Oil India Limited
(A Govt. of India Enterprise)
P.O. Duliajan – 786602, Assam , India

Telephone No. (91-374) 2800491
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Tender No. & Date : **SDG 1821 P14/08 of 21.11.2013**

Tender Fee : INR 4,500.00 OR USD 100.00

Bid Security : Applicable

Bidding Type : **SINGLE STAGE TWO BID SYSTEM**

Bid Closing on : As mentioned in the Basic Data of the tender in OIL's e-portal.

Bid Opening on : As mentioned in the Basic Data of the tender in OIL's e-portal.

Performance Guarantee : Applicable

OIL INDIA LIMITED invites Global Tenders for items detailed below:

Item No. / Mat. Code	**Material Description**	QTY.	UOM
1.	Supply , installation and Commissioning of Workover Rig -100T as per the following Annexure: a) Detailed specification- Annexure -AA . b) Bid Rejection Criteria (BRC) and Bid Evaluation Criteria- Annexure-BB .	1	No.
2.	Supply , installation and Commissioning of Workover Rig -125T with Mud System as per the following Annexure: a) Detailed specification- Annexure - AA . b) Bid Rejection Criteria (BRC) and Bid Evaluation Criteria- Annexure –BB.	1	No.
3.	Supply , installation and Commissioning of Workover Rig -125T as per the following Annexure: a) Detailed specification- Annexure - AA. b) Bid Rejection Criteria (BRC) and Bid Evaluation Criteria- Annexure –BB.	3	No.

Special Notes :

1.0 The tender will be governed by "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders) including Amendments & Addendum to "General Terms & Conditions" for e-Procurement.

2.0 Technical Check list and Commercial Check list are furnished . Please ensure that both the check lists are properly filled up and uploaded along with Technical bid.

3.0 The item qualifies for Nil duty / Deemed Export benefits. For Deemed Export benefits, please refer Addendum to the General terms and conditions for Global tender.

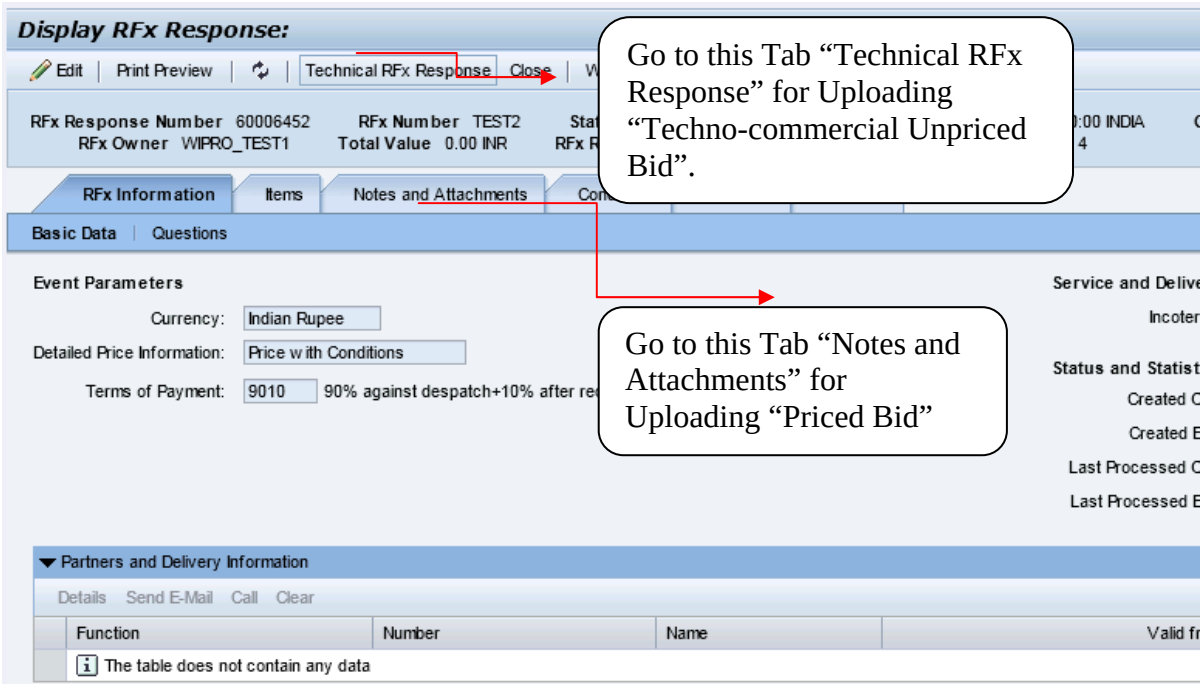
4.0 Please note that all tender forms and supporting documents are to be submitted through OIL's e-Procurement site only except following documents which are to be submitted manually in sealed envelope super scribed with tender no. and due date to The **Head Materials, Materials Department, Oil India Limited, Duliajan- 786602, Assam** on or before the Bid Closing Date and Time mentioned in the Tender.

