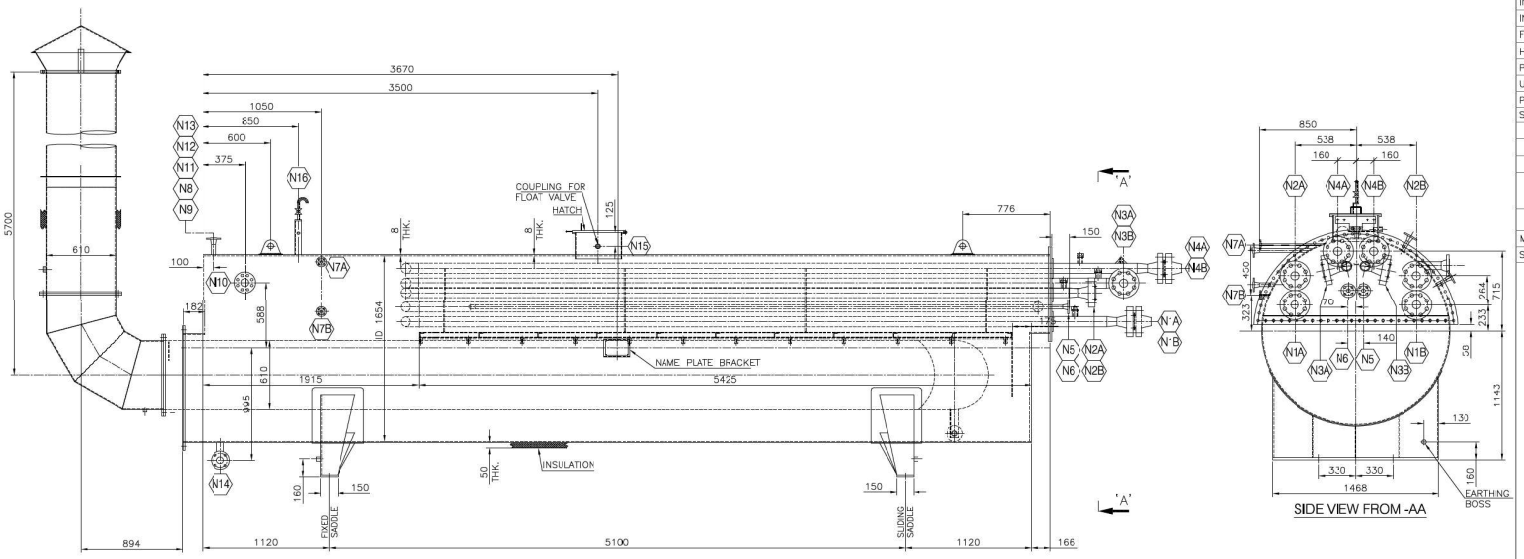
QAPs:

1) QAP - PIPING AND SKID
2) QAP - PRESSURE COIL & VESSEL



PLAN VIEW

SCALE 1:22



ELEVATION VIEW

SCALE 1:22

SIDE VIEW FROM -AA

10. HYDROTEST :
    i) HYDRO TEST SHALL BE CONDUCTED SHALL BE WITH COIL & FIRE TUBE ONLY
    ii) HYDRO TEST SHALL BE CONDUCTED SHALL BE WITH SAME TYPE OF GASKET AS SPACIFIED FOR ALL NOZZLE IN THE VESSEL DRAWING, JOB GASKET SHALL NOT BE USED FOR HYDROTEST
    iii) VESSEL SHALL BE DRIED WITH HOT COMPRESSED AIR AFTER SATISFACTORY COMPLETION OF HYDROTEST

11. PAINTING :
    i) INNER & OUTER SURFACE SHALL BE SAND BLASTED TO SA 2.5 BEFORE PAINTING IN ACCESSIBLE AREAS SHALL BE CLEANED WITH FIRE BRUSHING .
    ii) THE INNER & OUTER SURFACE OF THE EQUIPMENT SHALL BE GIVEN A COAT OF HIGH TEMPERTATURE RESISTANT RED OXIDE PRIMER BEFORE DISPATCH

12. INSULATION :
    a) 50 mm THICK HIGH TEMPERATURE RESISTANT ROCK WOOL COVERED WITH CHICKEN WIRE MESH TO BE FIXED ADEQUATELY OVER THE SURFACE OF THE CHIMNEY AND WATER BATH OUTER SURFACE.
    b) 24 WG ALUMINUM PLAIN SHEET TO BE ROLLED AND COVER UP THE INSULATED SURFACE WITH SUITABLE SCREW SYSTEM PROPER CARE SHALL BE TAKEN TO AVOID WATER SEEPAGE THROUGH THE ALUMINUM COVER

NOZZLE. MARK	SERVICE	SIZE IN NB	SCH / THK. NECK	CLASS	TYPE	R.F. PAD (OD x THK)	PROJ.	QTY	REMARKS
N16	HAND HATCH	2"	SCH 160	–	–	–	–	01	–
N15	SAFETY HATCH	16"	8 THK.	–	–	–	–	01	–
N14	DRAIN	2"	SCH 160	150#	SORF	–	–	01	–
N13	THERMOWELL (SPARE)	1"	SCH 160	300#	WNRF	–	–	01	–
N12	THERMOWELL (SPARE)	1"	SCH 160	300#	WNRF	–	–	01	–
N11	TEMPERATURE INDICATOR CONTROLLER TIC101	1"	SCH 160	300#	WNRF	–	–	01	–
N10	LEVEL SWITCH LLS101	2.5"	SCH 160	300#	WNRF	–	–	01	–
N9	TEMPERATURE INDICATOR	1"	SCH 160	300#	WNRF	–	–	01	–
N8	WATER INLET	1"	SCH 160	300#	WNRF	–	–	01	–
N7A/B	LEVEL GUAGE	1/2"	SCH 160	300#	SORF	–	–	02	–
N6	FUEL HEATING COIL OUTLET	1"	SCH 160	300#	WNRF	–	–	01	–
N5	FUEL HEATING COIL INLET	1"	SCH 160	300#	WNRF	–	–	01	–
N4A/B	PROCESS COIL OUTLET	2.5"	SCH XXS	2500#	WNRTJ	180 x 8	–	02	–
N3A/B	CHOCK VALVE OUTLET	2.5"	SCH XXS	2500#	WNRTJ	180 x 8	–	02	–
N2A/B	CHOCK VALVE INLET	2.5"	SCH XXS	2500#	WNRTJ	180 x 8	–	02	–
N1A/B	PROCESS COIL INLET	2.5"	SCH XXS	2500#	WNRTJ	180 x 8	–	02	–

NOZZLE SCHEDULE

DESIGN DATA			
DESIGN CODE			API 12K/ASME Sec VIII Div 1, Ed. 2015
ASME U–DESIGNATOR CERTIFICATION			NO
NATIONAL BOARD REGISTRATION REQD/NO.			NO /–
MANUFACTURER SERIAL No.			
INSPECTION			TPI
YEAR BUILT			
PRESSURE	DESIGN (INT/EXT)	bar g [psig]	ATMOSPHERIC + FULL OF WATER
	OPERATING	bar g [psig]	ATMOSPHERIC
	HYDROTEST AT TOP	bar g [psig]	FULL OF WATER (WITH FIRE TUBE, COIL, FUEL HEATING COIL,
			FUEL HEATING COIL DUTY ASSEMBLED) (REF.NOTE 12)
	MAWP (HOT & CORRODED)	bar g [psig]	ATMOSPHERIC AT100°C [212°F]/ NA
TEMP.	DESIGN	°C [°F]	100 [212°F]
	OPERATING (MAX/MIN)	°C [°F]	80 [176]
	MDMT	°C [°F]	––
TEST TEMPERATURE (MAX/MIN)		°C [°F]	48/17 [118.4/62.6]
OPERATING MEDIUM			WATER
CAPACITY		m³	––
LIQUID DENSITY		Kg/Cu.m	1000
CORROSION ALLOWANCE(INTERNAL)		(mm)	1.5
RADIOGRAPHY			NIL FOR IDBH, 100% FOR COIL AND FIRE TUBE
JOINT EFFICIENCY			1 FOR FIRE HEATING COIL, COILS, FIRE TUBE & 0.7 FOR OTHERS
IMPACT TESTING			EXEMPTED
WIND DESIGN			–
SEISMIC DESIGN			–
INSTALLATION			HORIZONTAL
INSULATION		TYPE / THK	50 THK. ROCK WOOL (REF. NOTE 12)(BY OTHER)
FIRE PROOFING		TYPE / THK	–
HYDRO TEST POSITION			HORIZONTAL
PWHT			NO FOR IDBH, YES FOR COIL AND FIRE TUBE
UG–22 LOADINGS			–
PAINT			–
SHOP PRIMER / CLEANING			REFFER NOTE NO 11

WEIGHTS IN Kgs

EMPTY CONDITION	OPERATING CONDITION	HYDROTEST CONDITION
		VESSEL–
		FIRE TUBE –
		COIL–

WIND AND SEISMIC MOMENT AT BASE OF SADDLE

MOMENT DUE TO WIND	= –– kgm	MOMENT DUE TO SEISMIC	= –– kgm
SHEAR FORCE DUE TO WIND	= –– kgf	SHEAR FORCE DUE TO SEISMIC	= –– kgf

GENERAL NOTES :-

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL FLANGE / TUBE SHEET BOLT HOLES TO STRADDLE PRINCIPAL CENTER LINE UNLESS OTHERWISE STATED.
3. SPECIFIED FILLET WELD SIZES ARE FILLET LEG SIZES.
4. FOR NOZZLE ON SHELL PROJECTION IS REFERRED FROM VESSEL CENTERLINE TO FLANGE CONTACT FACE
5. REINFORCING PADS SHALL BE PROVIDED WITH 2 NOS. 1/4" NPT TELL TALE HOLES AT 180° APART AND FILLED WITH GREASE AFTER AIR TEST AT 1.02 kg/cm2 g WITH SOAP SUDS
6. ALL SHARP CORNERS SHALL BE ROUNCED OFF AND THE INSIDE RADIUS OF ALL THE NOZZLE SHALL BE ROUNDED OF OFF TO A MIN. RADIUS OF 5MM TO REMOVE ANY SHARP EDGES.
7. ALL BUTT WELD JOINT SHALL BE FULL PENETRATION WELD (FPW) WHEREVER WELDING IS NOT ACCESSIBLE FROM OTHER SIDE ROOT RUN SHALL BE BY GTAW.
8. WELDING:
   i) WELDING SHALL COMPLY WITH REQUIREMENTS OF ASME SEC.IX
   ii) WELDING CONSUMABLE SHALL BE AS BELOW

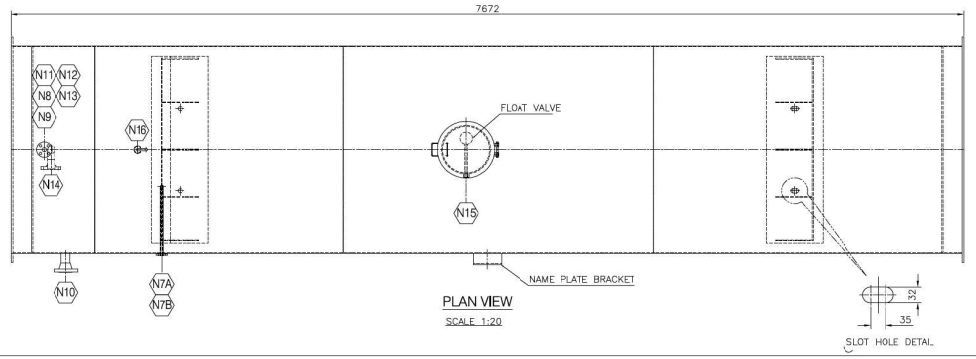
MATERIAL	GTWA	SMAW
CS (STRUCTURAL) TO CS (STRUCTURAL)	–	AWS EF60
CS TO CS (PRESSURE PARTS)	AWS ER60	AWS E6010/E6018

9. TOLERRANCES :
   TOLERRANCES ON ROOT GAP & ROOT FACE SHALL BE ±1 mm & ON BEVEL ANGLE ±2.5–0.0 mm
   TOLERANCE ON FILLET WELD DIMENSION SHALL BE +2.0mm–0.0mm
   SPECIFIED FILLED WELD SIZES ARE FILLET LEG SIZES

OIL INDIA LIMITED

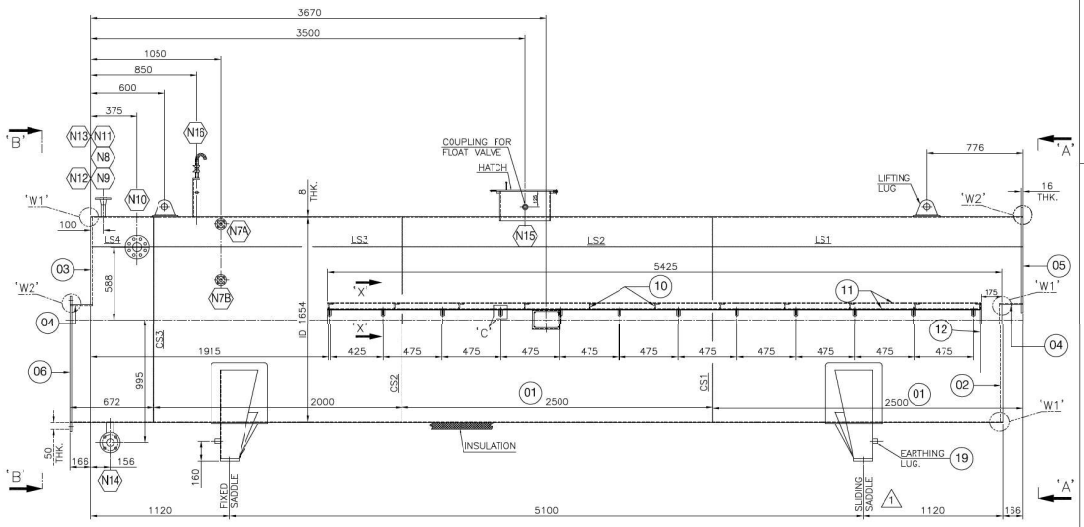
INDIRECT WATER BATH HEATER	SCALE NTS
GA DRAWING	SHEET 1 OF 1

Reference General Drawing: OIL/PDNG/GD-GAD



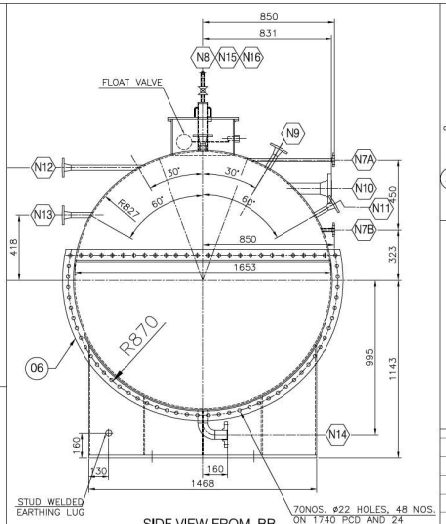
PLAN VIEW

SCALE 1:20



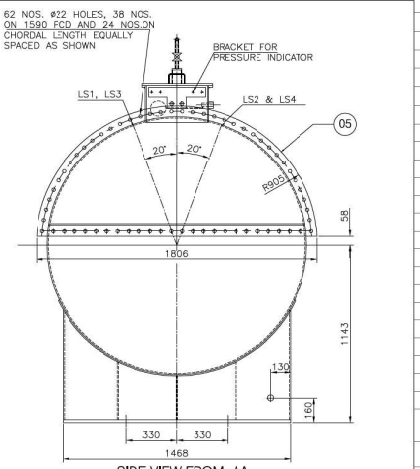
ELEVATION VIEW

SCALE 1:20



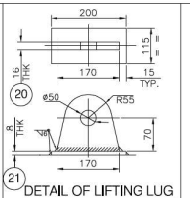
SIDE VIEW FROM -BB

SCALE 1:16



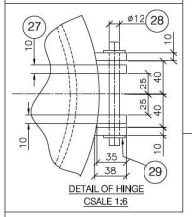
SIDE VIEW FROM -AA

SCALE 1:16



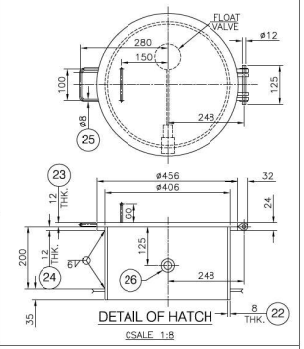
DETAIL OF LIFTING LUG

SCALE 1:16



DETAIL OF HINGE

CSALE 1:6

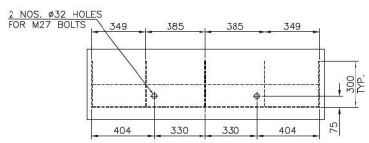


DETAIL OF HATCH

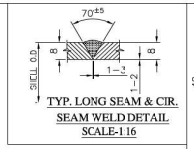
CSALE 1:8

No. ITEM	DESCRIPTION	SIZE	MATERIAL	QTY	Kg. Wt./N
29	ROD FOR HINGE	3 THK x OD 25 x ID 13	IS 2062 Gr.B	2	
28	ROD FOR HINGE	ø 12 BAR x 125 LG.	IS 2062 Gr.B	1	
27	CLEAT FOR HINGE	10 THK. x 24 x 40	IS 2062 Gr.B	4	
26	FILL COUPLING FOR FLOAT VALVE	1" NPT x 3000#	SA 105	1	
25	HANDLE	ø 8 BAR x 200 LG.	IS 2062 Gr.B	2	
24	HATCH FLANGE	12 THK. x OD 456 x ID 408	IS 2062 Gr.B	1	
23	HATCH COVER	12 THK. x OD 456	IS 2062 Gr.B	1	
22	HATCH PLATE	8 THK. x 235 x 1250 LG.	IS 2062 Gr.B	1	
21	RF PAD FOR LIFTING LUG.	8 THK. x 115 x 200 LG.	IS 2062 Gr.B	2	
20	LIFTING LUG	16 THK. x 125 x 170 LG.	IS 2062 Gr.B	2	
19	EARTHING LUG BOLT WITH NUT	M20 x 70 LG.	IS 1363/IS 1367	2	
18	RIB PLATE	8 THK. x 300 x 280 LG.	IS 2062 Gr.B	2	
17	RIB PLATE	8 THK. x 300 x 373 LG.	IS 2062 Gr.B	4	
16	RIB PLATE	8 THK. x 300 x 709 LG.	IS 2062 Gr.B	4	
15	WEB PLATE	8 THK. x 729 x 1468	IS 2062 Gr.B	2	
14	BASE PLATE FOR SADDLE	20 THK. x 150 x 1468 LG.	IS 2062 Gr.B	2	
13	WEAR PLATE FOR SADDLE	8 THK. x 450 x 1920 LG.	IS 2062 Gr.B	2	
12	BAFFLE PLATE	8 THK. x 520 x 1600 LG.	IS 2062 Gr.B	1	
11	BAFFLE PLATE	6 THK. x 1610 x 5250 LG.	IS 2062 Gr.B	2	
10	ANGLE	6 THK. x 40 x 40 x 1610 LG.	IS 2062 Gr.B	11	
09	PAD FOR CLEAT	8 THK. x 28 x 55 LG.	IS 2062 Gr.B	24	
08	GUSSET PLATE	8 THK. x 35 x 42 LG.	IS 2062 Gr.B	24	
07	SUPPORT FLAT	8 THK. x 50 x 5225 LG.	IS 2062 Gr.B	2	
06	HEADER FLANGE	16 THK. x 1101 x 1810 LG.	IS 2062 Gr.B	1	
05	HEADER FLANGE	16 THK. x 347 x 1807 LG.	IS 2062 Gr.B	1	
04	COVER PLATE	8 THK. x 174 x 1655 LG.	IS 2062 Gr.B	2	
03	END PLATE FIRE TUBE SIDE	16 THK x 700 x 1654 LG.	IS 2062 Gr.B	1	
02	END PLATE PROCESS COIL SIDE	16 THK x 955 x 1654 LG.	IS 2062 Gr.B	1	
01	SHELL PLATE	8 THK. x 7672 x 5221 LG.	IS 2062 Gr.B	2	

BILL OF MATERIAL

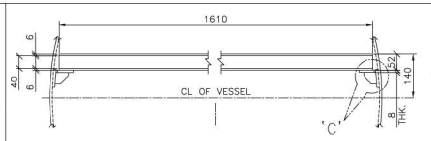


PLAN VIEW



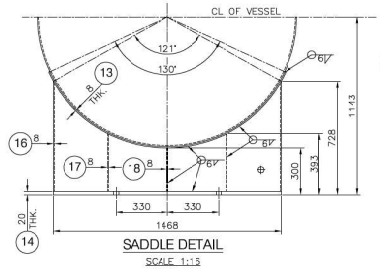
TYP. LONG SEAM & CIR. SEAM WELD DETAIL

SCALE-1:16



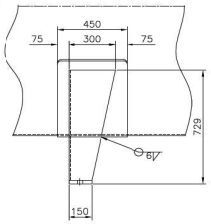
SECTION VIEW FROM - X-X

CSALE 1:8

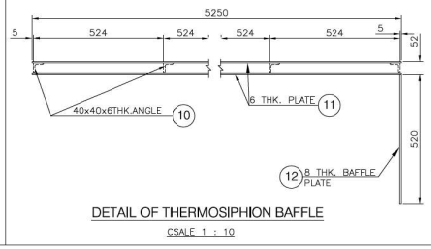


SADDLE DETAIL

SCALE 1:15

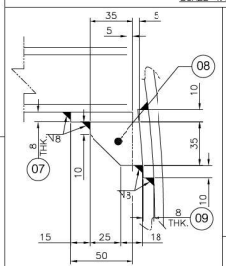


SIDE VIEW



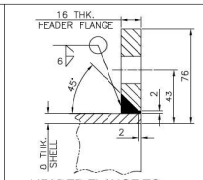
DETAIL OF THERMOSIPHION BAFFLE

CSALE 1 : 10



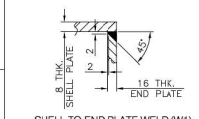
ENLARGE VIEW FROM 'C'

CSALE 1:2



HEADER FLANGE TO VESSEL WELD (W2)

CSALE 1:2



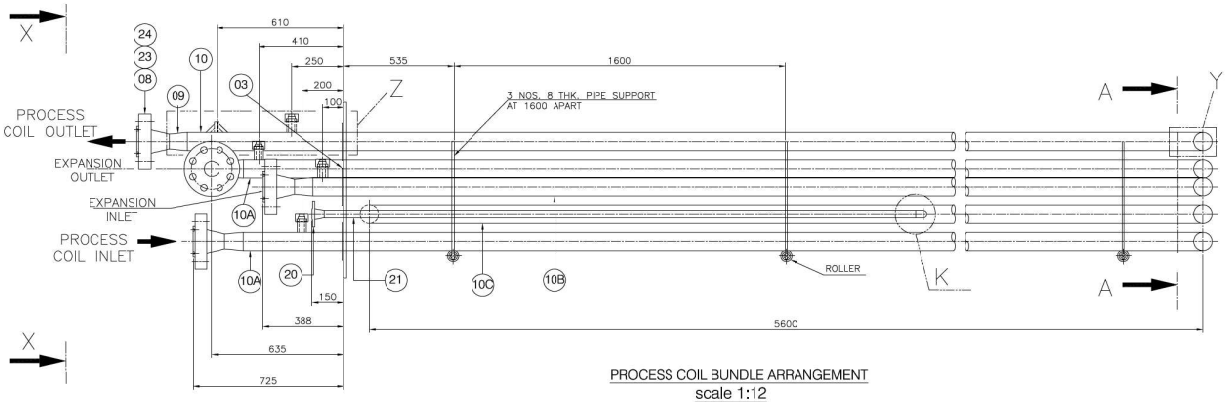
SHELL TO END PLATE WELD (W1)

CSALE 1:2

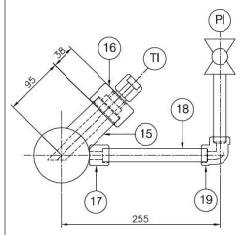
OIL INDIA LIMITED

INDIRECT WATER BATH HEATER	SCALE NTS
SHELL FABRICATION DETAILS	SHEET 1 OF 1

Reference General Drawing: OIL/PDNG/GD-Shell Fabrication



PROCESS COIL BUNDLE ARRANGEMENT
scale 1:12

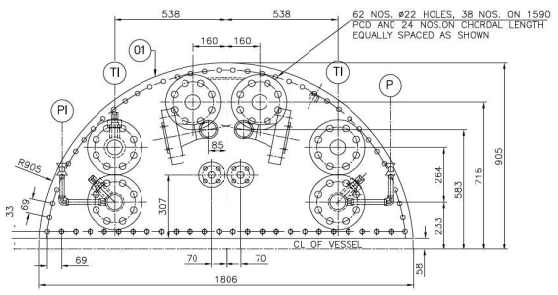


DETAIL OF TI AND PI ARRANGEMENT
scale 1 : 4

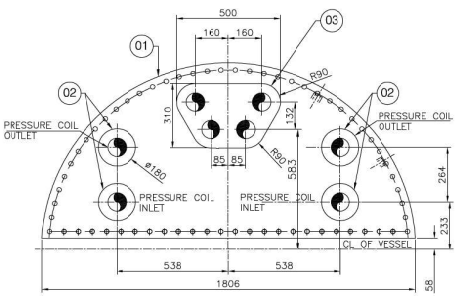
DESIGN DATA –		PROCESS/EXPANSION COIL	FUEL HEATING COIL
DESIGN CODE		API 12K/ASME Sec VIII Div 1	
INSPECTION			
YEAR BUILT			
PRESSURE	DESIGN (MAX) KG/cm2[psig]	281.22 [4000]	21.1 [300]
	OPERATING KG/cm2[psig]	281.22 [4000]	21.1 [300]
	HYDROTEST AT TOP KG/cm2[psig]	421.83 [6000]	31.64 [450]
	MAWP (HOT & CORRODED) KG/cm2[psig]	281.22 [4000]	21.1 [300]
TEMP.	DESIGN °C [°F]	100 [212°F]	
	OPERATING (MAX/MIN) °C [°F]	80 [176]	
	MDMT °C [°F]	--	
TEST TEMPERATURE (MAX/MIN) °C [°F]		48/17 [118.4/62.6]	
OPERATING MEDIUM		NATURAL GAS	
CAPACITY	m^3	--	
LIQUID DENSITY	Kg/Cu.m	1000	
CORROSION ALLOWANCE(INTERNAL)	(mm)	3	
RADIOGRAPHY		100%	
JOINT EFFICIENCY		1	
INSTALLATION		HORIZONTAL	
HYDRO TEST POSITION		HORIZONTAL	
PWHT		YES (REFER NOTE -11)	

WEIGHTS IN Kgs

EMPTY CONDITION	OPERATING CONDITION	HYDROTEST CONDITION



VIEW FROM -XX
scale 1:12



RF PAD ARRANGEMENT DETAIL ON HEADER FLANGE
scale 1:12

GENERAL NOTES :-

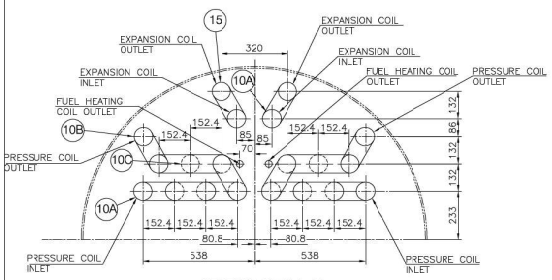
1. ALL DIMENSIONS ARE MM UNLESS OTHERWISE STATED.
2. ALL PRESSURES ARE GAUGE (G) PRESSURES UNLESS OTHERWISE SPECIFIED
3. SPECIFIED FILLET WELD SIZES ARE FILLET LEG SIZES.
4. ALL SHARP CORNERS SHALL BE ROUNDED OFF AND THE INSIDE RADIUS OF ALL THE NOZZLE SHALL BE ROUNDED OF OFF TO A MIN. RADIUS OF 5MM TO REMOVE ANY SHARP EDGES.
5. ALL BUTT WELD JOINT SHALL BE FULL PENETRATION WELD (FPW) WHEREVER WELDING IS NOT ACCESSIBLE FROM OTHER SIDE ROOT RUN SHALL BE BY GTAW.
6. RF FACE FOR ANSI 300# FLANGES SHALL BE FINISHED TO 125–250 AARH RTJ GROOVE FOR ANSI 2500# FLANGES SHALL BE FINISHED TO 32–65 AARH
7. HARDNESS OF FLANGES SHALL BE 187 BHN(MAX), BUT IN NO CASE LESS THAN 130 BHN
8. HARDNESS OF RTJ RING GASKET SHALL BE 90 BHN (MAX)
9. WELDING:
   i) WELDING SHALL COMPLY WITH REQUIREMENTS OF ASME SEC.IX ED.2015
   ii) WELDING CONSUMABLE SHALL BE AS BELOW

MATERIAL	GTWA	SMAW
CS (STRUCTURAL) TO CS (STRUCTURAL)	--	AWS ER60
CS TO CS (PRESSURE PARTS)	AWS ER60	AWS E6010/E6018

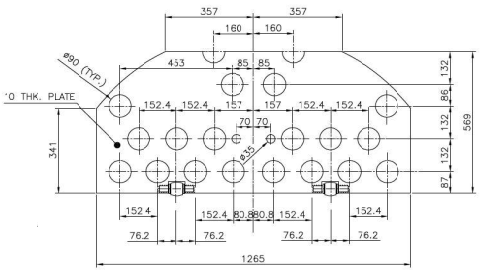
10. TOLERANCES :
    TOLERANCES ON ROOT GAP & ROOT FACE SHALL BE ±1 mm & ON BEVEL ANGLE ±2.5–0.0 mmTOLERANCE ON FILLET WELD DIMENSION SHALL BE +2.0mm–0.0mm SPECIFIED FILLED WELD SIZES ARE FILLET LEG SIZES
11. PWHT CYCLE FOR COIL :
    i) COIL AFTER COMPLETION OF ALL WELDING AND DIMENSIONAL INSPECTION SHALL BE PPWHT AS PER FOLLOWING PWHT CYCLE

LOADING TEMP.	RATE OF HEATING	SOAKING TEMP.	SOAKING TIME	RATE OF COOLING	REMARKS
400°C (MAX)	100°C/hr. (MAX)	610±10°C	60 MINUTES(MIN)	100°C/hr.(MAX)	COOLING IN STILL ARE BELOW 300°C

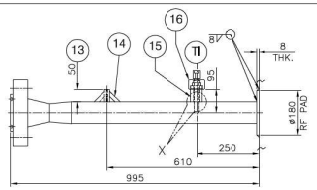
    ii) FLANGE FACING SHALL BE PROTECTED SHALL BE FROM OXIDATION DURING PWHT.
12. HYDROTEST :
    i) HYDRO TEST SHALL BE CONDUCTED SHALL BE WITH SAME TYPE OF GASKET AS SPACIFIED FOR ALL NOZZLE IN THE VESSEL DRAWING, JOB GASKET SHALL NOT BE USED FOR HYDROTEST
    ii) COIL BUNDLE SHALL BE DRIED WITH HOT COMPRESSED AIR AFTER SATISFACTORY COMPLETION OF HYDROTEST



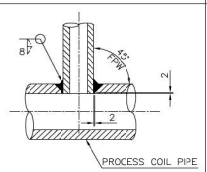
SECTION FROM -AA
DETAIL OF COIL ARRANGEMENT
scale 1:12



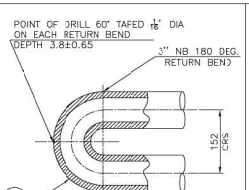
04 ASSEMBLY OF PIPE SUPPORT
scale 1 : 10



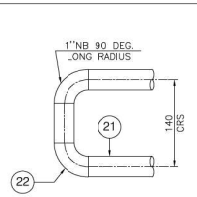
ENLARGED DETAIL OF `Z' COIL OUTLET
scale 1 : 10



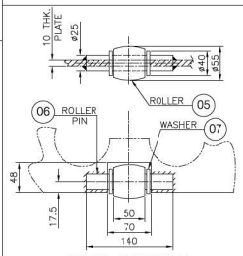
ENLARGED DETAIL OF X
scale 1 : 4



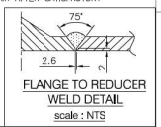
ENLARGED DETAIL OF Y
scale 1 : 6



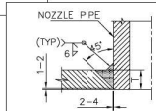
ENLARGED DETAIL OF K
scale 1 : 4



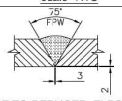
DETAIL OF ROLLER
scale 1 : 4



FLANGE TO REDUCER WELD DETAIL
scale : NTS



PIPE TO PIPE WELD DETAIL
scale -NTS



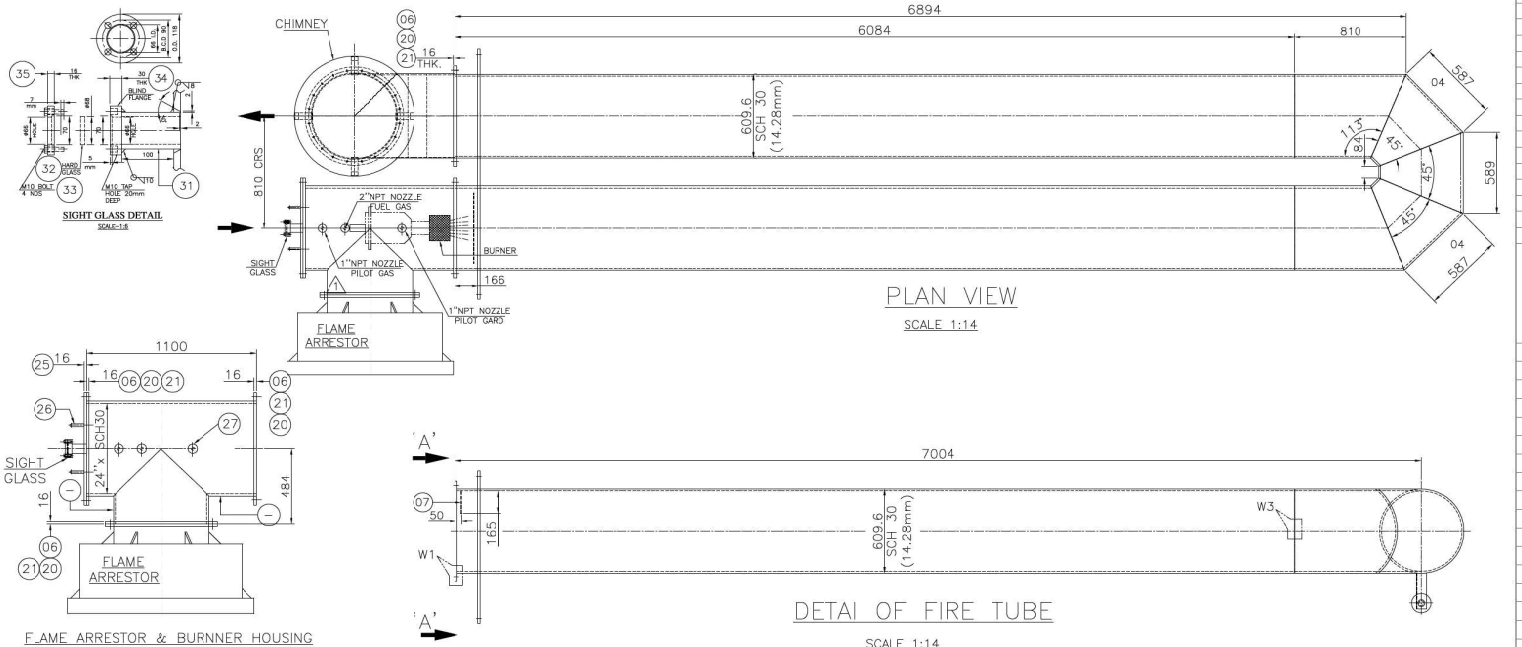
PIPE TO REDUCER, ELBOW & RETURN BEND WELD DETAIL
SCALE - NTS

No. ITEM	DESCRIPTION	SIZE	MATERIAL	Q'Y	Kg. Wt./N
24	OCTAGONAL RING GASKET	2.5" NB x 2500# R28	SOFT IORN	8	
23	STUD WITH 2 NUTS	1-1/8"UNC x 215 LG.	SA 193 Gr.B7 SA 194 Gr.2H	64	
22	ELBOW 90 DEG. LR	1" NB x SCH XXS	SA 234 WPB	2	
21	PIPE FOR FUEL HEATING COIL	1" NB x SCH 80 x 5200 LG.	SA 106 Gr.B	2	
20	FLANGE	1" NB x SCH 80 x 300#WNRF	SA 105	2	
19	ELBOW 90 DEG. SW	1/2" NB x 6000#	SA 105	2	
18	PIPE	1/2" NB x SCH XXS x 150 LG.	SA 106 Gr.B	2	
17	HALF COUPLING	1/2" NB x 6000#	SA 105	2	
16	REDUCING COUPLING	1.5" SW x 3/4" NPTF x 6000#	SA 105	8	
15	PIPE	1.5" NB x SCH XXS x 65 LG.	SA 106 Gr.B	8	
14	STIFFENER AT 180°	6 THK. x 15 x 50 LG.	IS 2062 Gr.B	8	
13	PIPE NIPPLE	1/2"NPTM x SCH XXS x 55 LG.	SA 106 Gr.B	4	
12	ELBOW 90 DEG. SR	2.5" NB x SCH XXS	SA 234 WPB	2	
11	"80" RETURN BEND SR	3" NB x SCH XS	SA 234 WPB	13	
10C	PIPE FOR COIL	3"NB x SCH XXS x 5359 LG.	SA 106 Gr.B	12	
10B	PIPE FOR COIL	3"NB x SCH XXS x 575' LG.	SA 106 Gr.B	2	
10A	PIPE FOR COIL	3"NB x SCH XXS x 6087 LG.	SA 106 Gr.B	4	
10	PIPE FOR COIL	3"NB x SCH XXS x 6358 LG.	SA 106 Gr.B	2	
09	REDUCER CONCENTRIC	3"NB x 2.5"NB SCH XXS	SA 234 WPB	8	
08	FLANGE WNRTJ	2.5"NB x 2500# x SCH XXS	SA 105	12	
07	WASHER FOR ROLLER	OD 40 x ID 25 x 5 THK	IS 2062	13	
06	PIN FOR ROLLER	ø25 x 140 LG.	IS 2062	8	
05	ROLLER	OD 55 x ID 26 x 50 LG.	IS 2062	8	
04	COIL SUPPORT PLATE	8 THK. AS PER DETAIL	IS 2062 Gr.B	1	
03	PAD PLATE	8 THK. AS PER DETAIL	IS 2062 Gr.B	1	
02	PAD PLATE	8 THK : OD 180 x ID 92	IS 2062 Gr.B	4	
01	COIL HEADER FLANGE	16 THK x ø1810	IS 2062 Gr.B	2	