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

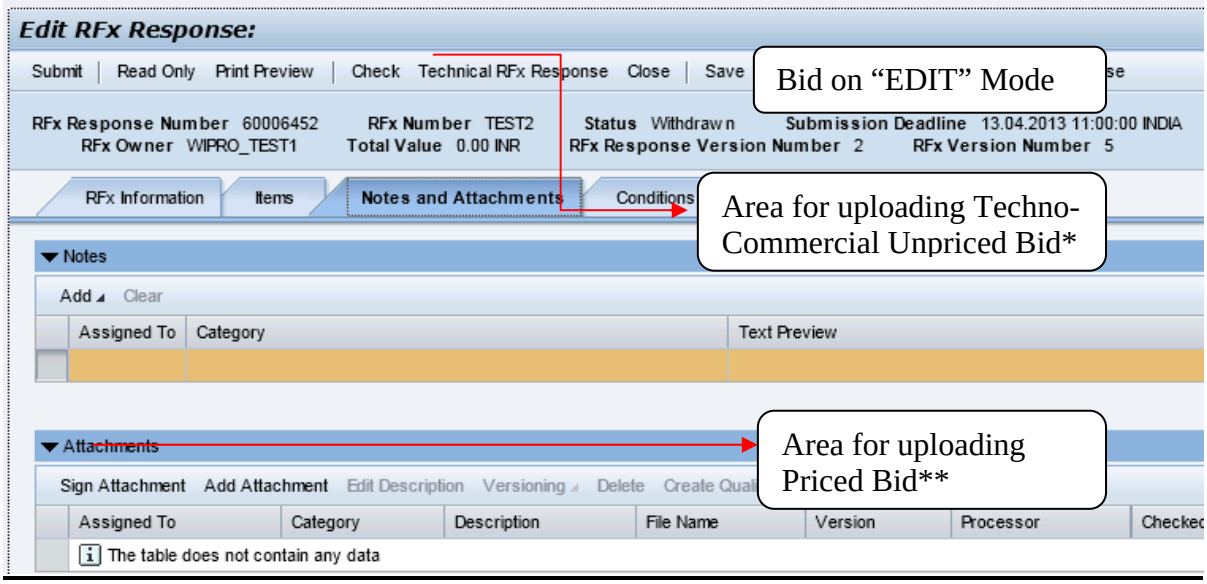
5.0 In case of SINGLE STAGE-TWO BID SYSTEM, bidders shall prepare the "Techno-commercial Unpriced Bid" and "Priced Bid" separately and shall upload through electronic form in the OIL's e-Tender portal within the Bid Closing Date and Time stipulated in the e-Tender. The "Techno-commercial Unpriced Bid"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

A screen shot in this regard is given below.

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



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



Note :

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

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

from the PC and name the file under Description, Assigned to General Data and clock on OK to save the File.

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

7.0 The Integrity Pact is applicable against this tender. OIL shall be entering into an Integrity Pact with the bidders as per format enclosed vide Annexure VI 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. Any bid not accompanied by Integrity Pact Proforma duly signed (digitally) by the bidder shall be rejected straightway. 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.