BILL OF MATERIAL

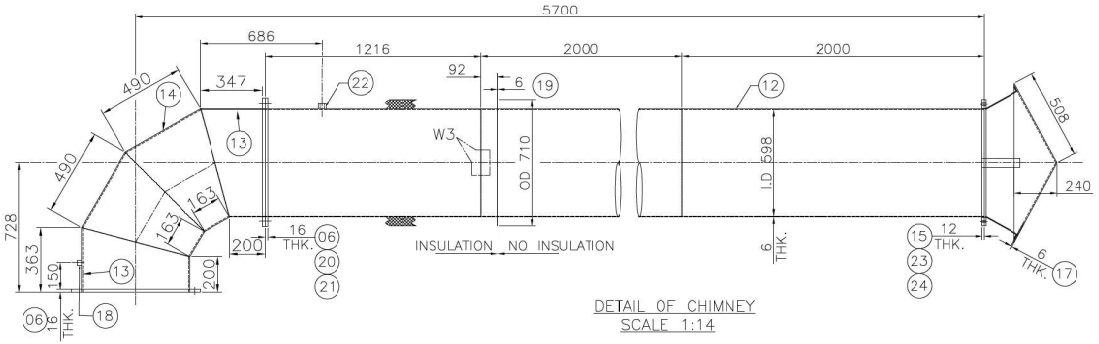
OIL INDIA LIMITED

INDIRECT WATER BATH HEATER	SCALE NTS
FABRICATION & ARRANGEMENT OF PROCESS COIL	SHEET 1 OF 1
Reference General Drawing: OIL/PDNG/GD-Cols	

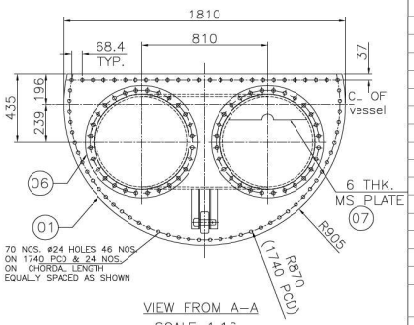


FLAME ARRESTOR & BURNNER HOUSING
SCALE 1:16

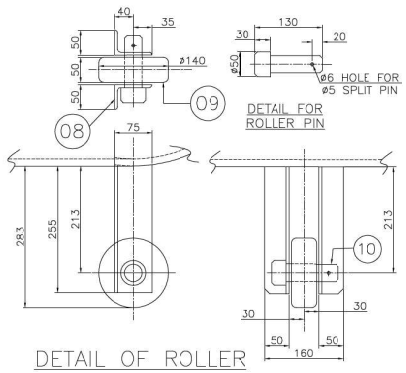
DETAI OF FIRE TUBE
SCALE 1:14



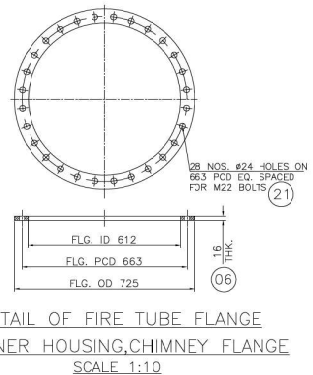
DETAIL OF CHIMNEY
SCALE 1:14



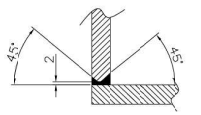
VIEW FROM A–A
SCALE 1:16



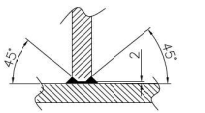
DETAIL OF ROLLER



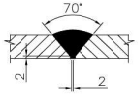
DETAIL OF FIRE TUBE FLANGE BURNNER HOUSING,CHIMNEY FLANGE
SCALE 1:10



PIPE TO FLANGE WELD DETAIL (W2)



FIRE TUBE TO COVER FLANGE WELD DETAIL (W1)



PIPE TO PIPE WELD DETAIL(W3)

6. PWHT CYCLE FOR FIRE TUBE :

i) FIRE TUBE AFTER COMPLETION OF ALL WELDING AND DIMENSIONAL INSPECTION SHALL BE PWHT AS PER FOLLOWING PWHT CYCLE

LOADING TEMP.	RATE OF HEATING	SOAKING TEMP.	SOAKING TIME	RATE OF COOLING	REMARKS
400°C (MAX)	100°C/hr. (MAX)	610±10°C	30 MINUTES(MIN)	100°C/hr.(MAX)	COOLING IN STILL AIR BELOW 300°C

ii) FLANGE FACING SHALL BE PROTECTED SHALL BE FROM OXIDATION DURING PWHT.

7. TOLERRANCES :

TOLERRANCES ON ROOT GAP & ROOT FACE SHALL BE ±1 mm & ON BEVEL ANGLE ±2.5–0.0 mm TOLERANCE ON FILLET WELD DIMENSION SHALL BE +2.0mm–0.0mm SPECIFIED FILLED WELD SIZES ARE FILLET LEG SIZES

8. WELDING:

i) WELDING SHALL COMPLY WITH REQUIREMENTS OF ASME SEC.IX

ii) WELDING CONSUMABLE SHALL BE AS BELOW

MATERIAL	GTWA	SMAW
CS (STRUCTURAL) TO CS (STRUCTURAL)	–	AWS E6013
CS TO CS (PRESSURE PARTS)	AWS ER60	AWS E6010/E6018

9. HYDROTEST :

i) HYDRO TEST SHALL BE CONDUCTED WITH SAME TYPE OF GASKET AS SPACIFIED FOR ALL NOZZLE IN THE VESSEL DRAWING, JOB GASKET SHALL NOT BE USED FOR HYDROTEST

ii) FIRE TUBE SHALL BE DRIED WITH HOT COMPRESSED AIR AFTER SATISFACTORY COMPLETION OF HYDROTEST

DESIGN DATA :

DESIGN CODE	ASME SEC VIII DIV–1 ED 2015
MAWP/DESIGN PRESSURE	1.4 KG/cm3(20 PSI)
DESIGN TEMPERATURE	100° C
OPERATRNG PRESSUREE	1 KG/cm3 (14 PSI)
OPERATRNG TEMPERATURE	80° C
CORROSION ALLOWANCE	1.5 mm
RADIOGRAPHY	100 %
JOIN EFFICIENCY	1
POST WELD HEAT TREATMENT	FIRE TUBE ONLY WITHOUT CHIMNEY
OPERATING MIDIUM	FUEL GAS
HYD.STATC TEST PRESSURE	2.11 KG/cm3 (30 PSI)
INSPECTION	TPI
WEIGHT EMPTY	Kgs. (FIRE TUBE + CHIMNEY)
WEIGHT HYDRO	Kgs. (FIRE TUBE ONLY)
WEIGHT OPERATING	Kgs.

GENERAL NOTES :-

1. ALL DIMENSIONS ARE MM UNLESS OTHERWISE STATED.
2. ALL PRESSURE APE GAUGE (G) PRESSURE UNLESS OTHERWISE STATED.
3. SPECIFIED FILLET WELD SIZES ARE FILLET .EG SIZES.
4. ALL SHARP CORNERS SHALL BE ROUNDED OFF & THE INSIDE RADIUS OF ALL THE NOZZLE SHALL BE ROUNDED OFF TO A MIN. RADIUS OF 5 MM TO REMOVE ANY SHARP EDGES
5. ALL BUTT WELD JOINT SHALL BE FULL PENETRATION WELD (FPW) WHEREVER WELDING IS NOT ACCESSIBLE FROM OTHER SIDE ROOT RUN SHALL BE BY GTAW.

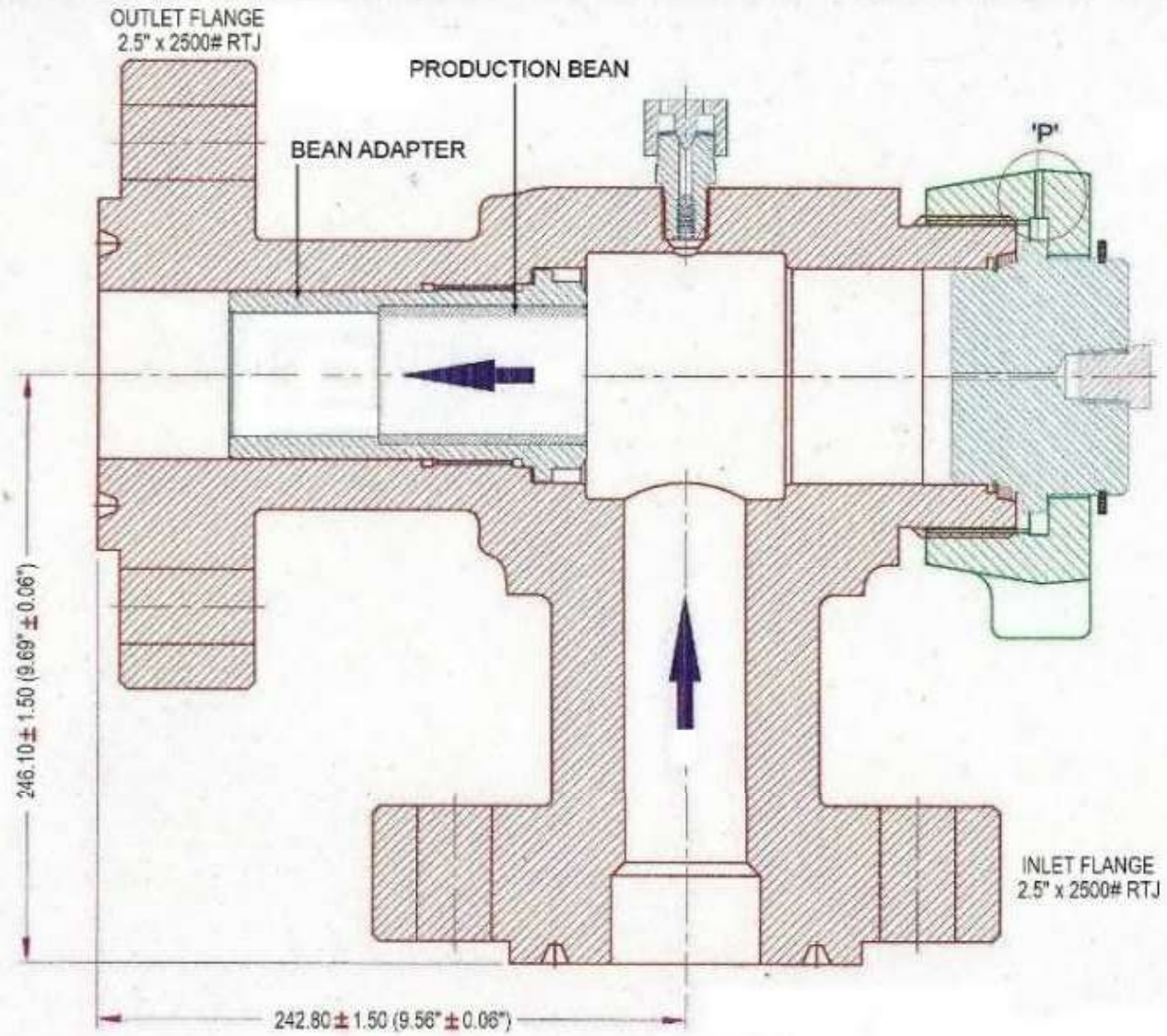
No. ITEM	DESCRIPTION	SIZE	MATERIAL	QTY	Kg. Wt.IN
35	BOLT	M10 x 40 LG.	SA 193 GR.B7	4	
34	PLATE FOR SIGHT GLASS	16 THK x 118ø	S 2062	1	
33	PLATE FOR SIGHT GLASS	30 THK x 118ø	S 2062	1	
32	HARD GLASS	10 THK x 68ø	GLASS	1	
31	NOZZLE FOR SIDE GLASS	3" NB x SCH 160 x 100 LG.	SA 106 GR.B	1	
30	PPE FOR BURNNER HOUSING	24" NB x SCH 30 x 250 LG.	API 5L Gr.B	1	
29	PPE FOR BURNNER HOUSING	24" NB x SCH 30 x 1100 LG.	API 5L Gr.B	1	
27	FUEL INLET FOR BURNNER	2" NPT x 3000# HALF COUPLING	SA 516 GR.70	1	
26	HANDEL	ø 16 x 260 LG.	SA 516 GR.70	2	
25	COVER FLANGE PLATE	16 THK. x OD 725	SA 516 GR.70	1	
24	STUDS WITH 2 NUTS	M22 x 80 LG.	IS 1363 / IS 1367	20	
23	GASKET	3 THK. x OD 725 x ID 612	RUBBER	1	
22	HALF COUPLING FOR	1" NPT x 3000#	SA 105	1	
21	STUDS WITH 2 NUTS	M22 x 80 LG.	IS 1363 / IS 1367	100	
20	GASKET	3 THK. x OD 725 x ID 612	CNAF	5	
19	INSULATION RING	6 THK. x 7'0 OD x 612 ID	S 2062 Gr.B	1	
18	HALF COUPLING FOR DRAIN	1/2" NPT x 3000#	SA 105	1	
17	PAIN HOOD PLATE	6 THK. x ø 725	S 2062 Gr.B	1	
16	PAIN HOOD SUPPORT	8 THK. x 50 x 240 .G.	S 2062 Gr.B	4	
15	PLATE FLANGE CHIMNEY	12 THK x OD 710 x ID 612	IS 2062 Gr.B	2	
14	PLATE FOR CHIMNEY	6 THK. x 490 x 1897 LG.	IS 2062 Gr.B	2	
13	PLATE FOR CHIMNEY	6 THK. x 363 x 1897 LG.	IS 2062 Gr.B	2	
12	PLATE FOR CHIMNEY	6 THK. x 5216 x 1897 LG.	IS 2062 Gr.B	1	
11	SPLIT PIN	ø 5 x 50 LG.	IS 2062 Gr.B	1	
10	PIN FOR ROLLER	ø 35 x 135 LG.	IS 2062 Gr.B	1	
9	ROLLER	ø 140 x 50 LG.	IS 2062 Gr.B	1	
8	ANGLE FOR ROLLER	75 x 50 x 6 THK. x 255 LG.	IS 2062 Gr.B	2	
7	BACK FIRE PLATE	6 THK. x 165 x 527	IS 2062 Gr.B	1	
6	FLANGE PLATE	16 THK. x OD 725 x ID 612	SA 516 GR.70		
5	PIPE FOR FIRE TUBE	24" NB x SCH 30 x 589 LG.	API 5L Gr.B	1	
4	PIPE FOR FIRE TUBE	24" NB x SCH 30 x 587 LG.	API 5L Gr.B	2	
3	PIPE FOR FIRE TUBE	24" NB x SCH 30 x 810 LG.	API 5L Gr.B	2	
02	PIPE FOR FIRE TUBE	24" NB x SCH 30 x 6084 LG.	API 5L Gr.B	2	
01	HEADER FLANGE	ø 1810 x 16 THK.	IS 2062 Gr.B	1	

BILL OF MATERIAL

OIL INDIA LIMITED

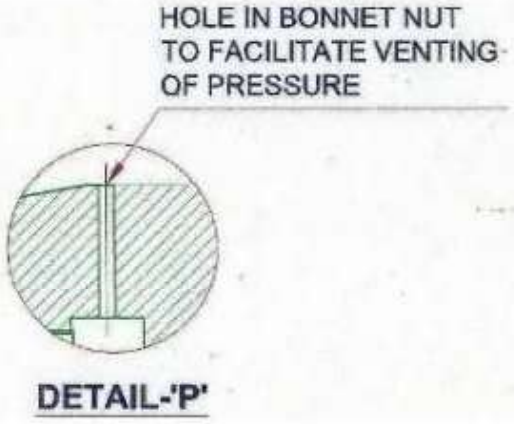
INDIRECT WATER BATH HEATER	SCALE NTS
FIRE TUBE & CHIMNEY DRAWING	SHEET 1 OF 1

Reference General Drawing: OIL/PDNG/GD-FireTube



POSITIVE CHOKE BODY (BEAN HOUSING, 5000 PSIG)

Positive Choke Assembly as per API 6A, 2.1/2" (65mm) NB, Inlet and Outlet Flanged 65mm NB x 2500 Class complete with housing 1/2" NPT Blanking Plug, Bonnet Assembly and Bean Adapter.
(PSL-1, Temp Rating-U, Material Class-BB)

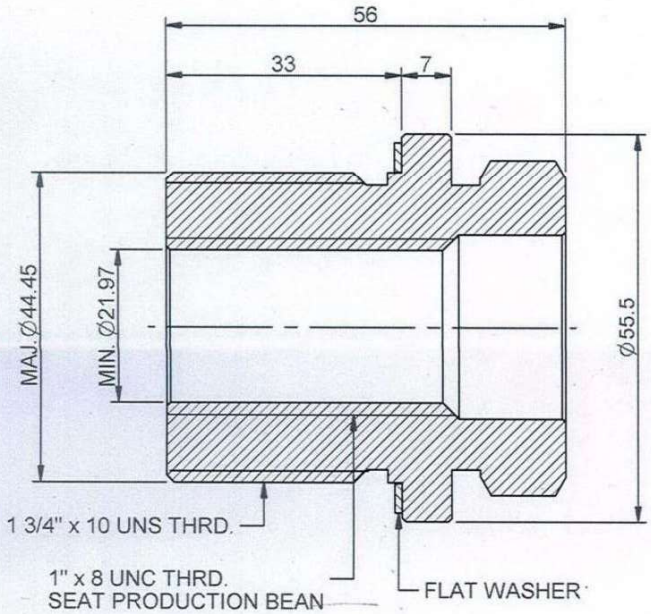


DETAIL-'P'

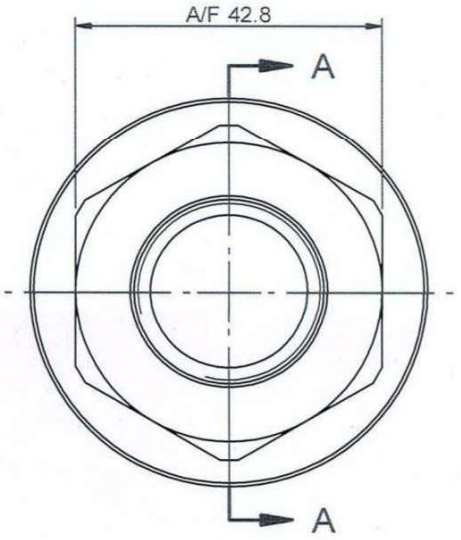
DRG NOT TO SCALE

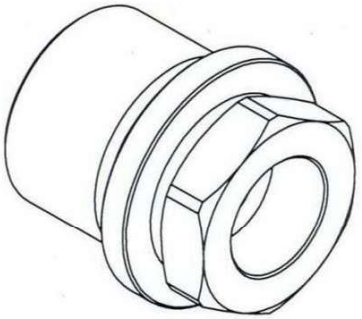
Reference General Drawing: OIL/PDNG/GD-Choke

DO NOT SCALE DRG



SECTION A-A





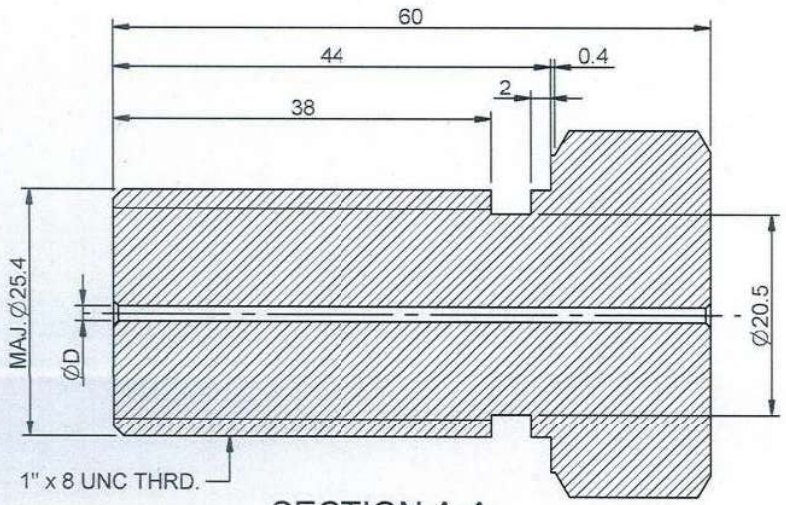
PICTORIAL VIEW

TITLE:-	**BEAN ADAPTER** For 2.1/2" x 2500#, Positive Choke Assembly
PROJ:	SCALE:-N.T.S.

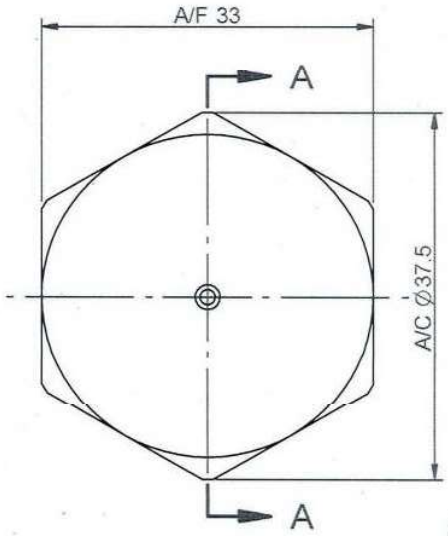
Reference General Drawing: OIL/PDNG/GD- Bean Adapter

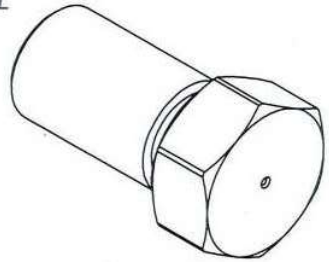
ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE STATED.

DO NOT SCALE DRG



SECTION A-A

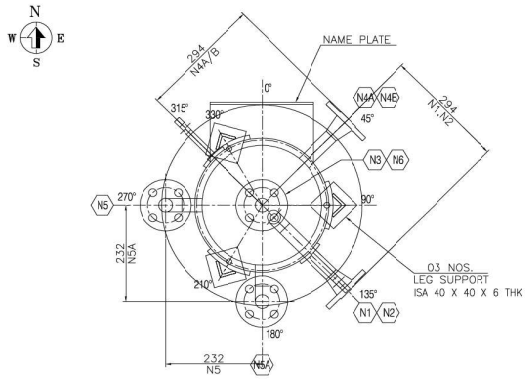




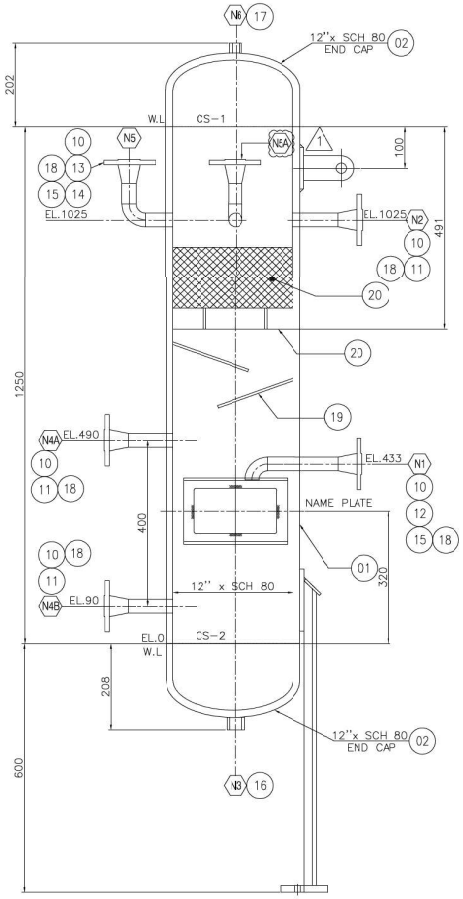
PICTORIAL VIEW

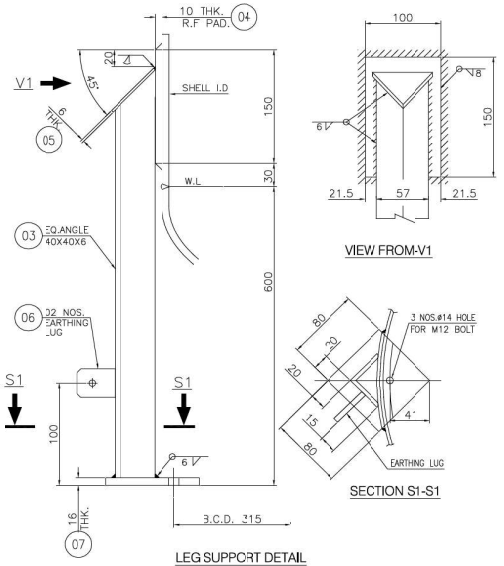
TITLE:- **PRODUCTION BEAN**	
PROJ:	SCALE:-N.T.S.
Reference General Drawing: OIL/PDNG/GD-Bean	

ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE STATED.



PLAN ORIENTATION

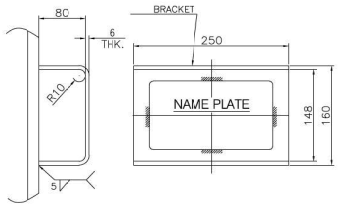




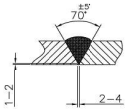
LEG SUPPORT DETAIL

VIEW FROM-V1

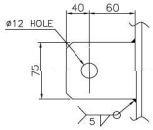
SECTION S1-S1



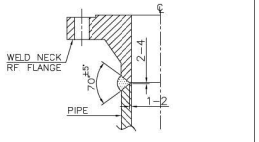
06 NAME PLATE BRACKET



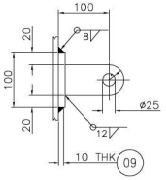
SHELL TO DISH CS-1 & CS-2



06 EARTHING LUG DETAIL



NOZZLE NECK TO FLANGE WELD DETAIL



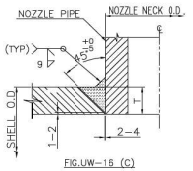
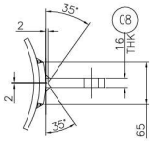
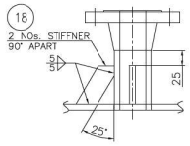


FIG.UW-16 (C)

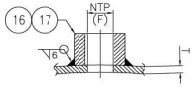
NOZZLE NECK TO SHELL WELD DETAIL



LIFTING LUG DETAIL



STIFFNER WELDING DETAIL



WELD DETAIL N3 & N6

GENERAL NOTES

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. ALL FLANGE BOLT HOLES SHALL STRADDLE THE MAIN AXIS OF THE VESSEL OR N/S CENTER LINE
3. ROOT RUN OF WELD JOINTS NOT ACCESSIBLE FROM INSIDE SHALL BE BY GTAW.
4. AFTER HYDROSTATIC TESTING, THE VESSEL TO BE THOROUGHLY DRIED BY BLOWING DRY AIR (DO NOT USE HOT AIR)
5. FLANGE FACES SHALL BE SUITABLY PROTECTED WITH WOODEN BLANKS SECURED WITH BOLTS AND MACHINED SURFACES TO BE PROTECTED WITH RUST PROVENTIVE AFTER MACHINING BEFORE DISPATCH.
6. VESSEL SHALL BE CLEANED FROM INSIDE & OUTSIDE FREE OF DIRT, GREASE, DEBRIS, LOOSE MILL SCALE, WELD SPATTER ETC.
7. NOZZLE POSITION SHOWN IN ELEVATION ARE FOR REF. ONLY. FOR TRUE LOCATION SEE NOZZLE ORIENTATION.
8. ALL INSIDE WELD SHALL BE ROUNDED OFF.
9. INTERFERENCE OF NOZZLES OR ATTACHMENT WELDS WITH CIRCUMFERENTIAL SEAMS SHALL BE AVOIDED.
10. WELD & MATERIAL HARDNESS SHALL BE LIMITED TO 200 BHN
11. SEAMLESS PIPE ACCD. TO ASME B36.10M-ED.2015, FITTING ACC. TO ASME B16.5-ED 2012.

DESIGN DATA

DESIGN CODE			ASME Sec VIII Div 1, Ed. 2015
ASME CERTIFICATION MARK			NA
NATIONAL BOARD REGISTRATION / NO.			NA
MANUFACTURER SERIAL No.			
INSPECTION			TPI
YEAR BUILT			
DESIGN CAPACITY			1.30 Sm3/hr OF NATURAL GAS
PRESSURE	DESIGN (INT/EXT)	bar g [psig]	35 [507.6] / NA
	OPERATING (INT/EXT)	bar g [psig]	29.4 [426.7] / NA
	HYDROTEST AT TOP	bar g [psig]	45.5 [560]
	MAWP (HOT & CORRODED)	bar g [psig]	35 [507.6] AT 93.33°C [200°F]
TEMP.	DESIGN (INT/EXT)	°C [°F]	93.33 [200]
	OPERATING (MAX/MIN)	°C [°F]	45 [113]
	MDMT	°C [°F]	−29 (−20.2) at 35 bar g [507.6 psig]
TEST TEMPERATURE (MAX/MIN)		°C [°F]	48 / 17 (118.4 / 62.6)
OPERATING MEDIUM			FUEL / NATURAL GAS
VESSEL VOLUME		LTR.	102.2
SP.GRAVITY OF NATURAL GAS			0.60−0.70 (air = 1.0)
API GRAVITY OF HYDROCARBON LIQUID			30 DEG TO 55 DEG API
WATER CONTENT IN LIQUID			0% − 90%
WATER SPECIFIC GRAVITY			1.02−1.08
CORROSION ALLOWANCE(INTERNAL)		(mm)	1.5
RADIOGRAPHY			FULL (100%)
JOINT EFFICIENCY			1
IMPACT TESTING			EXEMPTED AS PER UG 20(f),UCS-66 (a) & (c)
WIND DESIGN			ASCE 7−95/162 km/hr
SEISMIC DESIGN			UBC 1394, ZONE−1
INSTALLATION			VERTICAL/OUTDOOR
INSULATION		TYPE / THK	50 THK. ROCK WOOL (BY OTHERS)
FIRE PROOFING		TYPE / THK	N/A
HYDRO TEST POSITION			VERTICAL
PWHT			EXEMPTED AS PER UCS−56
UG−22 LOADINGS			YES , (a,b,d2,f1,f2 & j)

WEIGHTS IN Kg

EMPTY CONDITION	OPERATING CONDITION	HYDROTEST CONDITION

WIND AND SIESMIC MOMENT AT BASE LEG

MOMENT DUE TO WIND = 581 N-m	MOMENT DUE TO SEISMIC = 218 N-m
SHEAR FORCE DUE TO WIND = 975 N	SHEAR FORCE DUE TO SEISMIC = 283 N

NOZZLE SCHEDULE

NOZZLE MARK	SIZE	QTY.	SERVICE	FLANGE SCH./THK	FLANGE RATING	FLANGE TYPE	R.F. PAD SIZE	PROJECTION	REMARKS
N6	1/2"	1	PrINDICATOR WITH ISOLATING VALVE	--	600#	NPTF	--	202	FROM TOP WL
N5a	1"	1	PSV	SCH-160	300#	WNRF	--	---	SEE DWG.
N5	1"	1	PSV	SCH-160	300#	WNRF	--	---	SEE DWG.
N4A/B	1"	2	LEVEL GUAGE WITH GAUGAGE COCK	SCH-160	300#	WNRF	--	294	FROM VESSEL CL
N3	1"	1	DRAIN WITH ISOLATING VALVE	---	600#	NPTF	---	208	FROM BOT WL
N2	1"	1	GAS OUTLET	SCH-160	300#	WNRF	---	294	FROM VESSEL CL
N1	1"	1	GAS INLET	SCH-160	300#	WNRF	---	294	FROM VESSEL CL

BILL OF MATERIAL

PART NO.	PART	DESCRIPTION	QTY.	MATERIAL	WT	REMARKS
22	NAME PLATE BRACKET	6 THK. x 250 x 310 LG.	01	SA 516 GR.70	--	
21	DEMISTER PAD	OD 289 x 150 THK	01	SS 304	--	
20	DEMISTER SUPPORT RING	8 THK	01	SA 516 GR.70	--	
19	BAFFLE PLATE	8 THK x OD 289	02	SA 516 GR.70	--	
18	STIFFENER PLATE	6 THK x 30 WIDE x LG. TO SUIT	12	SA 516 GR.70	--	N1,N2,N4A/B,N5,N5A
17	HALF COUPLING	1/2" x 6000# NPT THREADED	1	SA 105	--	N6
16	HALF COUPLING	1" x 6000# NPT THREADED	1	SA 105	--	N3
15	ELBOW 90° LR	1" x SCH-160	3	SA 234 GR.WPB	--	N1,N5, N5A
14	PIPE FOR FLANGE	1" x SCH-160 x 50 LG.	2	SA 106 GR.B	--	N5,N5A
13	PIPE FOR FLANGE	1" x SCH-160 x 67 LG.	2	SA 106 GR.B	--	N5,N5A
12	PIPE FOR FLANGE	1" x SCH-160 x 170 LG.	1	SA 106 GR.B	--	N1
11	PIPE FOR FLANGE	1" x SCH-160 x 110 LG.	3	SA 106 GR.B	--	N2 & 44 A/B
10	FLANGE	1" x SCH-160 x 300# WNRF	7	SA 105	--	N1,N2,N3/N4/B,N5,45A
09	PAD PLATE FOR LUG	10 THK X 65 X 100 LG.	2	SA 516 GR.70	--	
08	LIFTING LUG PLATE	16 THK X 60 X 120 LG.	2	SA 516 GR.70	--	
07	BASE PLATE	16 THK X 80 X 80 LG.	3	SA 516 GR.70	--	
06	EARTHING LUG	6 THK X 75 X 100 LG.	2	SS 304	--	
05	COVER PLATE	6 THK X 60 X 60 LG.	3	SA 516 GR.70	--	
04	PAD PLATE	10 THK X 100 X 150 LG.	3	SA 516 GR.70	--	
03	EQ.ANGLE	ISA 40 X 40 X 6 THK X 740 LG.	3	IS 2062	--	
02	PIPE CAP	12"NB X SCH.80	2	SA 234 GR WPB	--	
01	PIPE FOR SHELL	12"NB X SCH.80 X 1250 LG.	1	SA 106 GR.B	--	

OIL INDIA LIMITED

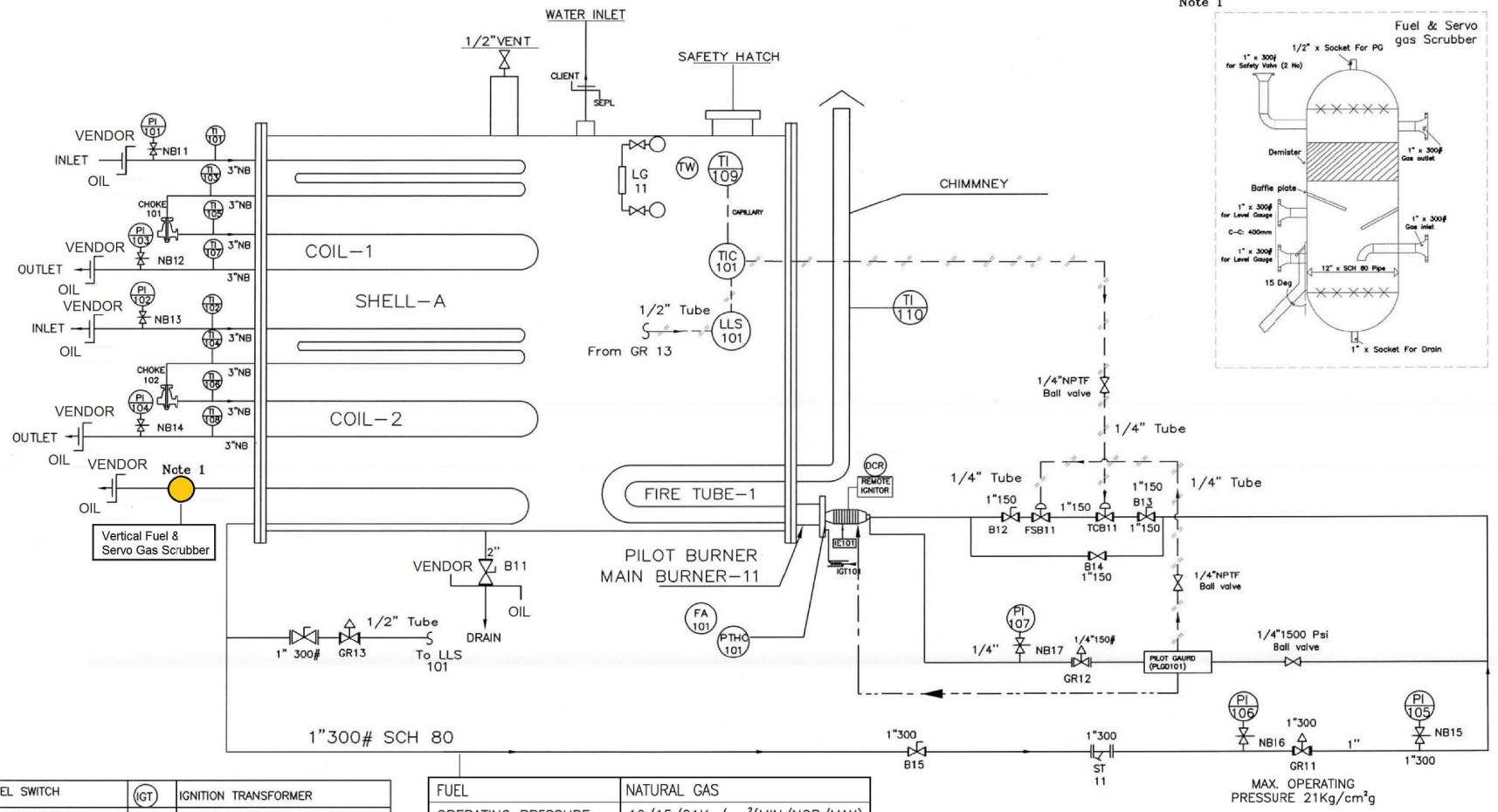
IIWBH FUEL SCRUBBER — SCALE NTS

SCRUBBER VESSEL FABRICATION & GENERAL ARRANGEMENT — SHEET 1 OF 1

Reference General Drawing: OIL/PDNG/GD-Scrubber Vessel Fabrication

MAX. WORKING PRESSURE	4000 PSIG
WATER BATH TEMP.	80°C
BURNER LOAD	2.5 MMBTU/Hr.