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

(I) SHRI N. GOPALASWAMI,I.A.S (Retd) ,
Former Chief Election Commissioner of India
E-mail Id : gopalaswamin@gmail.com

(II) SHRI RAMESH CHANDRA AGARWAL , IPS(Retd)
Former Director General of Police
E-mail Id : rcagarwal@rediffmail.com

8.0 Pre –Bid Conference :

(A) A Pre-Bid Conference with the Parties will be held at Guwahati , Assam (India) on 8th January '2014 to discuss on the technical specifications and other terms and conditions of the tender. All the Parties who purchase the Tender Document within the closing date of sale of the tender will be eligible to attend the Pre-Bid Conference. The exact venue and time of the Pre-Bid conference will be intimated to the Parties at a later date.

(B) Clarification on the technical specifications and other terms & conditions shall be provided to the parties during the Pre-bid Conference. Parties should come fully prepared to the Pre-bid Conference and submit their queries to OIL in the Pre-bid Conference for clarification. More than two persons will not be allowed from each party and they should depute representatives who are competent enough and authorized to take spot decision . The set of queries may also be sent to OIL at least 7 (seven) days before the Pre-bid Conference for study by OIL.

(C) Any changes in the technical specifications and other terms & conditions arising out of discussion in the Pre-bid Conference shall also form part of the tender document.

(D) Parties, immediately after the purchase of the Tender documents, shall inform OIL at the following address about their participation in the Pre-Bid Conference with details of the persons to enable OIL to make arrangement for the Pre-Bid Conference.

HEAD – MATERIALS
OIL INDIA LIMITED
P.O DULIAJAN, PIN – 786 602
DIST. DIBRUGARH (ASSAM) INDIA
FAX NO. : +91 - 374 – 2800533
E-Mail : matdmmfd@oilindia.in
materials@oilindia.in

ANNEXURE- AA
(Tender No. SDG 1821P14/08)

Technical Specifications

Item No.	Material Description	QTY.	UOM
1.	Supply , installation and Commissioning of Workover Rig -100T	1	No.
2.	Supply , installation and Commissioning of Workover Rig -125T with Mud System .	1	No.
3.	Supply , installation and Commissioning of Workover Rig -125T	3	No.

ITEM No.1 - Specifications of 100MT Rig ,Qty = 1 No.

Single drum servicing and work over rig mounted on a self propelled back in type carrier, fitted with diesel engine, transmissions, draw-works, telescopic mast. The Rig shall also have substructure drilling / handling equipments, hydraulic, pneumatic, lighting systems etc, miscellaneous items / equipment, etc along-with necessary catalogues.

Rig and its equipments shall be suitable for Ambient Temp. 2 degree to 44 degree centigrade, relative humidity 95% maximum & altitude of 100 meter minimum.

Rig engine should be above carrier deck and layout of all rig equipment should be such that there is ease of maintenance.

The detailed specifications are as follows:

Sl No	Section	Description
1	A1	Mast & Substructure
2	B1	Carrier
3	C1	Engine & Transmission
4	D1	Draw-works & other Equipments
5	E1	Electrical System
6	F1	Inspection & Commissioning
7	G1	General Note
8	H1	Annexure & Attachments

SECTION – A1

(1) Telescopic Mast in accordance with API 4F with API monogram

(i) Lightweight open faced four legged, two-section Telescoping Mast of efficient design having manufactured & monogrammed as per API Spec 4F, latest edition, with hydraulic mast tilting & extending systems, self actuating stabilizers and automatic locking device to lock the mast into its fully extended operating position; with safety chokes to assure a safe descent rate to protect the mast in the event of failure of the hydraulic system / abrupt loss of hydraulic pressure; an unobstructed line of vision to the crown block.

Mast rest pad complete with supporting frames should be suitably positioned on the carrier for resting the collapsed mast during transportation. The frame should not obstruct the driver's view in any case.

(ii) API rated hook load capacity of minimum 100 MT (110 ton, 220462lb) with 8 line strung and with required wind guy lines and cross guys to racking board, design & construction in accordance with API 4F and API monogrammed. (Guy lines should be complete with heavy duty turn buckles & guy posts). The Minimum Wind Load Capacity of the Mast with full set back should be 80 miles/hr (128 Km/hr) with guy lines.

The guy line anchors should be designed to be placed at a radial distance of minimum 65ft and maximum 85ft distance from the well centre.

(iii) Clear working height (ground to underside of crown frame) – minimum 102 ft.