LINE NUMBERS
- PNEUMATIC LINE
- ELECTRICAL LINE
- MAJOR FLOW LINE



Note 1

LLS	LIQUID LEVEL SWITCH	IGT	IGNITION TRANSFORMER
AFR	AIR FILTER REQULATOR		NEEDLE VALVE
IE	IGNITION ELECTRODE	TW	THRMOWELL
FA	FLAME ARRESTER	PTHC	PILOT FLAME THERMOCOUPLE SENSOR
GR	GAS REGULATOR	FSV	FUEL SHUTOFF VALVE
	BALL / PLUG VALVE	DCR	DC REGULATED POWER SUPPLY
PI	PRESSURE INDICATOR	LG	LEVEL GAUGE
PLGD	PILOT GUAD	TI	TEMPERATURE INDICATOR
			TEMP. CONTROL VALVE
SYMB.	DESCRIPTION	SYMB.	DESCRIPTION

FUEL	NATURAL GAS
OPERATING PRESSURE	10/15/21Kg/cm²(MIN/NOR/MAX)
CALORIFIC VALUE	9000 Kcal/M
GAS CONSUMPATION	

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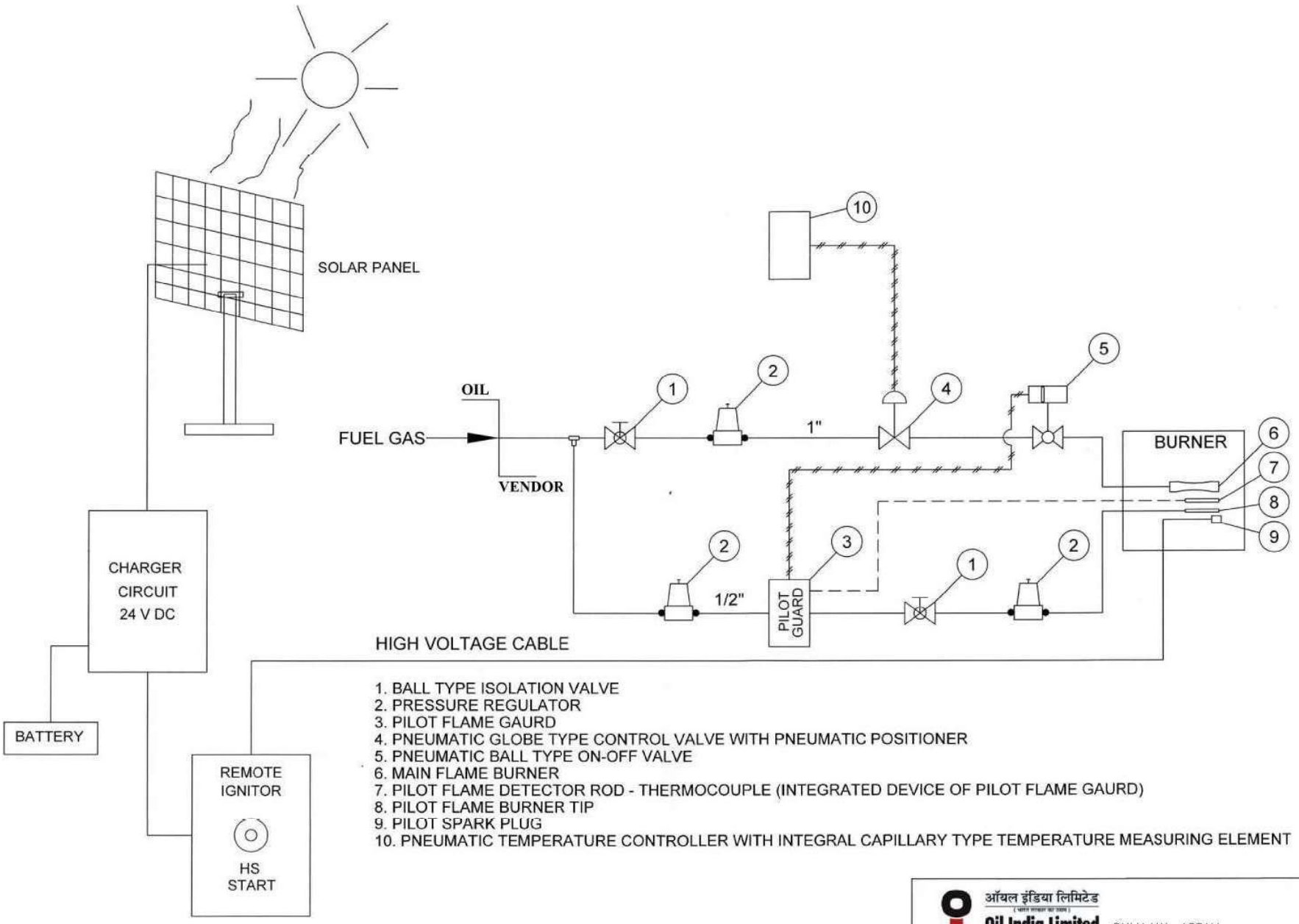
DULIAJAN, ASSAM

P&ID FOR INDIRECT BATH HEATER

Reference General Drawing: OIL/PDNG/GD-P&ID

SCALE NTS

SHEET 1 OF 1



1. BALL TYPE ISOLATION VALVE
2. PRESSURE REGULATOR
3. PILOT FLAME GAURD
4. PNEUMATIC GLOBE TYPE CONTROL VALVE WITH PNEUMATIC POSITIONER
5. PNEUMATIC BALL TYPE ON-OFF VALVE
6. MAIN FLAME BURNER
7. PILOT FLAME DETECTOR ROD - THERMOCOUPLE (INTEGRATED DEVICE OF PILOT FLAME GAURD)
8. PILOT FLAME BURNER TIP
9. PILOT SPARK PLUG
10. PNEUMATIC TEMPERATURE CONTROLLER WITH INTEGRAL CAPILLARY TYPE TEMPERATURE MEASURING ELEMENT

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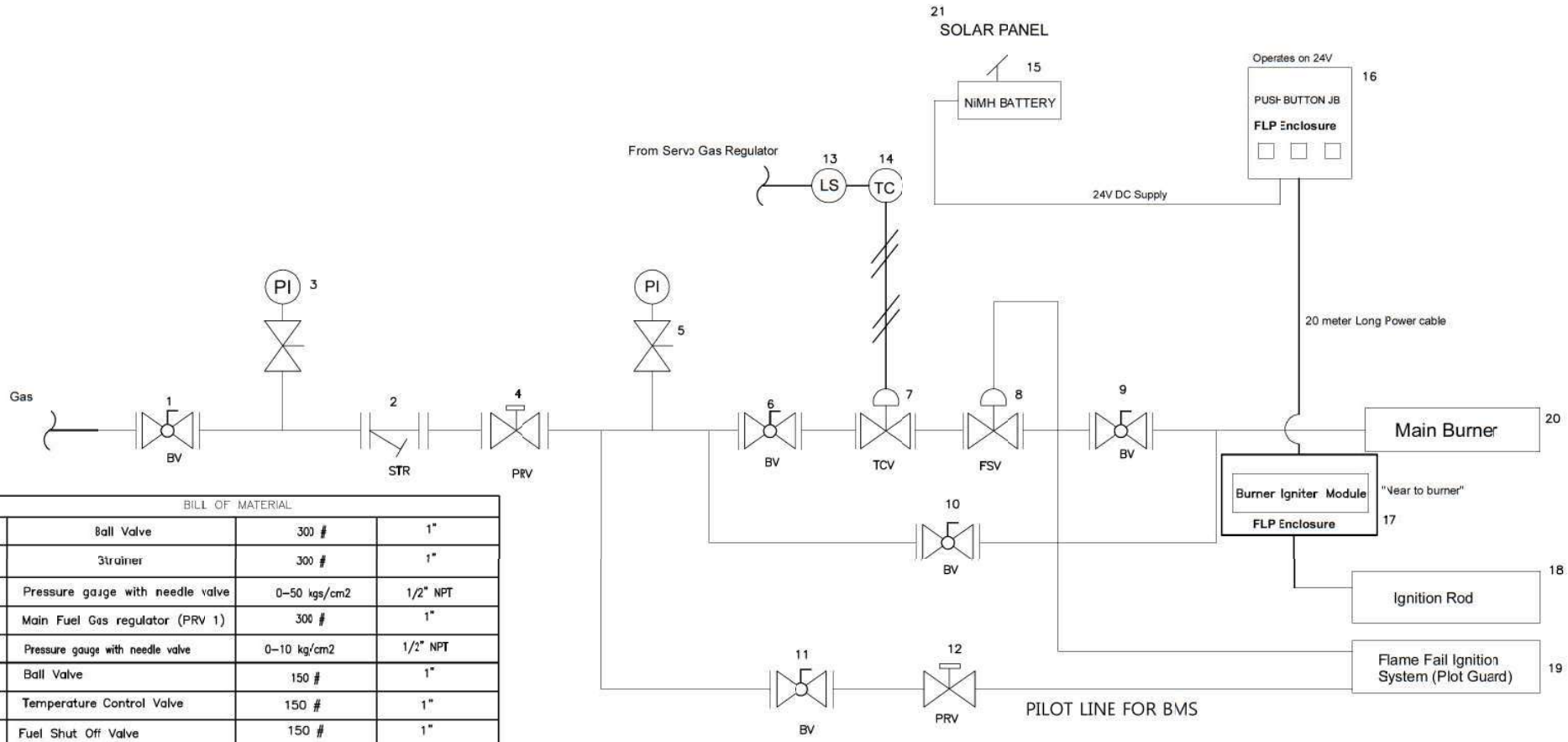
Oil India Limited DULIAJAN, ASSAM

IGNITION CIRCUIT DIAGRAM FOR IWBH	SCALE NTS
Reference General Drawing: OIL/PDNG/GD-ICD	SHEET 1 OF 1



BILL OF MATERIAL

NO	DESCRIPTION	Class/Range	Size
1	Ball Valve	300 #	1"
2	Strainer	300 #	1"
3	Pressure gauge with needle valve	0–50 kgs/cm2	1/2" NPT
4	Main Fuel Gas regulator (PRV 1)	300 #	1"
5	Pressure gauge with needle valve	0–10 kg/cm2	1/2" NPT
6	Ball Valve	150 #	1"
7	Temperature Control Valve	150 #	1"
8	Fuel Shut Off Valve	150 #	1"
9	Ball Valve	150 #	1"
10	Bypass Ball Valve	150 #	1"
11	Ball Valve	1500 Psi	1/4" NPT
12	Pilot Fuel Gas Regulator (PRV 2)	1500 Psi	1/4" NPT
13	Level Switch (LS)	3000#	2" NPT
14	Temperature Indicating Controller		
15	NiMH Battery		24 V– ___ Watt
16	Push Button JB		
17	Burner Igniter Module	In FLP Enclosure	
18	Ignition Rod	In FLP Enclosure	
19	Flame Fail Ignition Module Pilot guard		1" NPT
20	Main Burner		2" NPT for 24" fire tube
21	Solar Panel		

OIL INDIA LIMITED

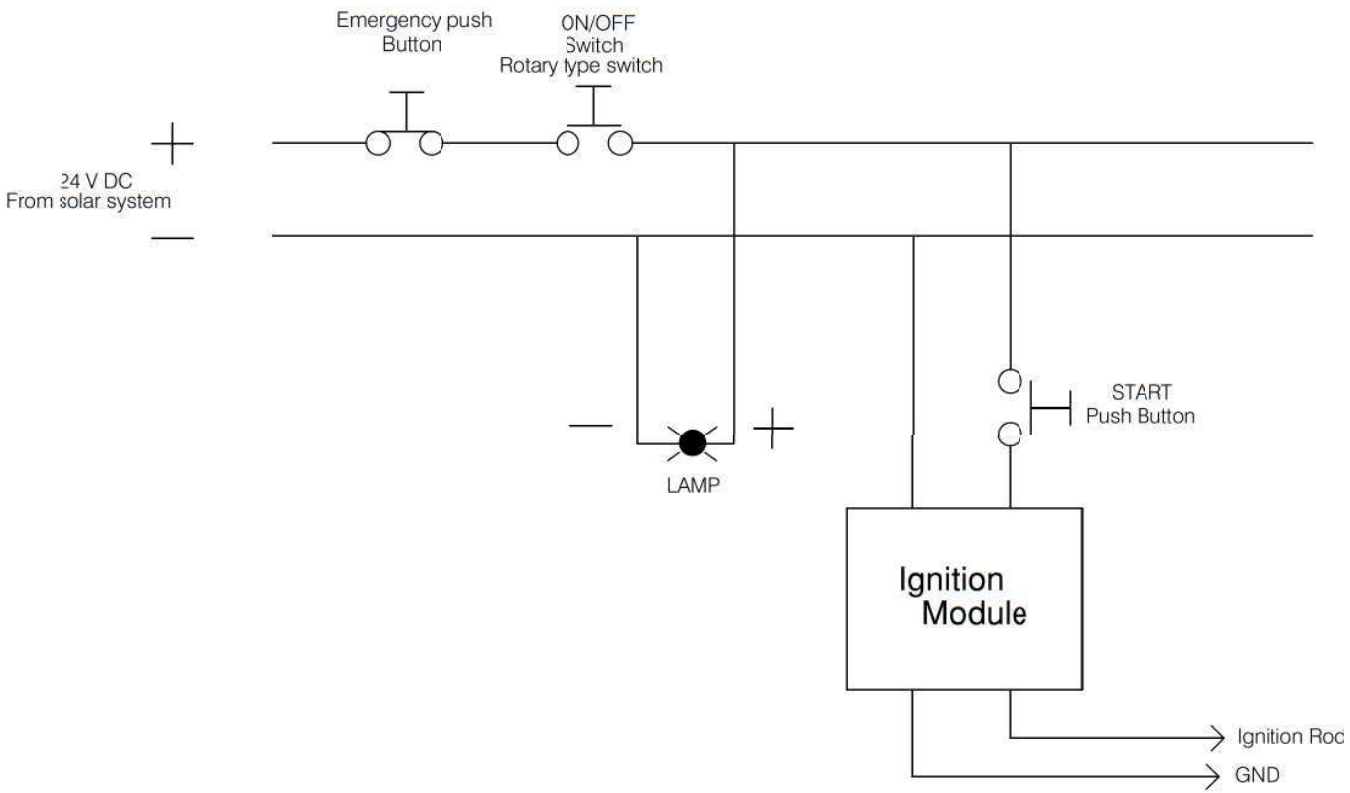
INDIRECT WATER BATH HEATER

REMOTE IGNITION SYSTEM

Reference General Drawing: OIL/PDNG/GD-RIS

SCALE NTS

SHEET 1 OF 1



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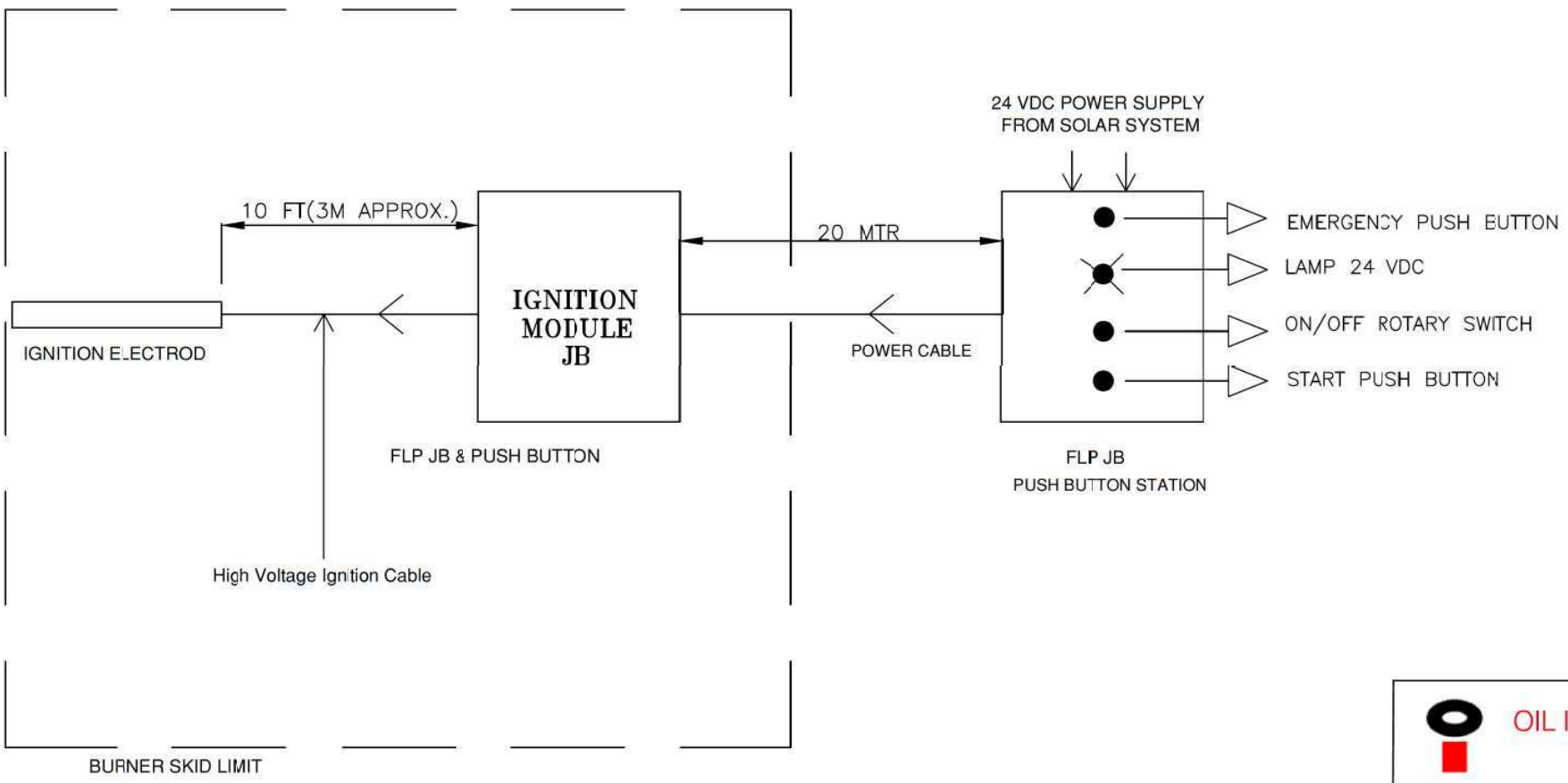
INDIRECT WATER BATH HEATER	
SCHEMATIC DIAGRAM FOR IGNITION SYSTEM	SCALE NTS
Reference General Drawing: OIL/PDNG/GD-SDIS-I	SHEET 1 OF 1



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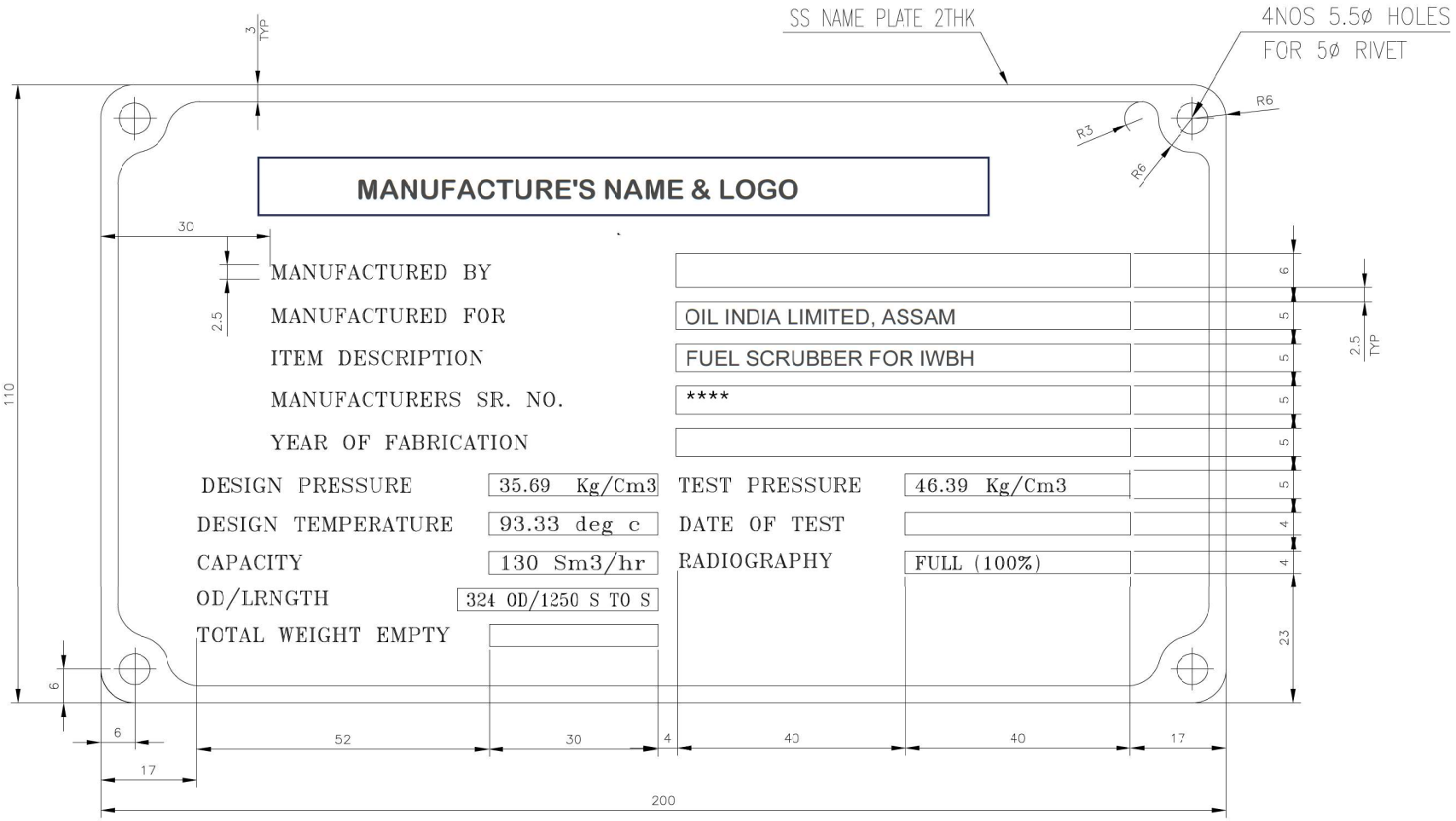
INDIRECT WATER BATH HEATER	
SCHEMATIC DIAGRAM FOR IGNITION SYSTEM	SCALE NTS
Reference General Drawing: OIL/PDNG/GD-SDIS-II	SHEET 1 OF 1

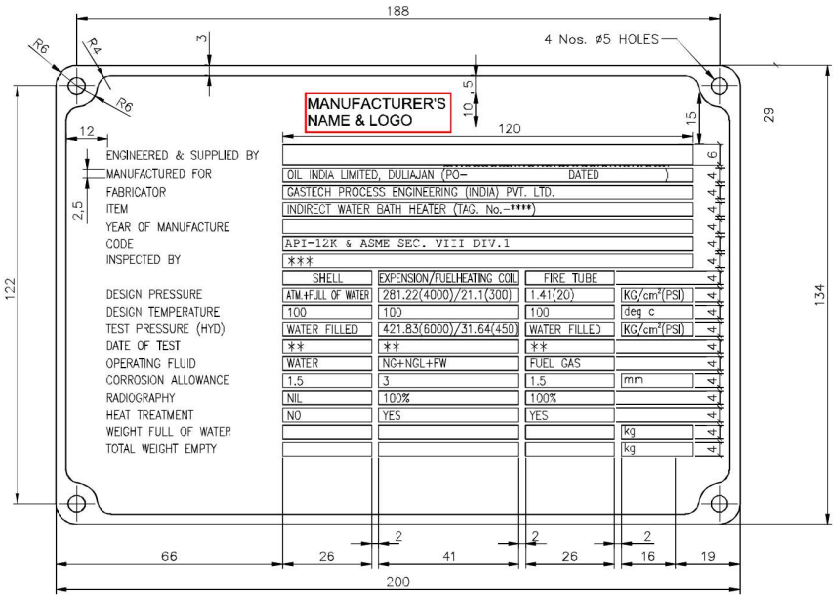


NOTE:

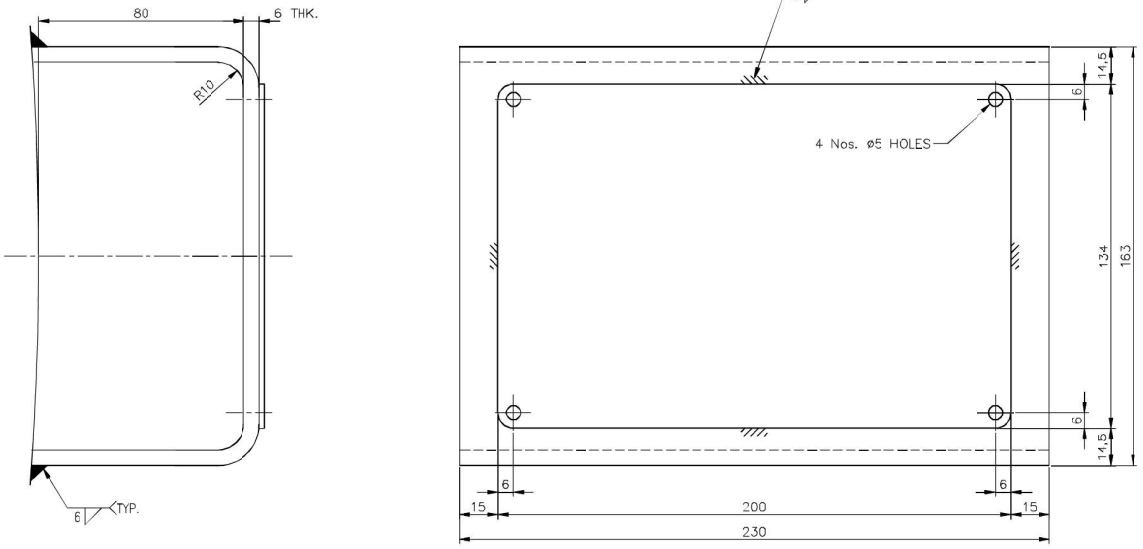
1) ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED
2) NAME PLATE TO BE TACK WELDED ON NAME PLATE BRACKET
3) ALL LETTERS, BLOCKS & BORDERS SHALL BE RAISED POLISHED FACE
4) NAME PLATE MATERIAL SHALL BE SS 316
5) ALL CHARACTERS IN NAME PLATE MUST BE IN 2.5 mm HEIGHT MINIMUN
6) BACKGROUND SHALL BE BLACK

**** EACH NAME PLATE SHALL HAVE DIFFERENT MSN NO.

OIL INDIA LIMITED	
IWBH FUEL SCRUBBER	SCALE NTS
MANUFACTURER NAME PLATE DETAILS	SHEET 1 OF 1
Reference General Drawing: CIL/PDNG/GD-Name Plate-Fuel Scrubber IWBH	



NAME PLATE
(SIZE–200x134x2THK.)



NAME PLATE BRACKET

SCHEMATIC DIAGRAM FOR IGNITION SYSTEM

NOTES:–

1. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.
2. NAME PLATE TO BE TACK WELDED ON NAME PLATE BRACKET.
3. ALL LETTERS, BLOCKS & BORDERS SHALL BE RAISED POLISHED FACE.
4. NAME PLATE MATERIAL SHALL BE SS 316 .
5. ALL CHARACTERS IN NAME PLATE MUST BE IN 2.5mm HEIGHT MINIMUM.
6. BACKGROUND SHALL BE BLACK.

**** EACH NAME PLATE SHALL HAVE DIFFERENT TAG No.
*** NOMINATED TPI.
** TO BE FUNCHED AFTER TEST.

OIL INDIA LIMITED

Name Plate Details- Indirect Water Bath Heater

Reference General Drawing: OIL/PDNG/GD-Name Plate-IWBH | SH. 1 OF 1

	OIL INDIA LIMITED, DULIAJAN	INDIRECT WATER BATH HEATER
	QUALITY ASSURANCE PLAN - PIPING & SKID	**CODE OF CONSTRUCTION:** Piping:-ASME B 31.3

Sr No	INSPECTION ACTIVITY	CHARACTERISTIC TO BE VERIFIED	REFERENCE DOCUMENTS	ACCEPTANCE CRITERIA	DOCUMENTS REQD	INSPECTION			Page 1 of 2
						SUPPLIER	TPIA	OIL	REMARKS
1	**REVIEW OF DOCUMENTS**								
1.1	Quality Assurance Plan	Review & Approval	P.O. Approved Drawing	Approved Drawing	QAP	H	A	R	
1.2	Design & Approved Drawing	Review & Approval	P.O.	Approved Drawing	Approved Drawing	H	--	--	
1.3	WPS/PQR/WPQ	Review & Approval for Conformity of Qualification Requirements	Approved Drawing ASME Sec IX Edn. 2015	Approved Drawing ASME Sec IX Edn. 2015	WPS/PQR/WPQ	H	R	R	
2	**MATERIAL INSPECTION**								
2.1	Material Inspection After Receipt Pressure Parts (Forgings, Fittings, Pipes, Fastners, Gaskets, Structure Materials etc.)	Review of Material Test Certificate	ASME Sec II Part A Edn. 2015 Approved Drawing P.O.	ASME Sec II Part A Edn. 2015 Approved Drawing P.O.	Material Test Certificates	H	W	R	
2.2	Inspection of bought out items	Review of Material Test Certificate	Approved Drawing P.O.	Approved Drawing P.O.	Material Test Certificates	H	R	R	
2.3	Welding Consumables	Review of Batch Certificates	ASME Sec II Part C Edn. 2015 Approved Drawing	ASME Sec II Part C Edn. 2015 Approved Drawing	Batch Certificates	R	R	R	
3	**IN PROCESS INSPECTION**								
3.1	Pipe to Flange Setup Pipe to Fittings Setup Structural Joints Setup	Visual and Dimensional Visual and Dimensional Visual and Dimensional	Approved Drawing Approved Drawing Approved Drawing	Approved Drawing Approved Drawing Approved Drawing	Inspection Reports	H H H	R R R	R R R	
3.2	Inspection of Completed Welds	Visual Inspection for Undercuts, Weld Profile, Surface Defects etc.	ASME B 31.3	ASME B 31.3	Inspection Reports	H	W	R	
4	**NDE**								
4.1	Radiography Test	RT of Butt Welded Joints	Approved Drawing RT Procedure	ASME Sec V Edn 2015	Radiographs RT Reports	H	R	R	
4.2	Post Weld Heat Treatment	PWHT of Butt Welded Joints	Approved Drawing PWHT Procedure	ASME Sec VIII Div 1 Edn 2015	PWHT Charts	H	R	R	

OIL INDIA LIMITED, DULIAJAN

INDIRECT WATER BATH HEATER

QUALITY ASSURANCE PLAN - PIPING & SKID

CODE OF CONSTRUCTION: Piping:-ASME B 31.3

Sr No	INSPECTION ACTIVITY	CHARACTERISTIC TO BE VERIFIED	REFERENCE DOCUMENTS	ACCEPTANCE CRITERIA	DOCUMENTS REQD	INSPECTION			REMARKS
						SUPPLIER	TPIA	OIL	
5	**INSPECTION BEFORE HYDROSTATIC TEST**	Visual & dimensional Inspection Check for Completeness of Assembly	Approved Drawing	Approved Drawing	Inspection Reports	H	R	R	
6	**TESTING**								
6.1	Hydrostatic Test	Check for Leakage if any	Approved Drawing Hydrostatis test Procedure	Approved Drawing Hydrostatis test Procedure	Hydro Test Report & Recorder charts	H	W	W	
6.2	Surface Prepretion and Cleaning	Visual Inspection of Workmanship (Surface Profile)	As Per Approved Drawing Specfication,SEPL/BPP/01	Visual & Surface Check,SEPL/BPP/01	Inspection Reports	W	W	R	
6.3	Painting	Visual Inspection of Paint &DFT Check	Client P.O. Approved Drawing ,SEPL/BPP/01	Client P.O.Approved Drawing ,SEPL/	Paint Inspection Report	H	W	R	
7	**SKID, PIPING AND FINAL INSPECTION**								
7.1	Assembly of Piping spool hydrotest	Dimension and Visual	Approved P& ID	Approved Drawing	Inspection Reports	H	W	W	
7.2	Skid	Dimension and Visual	Approved Drawing	Approved Drawing	Dimension Inspection Report.	H	R	R	
8	**DOCUMENTATION**								
8.1	Material Test Reports	Verificaton & Completion of Test Records for Submission to Client	--	--	QC Dossier	H	V	R	
8.2	NDE Reports (RT, PT)	Verificaton & Completion of Test Records for Submission to Client	--	--	QC Dossier	H	V	R	
7.2	Hydrostatic Test Reports	Verificaton & Completion of Test Records for Submission to Client	--	--	QC Dossier	H	V	R	
8	**ISSUE OF IRN**	Final Dossier	P.O. Approved Drawing	--	--	--	H	R	

QC Engineer	QA Manager	TPIA/CLIENT
(Prepared By)	Approved By	Reviewed/Approved By

A - Approve R - Review V - Verify

W - Witness H - Hold R/W - Rancom Witness

OIL INDIA LIMITED, DULIAJAN

INDIRECT WATER BATH HEATER

QUALITY ASSURANCE PLAN - PRESSURE COIL & VESSEL

CODE OF CONSTRUCTION: ASME Section VIII DIV II Edn 2015 & API12K

Sr No	INSPECTION ACTIVITY	CHARACTERISTIC TO BE VERIFIED	REFERENCE DOCUMENTS	ACCEPTANCE CRITERIA	DOCUMENTS REQD	INSPECTION SUPPLIER	INSPECTION TPIA	INSPECTION OIL	REMARKS
1	**REVIEW OF DOCUMENTS**								
1.1	Quality Assurance Plan	Review & Approval	P.O. Drawing	Drawing	QAP	H	R	R	
1.2	Design and Approved Approved Drawing	Review & Approval	P.O.	Drawing	Drawing,Design	H	R	R	
1.3	WPS/PQR/WPQ	Review & Approval Conformity of Qualification Requirements	Approved Drawing ASME Section IX Edn 2015	Approved Drawing ASME Section IX Edn 2015	WPS/PQR/WPQ	H	R	R	
1.4	Procedure for Hydrostatic Test, NDE Procedure & Personel Qualification	Review & Approval	Approved Drawing ASME Section VIII Div I Edn 2015 & ASME Section V Edn 2015	ASME Section VIII Div I Edn 2015 & ASME Section V Edn 2015	Written Procedure	H	R	R	
2	**MATERIAL INSPECTION**								
2.1	Pressure Parts (Plates, Forgings, Pipes, Fittings & Fastners)	Identification, Correlation & Transfer of Markings, Visual & Dimenisonal Inspection and verification of physical and chemical properties of raw materials with MTC	P.O. Approved Drawing ASME Sec II Part A Edn. 2015	P.O. Approved Drawing ASME Sec II Part A Edn. 2015	Materail identification report , Material Heat chart	H	W	R	
2.2	Non pressure parts	Visual & Dimenisonal Inspection.	P.O. Drawing ASME Sec II Part A Edn. 2015	P.O. Drawing ASME Sec II Part A Edn. 2015	Inspection Reports	H	R	R	
2.3	Welding Consumeables	Review of Batch Certificates	Approved Drawing ASME Sec II Part C Edn. 2015	Approved Drawing ASME Sec II Part C Edn. 2015	Batch Certificates	H	R	R	
3	**IN PROCESS INSPECTION FOR (Shell & Fuel Scrubber)**								
3.1	Shell Long seam,C-seam	Visual & Dimensional and Tack Weld PT	Approved Drawing PT Procedure,ASME Sec V Edn 2015	Approved Drawing PT Procedure,PT Procedure,ASME Sec V Edn 2015	Inspection Reports	H	W/R	R	
3.2	Nozzle Pipe to fitting setup,Flanges to Fitting Nozzle to shell set up	Visual & Dimensional(orientation,elevation and projection) V preparation of Edge and Tack Weld PT	Drawing,PT Procedure,ASME Sec V Edn 2015	Drawing, PT Procedure,ASME Sec V Edn 2015	Inspection Report,	H	R	R	
3.3	Inspection of Completed Welds	Visual Inspection for Reinforcement, Undercuts, Surface defects etc.	Approved Drawing	Approved Drawing	Inspection Reports	H	R	R	
		RT of Butt Welded Joints	RT Procedure , Drawing,ASME Sec V Edn 2015	ASME Section VIII Div I Edn 2015	Radiographs, RT Reports.	H	R	R	SPOT RT FOR SHELL
		LPT of fillet joints	PT Procedure , Approved Drawing,ASME Sec V Edn 2015		PT reports	H	R	R	
		Internal Inspection of Shell Before Welding of end Closure , Check for Weld Finish Circularity	Approved Drawing	Approved Drawing	Inspection reports.	H	W	R	
3.4	INSPECTION BEFORE HYDROSTATIC TEST of SHELL & Fuel scrubber	Visual & Dimnensional Inspecion, Check for Nozzle Orentaton, Projection, Elevation Check for Completeness of Assemtly	Approved Drawing	Approved Drawing	Inspection Reports	H	W	W	
3.5	**Fire Tube, Presure Coil, Stack and Preheat Coil**								
3.6	Pipe to U bend & flange	Visual & Dimensional	Approved Drawing/weld map	Approved Drawing/weld map	Inspection Reports	H	R	R	
3.7	Pipe to mitre bend	Visual & Dimensional	Approved Drawing/weld map	Approved Drawing/weld map	Inspection Reports	H	R	R	
3.8	NDE	RT of Butt Welded Joints	RT Procedure , Drawing,ASME Sec V Edn 2015	ASME Section VIII Div I Edn 2015	Inspection Reports	H	R	R	100 % RT of FIRE TUBE and pressure coil
3.9	Post Weld heat treatment	PWHT of Coil & Fire Tube	Approved Drawing,ASME Section VIII Div I Edn 2015 HEAT TREATMENT CHARTS	Approved Drawing,ASME Section VIII Div I Edn 2015 HEAT TREATMENT REPORTS	heat treatment charts	H	R	R	
3.10	Inspection Before Hydrostatic Testof Fire Tube and Coil	Visual & Dimnensional Inspecion	Approved Drawing	Approved Drawing	Inspection Reports	H	W	W	

OIL INDIA LIMITED, DULIAJAN

INDIRECT WATER BATH HEATER

QUALITY ASSURANCE PLAN - PRESSURE COIL & VESSEL

CODE OF CONSTRUCTION: ASME Section VIII DIV II Edn 2015 & API12K

Sr No	INSPECTION ACTIVITY	CHARACTERISTIC TO BE VERIFIED	REFERENCE DOCUMENTS	ACCEPTANCE CRITERIA	DOCUMENTS REQD	INSPECTION			REMARKS
						SUPPLIER	TPIA	OIL	
4	**FINAL INSPECTION**								
4.1	Hydrostatic Test of process coil	Check Leakage if any	Approved Drawing	Approved Drawing	Hydro Test Report & pressure chart	H	W	W	Water Fill up for Shell and pressure test for coil and fire tube
4.2	Hydrostatic Test of MAIN SHELL	Check Leakage if any	HydroTest Procedure, Hydro Test Recorder Charts	ASME SECTION VIII Div I Edn 2015, Hydro Test Reports					
4.3	Hydrostatic Test OF FIRE TUBE	Check Leakage if any							
4.4	Hydrostatic Test of Fuel Scrubber	Check Leakage if any	Approved Drawing HydroTest Procedure	Approved Drawing ASME SECTION VIII Div I Edn 2015	Hydro Test Report& pressure chart	H	W	W	
4.5	Drying of Equipment	Dryness of Internal Surfaces	Approved Drawing	Approved Drawing	Inspection Reports	H	R	R	
4.6	INSERTION OF FIRE TUBE AND PROCESS COIL IN MAIN SHELL	Visual & Dimnensional Inspecion	Approved Drawing	Approved Drawing	Inspection Reports	H	R	R	
4.7	Surface Prepration and Cleaning	Visual Inspection of Workmarship (Surface Profile)	Visual & Surface Check, Specfication	Approved Drawing P.O.	Inspection Reports	H	R	R	
4.8	Final Paint	Visual Inspection of Paint & DFT Check	Approved Drawing	Approved Drawing	Paint Inspection Report	H	W	R	
4.9	Insulation of Equipment	Visual Inspection	Approved Drawing	Approved Drawing	Inspection Reports	H	W	R	
4.10	Assembly of Coil, Fire, Burner, Gas Train, Flame Arrestor in Shell	Visual and Alignment of Assembly	Approved Drawing	Approved Drawing	Inspection Reports	H	R	R	
4.11	Assembly of Instrument Valves, Cabling, Junction Boxes and inspection of all bought items as per PO	Dimension, Assembly	Approved Drawing Approved P&ID & Approved Datasheet	Approved Drawing Approved P&IDApproved P&ID & Approved Datasheet	Inspection Report	H	W	R	
4.12	Inspection of Remote ignition system with solar high energy battery operated remote ignitor and hand held high energy ignitor as per PO	PO & Approved Approved Drawing	PO & Approved Drawing	PO & Approved Drawing	Inspection Report	H	R	R	
4.13	Functional Test	Approved Drawing	Approved Drawing,Specification	Approved Drawing, Specification	Inspection Report	H	W	W	
5	**DOCUMENTATION**								
5.1	Weld Map, Weld Plan NDE Reports (RT & PT) Hydrostatic Test Report Operating Manual	Verification & Completion of Test Records Submission to Client	-	-	QC Dosier	H	R	R	
6	**FINAL INSPECTION RELEASE**	Verification of Packing Marking	P.O. Approved Drawing	P.O. Approved Drawing	IRN	H	H	R	

QC Engineer	QA Manager	TPIA/CLIENT
(Prepared By)	Approved By	Reviewed/Approved By

A - Approve R - Review V - Verify
W - Witness H - Hold

A) GENERAL NOTES TO BIDDERS:

SL No.	Bid Requirement	Bidder's Response (Complied/Not Complied. Reference to any document attached along with the bid)
1.0	Bidders shall submit their offer mentioning pointwise compliance / non-compliance to all the terms & conditions, BEC/BRC, Specifications etc. Any deviation(s) from the tender terms & conditions, BEC/BRC, Specifications etc. should be clearly highlighted specifying justification in support of deviation.	
2.0	Bidders are requested to examine all instructions, forms, terms and specifications in the bid. Failure to furnish all information required as per the bid or submission of offers not substantially responsive to the bid in every respect will be at the biddersrisk and may result in the rejection of its offer without seeking any clarifications.	
3.0	The items covered in this Tender shall be used by Oil India Limited in the PEL/ML areas and hence concessional GST @5% (for indigenous bidder) will be applicable as per Govt. Policy in vogue. Successful bidder shall arrange to provide all necessary documents (invoice etc.) to OIL for applying Essentiality Certificate atleast 45 days prior to stipulated Delivery date. Further, Successful bidder shall affect dispatch only on receipt of relevant certificates/ shipment clearance from OIL, failing which all related liabilities shall be to Supplier's account.	
4.0	Categorisation and various Criteria applicable to MSE bidders shall be guided by the Gazette Notification No. CG-DL-E-26062020-220191 dated 26.06.2020 and Amendment vide Gazette Notification no. CG-DLE-16062021-227649 dated 16th June, 2021 issued by Ministry of MICRO, SMALL AND MEDIUM ENTERPRISES. The existing enterprises registered under EM- Part-II or UAM till 30th June, 2020 shall continue to be valid only for a period up to the 31st day of December, 2021. The bidder claiming as MSE status (MSE-General, MSE-SCIST, MSE -Woman) against this tender has to submit the following documents for availing the benefits applicable to MSEs: **Udyam Registration Number with Udyam Registration Certificate.** **OR** **Proof of registration with District Industry Centers or Khadi and Village Industries Commission or Khadi and Village Industries Board or Coir Board or National Small Industries Corporation or Directorate of Handicrafts and Handloom or Udyog Aadhar registration or registration with any other body specified by Ministry of MSME**. Note: In case bidding MSE is owned by Schedule Caste or Schedule Tribe entrepreneur or Woman Entrepreneur, valid documentary evidence issued by the agency who has registered the bidder as MSE owned by SC/ST entrepreneur/ Woman Entrepreneurs should also be enclosed.	

5.0	Ministry of Finance of Govt. of India, Department of Expenditure, Public procurement Division vide office memorandum F. No. 6/18/2019-PPD dated 23rd July, 2020(order-Public Procurement no.1) has proclaimed the insertion of Rule 144 (xi) in the General Financial Rules (GFRs), 2017 w.e.f. 23rd July, 2020 regarding restrictions on procurement from a bidder of a country which shares a land border with India on the grounds of defence of India on matters directly or indirectly related thereto including national security. Bidders are requested to take note of the office memorandum and submit their offers accordingly, wherever applicable. In this regard, bidders mustsubmit duly sealed & signed undertaking as per format provided vide, "**PROFORMA-1**"along with the technical bid.	
6.0	Bidders to note that Ministry of Petroleum & Natural Gas, Government of India implemented PPLC Policy to provide Purchase Preference (linked with local content) by notification no. Ref. FP-20013/2/2017-FP-PNG dtd. 17.11.2020 and its amendment issued from time to time. PP-LC Policy (including its latest modifications/amendments) as may be prevailing on the date of Price Bid Opening shall be applicable against this tender. Bidders are requested to go through the policy and take note of the following while submitting their offer. **As per the policy, the bidder must be incorporated in India and must maintain more than 20% local content (LC) for the offered items to be eligible to bid against this tender.** 1. <u>Certification and Verification</u> Class I/Class II Local suppliers are eligible to bid only if they meet the localcontent norms, therefore whether or not they want to avail PP-LC benefit, it will still be mandatory for them to give adequate documentation as follows to establish their status as class-I or class-II local supplier: (i) <u>At bidding stage</u>: a) Price Break-up: • The bidder shall provide the percentage of local content in the bid. b) • The bidder shall submit an undertaking from the authorised signatory of bidder having the power of Attorney alongwith the bid stating the bidder meets the mandatory minimum LC requirement and such undertaking shall become a part of the contract. • In cases of procurement for a value in excess of Rs 10 crores, the undertaking submitted by the bidder shall be supported by a certificate fromthe statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practising chartered accountant (in respect of other than companies) giving the percentage of local content. • However, in case of foreign bidder, certificate from the statutory auditor or cost auditor of their own office or subsidiary in India giving the percentage of local content is also acceptable. In case office or subsidiary in India does not exist or Indian office/ subsidiary is not required to appoint statutory auditor or cost auditor, certificate from practising cost accountant or practising chartered accountant giving the percentage of local content is also acceptable. (ii) <u>After Contract Award</u> • The bidder shall submit an undertaking from the authorised signatory of bidder having the power of Attorney alongwith the bid stating the bidder meets the mandatory minimum LC requirement and such undertaking shall become a part of the contract. • In cases of procurement for a value in excess of Rs 10 crores, the	

	undertaking submitted by the bidder shall be supported by a certificate from the statutory auditor or cost auditor of the company (in case ofcompanies) or from a practicing cost accountant or practising chartered accountant (in respect of other than companies) giving the percentage of local content. • However, in case of foreign bidder, certificate from the statutory auditor or cost auditor of their own office or subsidiary in India giving the percentage of local content is also acceptable. In case office or subsidiary in India does not exist or Indian office/ subsidiary is not required to appoint statutory auditor or cost auditor, certificate from practising cost accountant or practising chartered accountant giving the percentage of local content is also acceptable. 2. Each supplier shall provide the necessary local-content documentation to the statutory auditor, which shall review and determine that local content requirements have been met, and issue a local content certificate to that effect on behalf of procuring company, stating the percentage of local content in the good or service measured. The Auditor shall keep all necessary information obtained from suppliers for measurement of Local Content confidential. 3. The Local Content certificate shall be submitted along with each invoice raised. However, the % of local content may vary with each invoice while maintaining the overall % of local content for the total work/purchase of the pro-rata local content requirement. In case, it is not satisfied cumulatively in the invoices raised up to that stage, the supplier shall indicate how the local content requirement would be met in the subsequent stages. 4. As regards cases where currency quoted by the bidder is other than Indian Rupee, exchange rate prevailing on the date of notice inviting tender (NIT) shall be considered for the calculation of Local Content. 5. The Procuring Company shall also have the authority to audit as well as witness production processes to certify the achievement of the requisite local content.	
6.1	Percentage of Local Content (to mention by the bidder)	
6.2	Bidder to categorically confirm under which policy i.e. PP-LC or MSME, they want to avail the purchase preference. Accordingly, bidder must submit requisite document/certificate in support to avail this benefit. The bids will be evaluated based on their declaration. In case bidder do not submit their preference among PP-LC & MSME and submit documents against both, then the offer will be evaluated by giving benefits under MSME policy and it will be binding on the bidder.	
7.0	TAX COLLECTIBLE AT SOURCE (TCS):Tax Collectible at Source (TCS) applicable under the Income-tax Law and charged by the SUPPLIER shall also be payable by OIL along with consideration for procurement of goods/materials/ equipment. If TCS is collected by the SUPPLIER, a TCS certificate in prescribed Form shall be issued by the SUPPLIER to OIL within the statutory time limit. Payment towards applicable TCS u/s 206C (IH) of Income Tax Act, 1961 will be made to the supplier provided they are claiming it in their invoice and on submission of following undertaking along with the invoice stating that: a) TCS is applicable on supply of goods invoiced to OIL as turnover of the supplier in previous year was more than Rs. 10 Cr. and b) Total supply of goods to OIL in FY ..... (As applicable) exceeds Rs. 50 Lakh and c) TCS as charged in the invoice has already been deposited (duly indicating the details	

	such as challan No. and date) or would be deposited with Exchequer on or before the due date and d) TCS certificate as provided in the Income Tax Act will be issued to OIL in time. However, Performance Security deposit will be released only after the TCS certificate for the amount of tax collected is provided to OIL. Supplier will extend the performance bank guarantee (PBG), wherever required, till the receipt of TCS certificate or else the same will be forfeited to the extent of amount of TCS, if all other conditions of Purchase order are fulfilled. The above payment condition is applicable only for release of TCS amount charged by supplier u/s 206C (I H) of Income tax Act, 1961.	
8.0	APPLICABILITY OF BANNING POLICY OF OIL INDIA LIMITED: Banning Policy dated 6th January, 2017as uploaded in OIL's website will be applicable against the tender (and order in case of award) to deal with any agency (bidder/contractor/supplier/ vendor/service provider) who commits deception, default, fraud or indulged in other misconduct of whatsoever nature in the tendering process and/or order execution processes. Applicability of the policy shall include but not limited to the following in addition to other actions like invoking bid security/performance security/cancellation of order etc. as deemed fit and as mentioned elsewhere in the tender: a) Backing out by bidder within bid validity. b) Backing out by successful bidder after issue of LOA/Order/Contract c) Non/poor performance and order/contract execution default. The bidders who are on Holiday/Banning/Suspension list of OIL on due date of submission of bid/ during the process of evaluation of the bids, the offers of such bidders shall not be considered for bid opening/evaluation/award. If the bidding documents were issued inadvertently/downloaded from website, the offers submitted by such bidders shall also not be considered for bid opening/evaluation/ Award of Work.	
9.0	At any time prior to the deadline for submission of bids, the Company may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the tender Documents through issuance of Corrigendum(s)/Addendum(s). Bidders are expected to take the Corrigendum(s)/ Addendum(s) into account in preparation and submission of their bid. No separate intimation for Corrigendum(s)/Addendum(s) published by OIL shall be sent to the Bidders.	
10.0	The Integrity Pact is applicable against this tender. OIL shall be entering into an Integrity Pact with the bidders as per format enclosed vide PROFORMA-5 of the tender document. This Integrity Pact proforma has been duly signed digitally by OIL's competent signatory. The proforma has to be returned by the bidder (along with the technical bid) duly signed (digitally) by the same signatory who signed the bid, i.e., who is duly authorized to sign the bid. Uploading the Integrity Pact with digital signature will be construed that all pages of the Integrity Pact has been signed by the bidder's authorized signatory who sign the Bid. If any bidder refuses to sign Integrity Pact or declines to submit Integrity Pact with the offer, their bid shall be rejected straightway. OIL's Independent External Monitors at present are as under: SHRI RUDHRA GANGADHARAN, IAS (Retd.), Ex-Secretary, Ministry of Agriculture E-Mail ID: rudhra.gangadharan@gmail.com	

	SHRI SUTANU BEHURIA, IAS (Retd.), E-mail ID: sutanu2911@gmail.com SHRI OM PRAKASH SINGH, IPS (Retd.),, Former DGP, Uttar Pradesh E-mail: Ops2020@rediffmail.com In case of a joint venture, all the partners of the joint venture should sign the Integrity Pact. In the event of any dispute between the management and the contractor relating to those contracts where Integrity Pact is applicable, in case, both the parties are agreeable, they may try to settle dispute through mediation before the panel of IEMs in a time bound manner. If required, the organizations may adopt any mediation rules for this purpose. In case, the dispute remains unresolved even after mediation by the panel of IEMs, the organisation may take further action as per the terms and conditions of the contract.	

SL No.	Bid Requirement	Bidder Response (Complied / Not Complied)
11.0	**NOTES FOR THIRD PARTY INSPECTION** OIL will/may arrange for Third Party Inspection of the materials (at any stage of order execution) at Bidder's/Manufacturer's plant by any of its approved third party inspection agency. Scope of Third party Inspection will be as mentioned under technical specifications (Annexure-I). The scope of TPI may change without any prior notice to the successful bidder. While submitting offer, the bidder should not include cost of Third Party Inspection as the same will be arranged by OIL. All cost towards the engagement of Third Party Inspection Agency shall be borne by OIL. BIDDER SHALL NOT QUOTE / INCLUDE THE COST OF THIRD PARTY INSPECTION IN THEIR OFFER. However, Bidder shall extend all necessary facility to the satisfaction of Third Party Inspection Agency for smooth conduct of the inspection. For the purpose of Third Party Inspection: a) Bidder shall clearly indicate in the technical bid the place/plant where Third Party Inspection of the materials shall be conducted, in the event of an order. b) Supplier shall convey to OIL the production schedule within 02(two) weeks from the date of Letter of Award (LOA)/Purchase order so that OIL can deploy the TPI agency to carry out inspection at bidder's/manufacturer's premises accordingly. Additionally, Supplier shall send a notice in writing/e-mail to the OIL at least 15 days in advance specifying the exact schedule and place of inspection (TPI) as per the Purchase Order and OIL upon receipt of such notice shall notify to the supplier the date and time when the materials would be inspected by OIL nominated TPI Agency. c) The supplier shall provide, without any extra charge to OIL, all materials, tools, labour and assistance of every kind which the OIL nominated TPI Agency may demand for any test or examination required at supplier's premises. The supplier shall also provide and deliver sample from the material under inspection, free of charge, at any such place other than their premises as the TPI Agency may specify for acceptance tests for which the supplier does not have the facilities for such tests at their premises. In the event of testing outside owing to lack of test facility at supplier's premises, the supplier shall bear cost of such test, if any. d) The supplier shall not be entitled to object on any ground	

		whatsoever to the method of testing adopted by the OIL nominated TPI Agency. e) Unless otherwise provided for in the Purchase Order, the quantity of materials expended in test will be borne by supplier. f) The decision of the Third Party Inspection Agency nominated by OIL regarding acceptance/rejection of material shall be final and binding on the supplier. g) Upon successful completion of the TPI and acceptance of the TPI reports by OIL, Bidder/Supplier shall be intimated by OIL for dispatch of the materials. The materials should be despatched only after receipt of dispatch clearance from OIL. h) Acceptance of the TPI reports and receipt of dispatch intimation from OIL do not absolve the bidder from any warranty obligations or waive the bidder from OIL' s right for rejection of the materials after receipt at site. i) Notwithstanding clauses contained herein above, in the event the materials under inspection fails to conform to purchase order specification and are rejected by OIL nominated Third Party Inspection agency, OIL may recover all cost incurred for re-inspection of the materials, from the supplier.	

B) BID EVALUATION / REJECTION CRITERIA :

The bids shall conform to the specifications and terms & conditions given in the Tender. Bids shall be rejected in case the items offered do not conform to the required parameters stipulated in the technical specifications and to the relevant international/national standards wherever stipulated. Notwithstanding the general conformity of the bids to the stipulated specifications and terms & conditions, the following requirements must be particularly met by the bidders, without which the offer shall be considered as non-responsive and rejected. All the documents related to BEC shall be submitted along with the technical bid.

Sl. No.	Bid Requirement	Bidder's Response (Complied/Not Complied. Reference to any document attached along with the bid)
	A.1: TECHNICAL	
1.1	The bidder must be in the business of Manufacturing / Fabrication, Assembling & Supply of Packaged Indirect-Fired type Water Bath Heater (IWBH) unit(s) along with ancillary items like Flame Arrested Burner, Burner Management System, Safety Shutdown System (Fail Safe) etc. for oil & natural Gas applications during the previous 5 (five) years prior to the original bid closing date of the tender. Bidder to submit list of past customers along with copy of purchase order(s) / Letter of Award(s) / work Order(s) (with specification) and Completion Certificate / Commissioning Report / any other document proving successful execution of the purchase Order / Contract, along with the bid.	
1.2	Bidder shall have the experience of successful execution of similar order(s) for fabrication, supply and commissioning of not less than **06 (six) numbers** of the following (1.2.1) natural gas / crude oil process equipment to Oil & Gas Industries or E&P companies in the last 5 (five) years prior to the original bid closing date of the tender-	
1.2.1	IWBH for handling natural gas having minimum coil working pressure of 210 kg/cm2 (3000 psig) or Coil Pressure Rating of Schedule No. 160 for heating minimum 5000Nm3/Hr Natural Gas.	
1.3	The bidder shall submit the following documents in support of successful execution of past supply / contract as applicable under Para 1.2 & 1.2.1 above – (a) Copy(ies) of Purchase Order(s)/ Contract Document(s) with specification and Performance / Commissioning Report from the Clients AND (b) Any of the following documents that confirms the successful execution of the order(s)-	

	i) Completion Certificate. ii) Consignee receipted Delivery Challan / Invoice etc. iii) Final inspection release note from TPI. iv) Any other documentary evidence that can substantiate the successful execution of each of the Purchase Orders / Contracts. Also, it is the bidder's responsibility to attach a relevant valid document of corresponding executed supply along with the bid, which categorically confirms fulfilment of the requisite criteria mentioned under Para 1.2 & 1.2.1 above.	
1.4	Delivery period for the entire tendered quantity will be **maximum 12 months** from the date of placement of formal purchase order. Installation & Commissioning of the entire tendered quantity must be completed **within a period of 60 days** from the date of intimation of site clearance from OIL. The bidder should categorically confirm compliance to the above delivery schedule in their technical bid, failing which the bid will be rejected.	
1.5	The bidder will have to provide guarantee for a minimum period of 12 (twelve) months from the date of successful commissioning/testing for all the equipment including bought out equipment / items.	
1.6	Bids and all related documents shall be in English language. Supporting documents and printed literature furnished by the bidder may be in another language provided they are accompanied by an official and notarized English translated version, which shall govern for the purpose of bid interpretation.	
-	Note to Technical BRC: I) The Purchase Order date need not be within 5 (five) years preceding the original bid closing date of this tender. However, the execution of supply should be within 5 (five) years preceding the original bid closing date of this tender. II) Satisfactory supply/completion/installation report (if submitted) should be issued on client's official letterhead with signature and stamp.	
A.2: FINANCIAL		
1.0	The bidder shall have an annual financial turnover of minimum **Rs. 293.80 Lakh** during any of the preceding 3 (Three) financial/accounting years reckoned from the original bid closing date of the tender.	
2.0	"Net Worth" of the bidder should be positive for the financial / accounting year just preceding to the original bid closing date of the tender.	
3.0	Considering the time required for preparation of Financial Statements, if the last date of preceding financial / accounting year falls within the	

	preceding six months reckoned from the original bid closing date and the Financial Statements of the preceding financial / accounting year are not available with the bidder, then the financial turnover of the previous three financial / accounting years excluding the preceding financial / accounting year will be considered. In such cases, the Net worth of the previous financial / accounting year excluding the preceding financial / accounting year will be considered. However, the bidder has to submit an affidavit/undertaking (refer **PROFORMA- 2**) certifying that 'the balance sheet/Financial Statements for the financial year (As the case may be) has actually not been audited so far'.	
	Note: a) For proof of Annual Turnover & Net worth any one of the following document must be submitted along with the bid:- **i)** A certificate issued by a practicing Chartered/Cost Accountant (with Membership Number and Firm Registration Number), certifying the Annual turnover & Net worth as per format prescribed in **PROFORMA – 3.** OR ii) Audited Balance Sheet along with Profit & Loss account. b) In case the bidder is a Central Govt. Organization/PSU/State Govt. Organization/Semi-State Govt. Organization or any other Central/State Govt. Undertaking, where the auditor is appointed only after the approval of Comptroller and Auditor General of India and the Central Government, their certificates may be accepted even though FRN is not available. However, bidder to provide documentary evidence for the same.	
4.0	In case the Bidder is subsidiary company (should be 100% owned subsidiary of the parent/ultimate parent/holding company) who does not meet financial criteria by itself and submits its bid based on the strength of parent/ ultimate parent/ holding company, then following documents need to be submitted: i) Turnover of the parent/ ultimate parent/ holding company should be inline with requirement. ii) Net Worth of the parent/ultimate parent/ holding company should be positive in line with Para 1.0 above. iii) Corporate Guarantee (as per **PROFORMA-4**) on parent / ultimate parent / holding company's company letter head signed by an authorised official undertaking that they would financially support their wholly owned subsidiary company for executing the project/ job in case the same is awarded to them. iv) Document of subsidiary company being 100% owned subsidiary of the parent/ ultimate parent/ holding company.	

PROFORMA – 1

Format for Undertaking by Bidders towards compliance of office memorandum F. No. 6/18/2019-PPD dated 23rd July, 2020 (Public Procurement no. 1) issued by Department of Expenditure, Ministry of Finance, Govt. of India

(To be typed on the letter head of the bidder)

Ref. No_____
Date:_____

Tender No. _____
Date:_____

OIL INDIA LIMITED
MATERIALS DEPARTMENT,
DULIAJAN, ASSAM, INDIA

Dear Sirs,

We have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; We certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. We hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered. [Where evidence of valid registration by the Competent Authority shall be attached.]"

We also agree that, during any stage of the tender/contract agreement, in case the above information/documents submitted by us are found to be false, Oil India Limited has the right to immediately reject our bid/terminate contract at any stage and carry out further legal action on us in accordance with law.

Yours faithfully,
For (type name of the firm here)

Signature of Authorised Signatory
Name :
Designation :
Phone No.
Place :
Date :
(Affix Seal of the Organization here, if applicable)

Note : This form should be returned along with offer duly signed.

PROFORMA-2

FORMAT FOR CERTIFICATE OF COMPLIANCE OF FINANCIAL CRITERIA

Ref: Financial Criteria of the BEC

Tender No.:_____

I ……..…… the authorized signatory(s) of .....(Company or firm name with address) do hereby solemnly affirm and declare as under:-

The balance sheet/Financial Statements for the financial year_____(as the case may be) has actually not been audited as on the Original Bid closing Date.

Place :…….……

Date :……. Signature of the authorized signatory

Note: This certificate is to be issued only considering the time required for preparation of Financial Statements i.e. if the last date of preceding financial / accounting year falls within the preceding six months reckoned from the original bid closing date.

PROFORMA-3

CERTIFICATE OF ANNUAL TURNOVER & NET WORTH

TO BE ISSUED BY PRACTISING **CHARTARD ACCOUNTANTS' FIRM** ON THEIR LETTER HEAD

TO WHOM IT MAY CONCERN

This is to certify that the following financial positions extracted from the audited financial statements of M/s……(Name of the bidder) for the last three (3) completed accounting years upto .....**(as the case may be)** are correct

YEAR	TURN OVER In INR (Rs.) Crores	NET WORTH In INR (Rs.) Crores

Place:
Date:

Seal

Membership No:
Registration Code:
UDIN:

Signature

NOTE: As per the guidelines of ICAI, every practicing CA is required to mention Unique Document Identification Number (UDIN) against each certification work done by them. Documents certified by CA without UDIN shall not be acceptable.

PROFORMA-4

PARENT/ULTIMATE PARENT/ HOLDING COMPANY'S CORPORATE GUARANTEE TOWARDS FINANCIAL STANDING
(Delete whichever not applicable)

(TO BE EXECUTED ON COMPANY'S LETTER HEAD)

DEED OF GUARANTEE

THIS DEED OF GUARANTEE executed at ……. this …….. day of …… by M/s.....(mention complete name) a company duly organized and existing under the laws of.....(insert jurisdiction/country), having its Registered Office at .....hereinafter called "the Guarantor" which expression shall, unless excluded by or repugnant to the subject or context thereof, be deemed to include its successors and permitted assigns.

WHEREAS M/s. Oil India Limited (hereinafter referred to as OIL) has invited offers vide their Tender No. _____ for_____and M/s_____(Bidder) intends to bid against the said tender and desires to have Financial support of M/s_____[Parent/Ultimate Parent/Holding Company(Delete whichever not applicable)] and whereas Parent/Ultimate Parent/Holding Company(Delete whichever not applicable) represents that they have gone through and understood the requirements of subject tender and are capable and committed to provide the Financial support as required by the bidder for qualifying and successful execution of the contract, if awarded to the bidder.

Now, it is hereby agreed by the Guarantor to give this Guarantee and undertakes as follows:

1. The Guarantor confirms that the Bidder is a 100% subsidiary of the Guarantor.
2. The Guarantor agrees and confirms to provide the Audited Annual Reports of any of the preceding 03(three) financial/accounting years reckoned from the original bid closing date.
3. The Guarantor have an annual financial turnover of minimum INR_____Cr or USD _____ during any of the preceding 03(three) financial/ accounting years reckoned from the original bid closing date.
4. Net worth of the Guarantor is positive for preceding financial/ accounting year.
5. The Guarantor undertakes to provide financial support to the Bidder for executing the project/job, in case the same is awarded to the Bidder.
6. The Guarantor represents that:

(a) this Guarantee herein contained shall remain valid and enforceable till the satisfactory execution and completion of the work (including discharge of the warranty obligations) awarded to the Bidder.
(b) the liability of the Guarantor, under the Guarantee, is limited to the 100% of the order value between the Bidder and OIL. This will, however, be in addition to the forfeiture of the Performance Guarantee furnished by the Bidder.
(c) this Guarantee has been issued after due observance of the appropriate laws in force in India.
(d) this Guarantee shall be governed and construed in accordance with the laws in force in India and subject to the exclusive jurisdiction of the courts of New Delhi, India.
(e) this Guarantee has been given without any undue influence or coercion, and that the Guarantor has fully understood the implications of the same.
(f) the Guarantor has the legal capacity, power and authority to issue this Guarantee and that giving of this Guarantee and the performance and observations of the obligations hereunder do not contravene any existing laws.

for and on behalf of	for and on behalf of
(Parent/Ultimate Parent/Holding Company)	(Bidder)
(Delete whichever not applicable)	
Witness:	Witness:
1.	1.
2.	2.

INTEGRITY PACT

Between

Oil India Limited (OIL) hereinafter referred to as "The Principal"

And

(Name of the bidder).....hereinafter referred to as "The Bidder/Contractor"

Preamble:

The Principal intends to award, under laid down organizational procedures, contract/s for **Tender No.....** The Principal values full compliance with all relevant laws and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder/s and Contractor/s.

In order to achieve these goals, the Principal cooperates with the renowned international Non-Governmental Organization "Transparency International" (TI). Following TI's national and international experience, the Principal will appoint an external independent Monitor who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section: 1 -Commitments of the Principal

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:

(i) No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to.

(ii) The Principal will, during the tender process treat all Bidders with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidders the same information and will not provide to any Bidder

confidential/additional information through which the Bidder could obtain an advantage in relation to the tender process or the contract execution.

(iii) The Principal will exclude from the process all known prejudiced persons.

(2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the relevant Anti-Corruption Laws of India, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officers and in addition can initiate disciplinary actions.

Section: 2 -Commitments of the Bidder/Contractor

(1) The Bidder/Contractor commits itself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

(i) The Bidder/Contractor will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or immaterial benefit which h e/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

(ii) The Bidder/Contractor will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, Subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

(iii) The Bidder (s) / Contractor (s) will not commit any offence under the relevant Anticorruption Laws of India, further, the Bidder (s) / Contractor (s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

(iv) The Bidder/Contractor will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

(v) Bidders to disclose any transgressions with any other company that may impinge on the anti-corruption principle.

(vi) The Bidder (s)/ Contractor (s) of foreign origin shall disclose the name and address of the Agents/ representatives in India, if any. Similarly, the Bidder (s)/ Contractor (s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further, all the payments made to the Indian agent/ representative have to be in India Rupees only.

(vii) Bidders not to pass any information provided by Principal as part of business relationship to others and not to commit any offence under PC/ IPC Act;

(2) The Bidder/Contractor will not instigate third persons to commit offences outlined above or be an accessory to such offences.

(3) The Bidder/Contractor signing Integrity Pact shall not approach the Courts while representing the matters to IEMs and he/she will await their decision in the matter.

Section 3 -Disqualification from tender process and exclusion from future Contracts

If the Bidder, before contract award has committed a transgression through a violation of Section 2 or in any other form such as to put his reliability or risibility as Bidder into question, the Principal is entitled to disqualify the Bidder from the tender process or to terminate the contract, if already signed, for such reason.

1. If the Bidder/Contractor has committed a transgression through a violation of Section 2 such as to put his reliability or credibility into question, the Principal is entitled also to exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, in particular the number of transgressions, the position of the transgressions within the company hierarchy of the Bidder and the

amount of the damage. The exclusion will be imposed for a minimum of 6 months and maximum of 3 years.

2. The Bidder accepts and undertakes to respect and uphold the Principal's Absolute right to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.

3. If the Bidder/Contractor can prove that he has restored/recouped the Damage caused by him and has installed a suitable corruption prevention system, the Principal may revoke the exclusion prematurely.

4. A transgression is considered to have occurred if in light of available evidence no reasonable doubt is possible.

5. Integrity Pact, in respect of a particular contract, shall be operative from the date Integrity Pact is signed by both the parties till the final completion of the contract **or as mentioned in Section 9- Pact Duration whichever is later**. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings. Any issue relating to execution of contract, if specifically raised before the IEMs shall be looked into by IEMs.

Section 4 -Compensation for Damages

1. If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover from the Bidder liquidated damages equivalent to Earnest Money Deposit / Bid Security.

(2) If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to Security Deposit / Performance Bank Guarantee.

3. The bidder agrees and undertakes to pay the said amounts without protest or demur subject only to condition that if the Bidder/Contractor can prove and establish that the exclusion of the Bidder from the tender process or the termination of the contract after the contract award has caused no damage or less damage than the amount or the liquidated damages, the Bidder/Contractor shall compensate the Principal only to the extent of the damage in the amount proved.

Section 5 -Previous transgression

1. The Bidder declares that no previous transgression occurred in the last 3 years with any other Company in any country conforming to the TI approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

2. If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section: 6 -Equal treatment of all Bidders/Contractor/Subcontractors

1. The Principal will enter into Pacts on identical terms with all bidders and contractors.

2. The Bidder / Contractor undertake(s) to procure from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the provisions laid down in this agreement/Pact by any of its sub-contractors/sub-vendors.

3. The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Section: 7 -Criminal charges against violating Bidders/Contractors/ Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section: 8 -External Independent Monitor/Monitors

1. The Principal appoints competent and credible external independent Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

2. The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Chairperson of the Board of the Principal.

3. The Contractor accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder/Contractor/Subcontractor with confidentiality. However, the documents/records/information having National Security implications and those documents which have been classified as Secret/Top Secret are not to be disclosed.

4. The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

5. As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or heal the violation, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action. However, the Independent External Monitor shall give an opportunity to the bidder / contractor to present its case before making its recommendations to the Principal.

6. The Monitor will submit a written report to the Chairperson of the Board of the Principal within 8 to 10 weeks from the date of reference or intimation to him by the 'Principal' and, should the occasion arise, submit proposals for correcting problematic situations.

7. If the Monitor has reported to the Chairperson of the Board a Substantiated suspicion of an offence under relevant Anti-Corruption Laws of India, and the Chairperson has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8. The word 'Monitor' would include both singular and plural.

9. In case of any complaints referred under IP Program, the role of IEMs is advisory and would not be legally binding and it is restricted to resolving the issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidder.

Section:9 -Pact Duration

This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the respective contract, and for all other Bidders 6 months after the contract has been awarded.

If any claim is made/ lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by Chairperson of the Principal.

Section:10 -Other provisions

1. This agreement is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal. The Arbitration clause provided in the main tender document / contract shall not be applicable for any issue / dispute arising under Integrity Pact.

2. Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

3. If the Contractor / Bidder is a Joint Venture or a partnership concern or a consortium, this agreement must be signed by all partners or consortium members. In case of sub-contracting, the Principal contractor shall take the responsibility of the adoption of IP by the sub-contractor and all sub-contractors shall also sign the IP.

4. Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intensions.

5. Issues like warranty / guarantee, etc. shall be outside the purview of IEMs.

Date : Place :	..... **For the Bidder/Contractor** Witness 1: ..... Witness 2: .....