(iv) (a) Hydraulic mast tilting & extending systems and automatic locking device to lock the mast into its fully extended operating position as per Rig design. The system shall include manually operated bleed valve for removal of entrapped air, built in orifice system/check-choke system shall be provided to assure a safe descent rate to protect the mast in the event of failure of the hydraulic system / abrupt loss of hydraulic pressure.

(b) Audio alarm should be provided when the upper mast is fully raised and locked on the lower mast.

(v) Suitable capacity heavy-duty adjustable jackscrews with lock nuts shall be provided for centering / aligning of mast.

(vi) Automatic locking system shall be provided with additional safety manual lock. This is required after telescoping of mast to full height. This added safety feature is to prevent accidental unlocking of automatic locking system.

(vii) Automatic erecting type racking board designed to eliminate possible interference with wellhead equipments during raising & lowering of mast. Racking board to be of all welded construction be provided with height adjustment having 3 different positions at approx 16Metres, 17.5Metres & 19Metres from top of sub structure to enable stacking ofrange-2 tubing in doubles at sub-structure floor with capacity to rack minimum 16000 feet of 2-7/8" tubing in doubles. Additional pipe raft to be provided if required to stack the required length of pipes. Racking board shall also be suitable for racking of 2-7/8" and 3-1/2" tubing& drill pipes. Racking board shall be provided with folding railing &safety belt.

(viii) a) Racking board shall automatically lower into working position as mast is telescoped up & is raised into folded position as mast is telescoped down. Adjustable fingers are to be arranged for end racking only.

b)The railing of monkey board should get folded in the monkey board itself when the mast is lowered and should get unfolded when mast is raised.

(ix) Single standpipe of 3” size complete with upper tube turn, hammer union on upper end &steel elbow & hammer union at lower end shall be clamped to mast and opposite to operator’s side. Working pressure shall be 5000 PSI.

(x) Mast climbing ladder along with suitable fall prevention device for person climbing the ladder, starting not more than 2ft height from the derrick floor up to crown block shall be provided.

(xi) Crown block platform (crown nest of minimum 0.6M width) shall be provided with handrails and entrance from ladder & floor of expanded metal. One suitable zin pole with pulley arrangement for lowering & assembly of fast line Sheaves.

(xii) Two Hydraulic catworks shall be fitted to the mast.

(xiii) Mast shall have an integral ‘travelling block cradle’ for use to secure travelling block while travelling.

(xiv) The mast shall be designed to withstand wind speed of minimum 80 miles/hr (128 Km/hr) as per Clause 6.2.3 of API 4F with full pipe/ setback with all guy ropes properly placed as per standard API pattern.

(xv) External Mast guying shall be provided as per API 4F standard for specified wind velocity and full pipe/ setback. One set of crown & racking board wind guide line complete with wire lines along with thimbles clips, come longs& boomers shall be provided. Also to include internal load lines from crown to carrier

(xvi) Mast shall be painted as per the painting schedule indicated.

(xvii) Raising, lowering, locking & telescoping controls at operators position near base section of mast with clear view during operation.

(xviii) Escape device: DGMS approved Topman Emergency Escape device & Escape line is to be provided. This device is used to allow a worker to easily get to a safe distance on ground away from the work platform (monkey board) on the rig in emergency situation needing evacuation. It shall include wire line, mast anchor & ground anchor. There should be safe & sufficient clear passage at Monkey board for Top Man to the escape device.

(xix) The mast should be designed to ensure lowering and raising of mast with substructure in workover position at its full design height. During this process the substructure shall not obstruct the mast. Substructure shall also not interfere during removing of carrier from site with mast lowered onto it, in travel position.

(xx) The mast shall be provided with a nameplate having full information as required to be provided as per API 4F.

(xxi) Mast accessories: cable racks for guy lines storage on mast side.

(xxii) Spinning line roller guides located in mast for hydraulic catwork system.

(xxiii) One set of 2 counter weights for use with manual tongs installed on lower mast section must include weight buckets, guides, sheaves & wireline from buckets.

(xxiv) One additional sheave to be provided for rigging up Power tong.

(xxv) Diving board to be provided with foldable extension & handrail & toe board.

(xxvi) Hydraulic Cat works-

Hydraulic make up (spinning) cylinder with stroke multiplier, giving minimum 15 ft stroke providing minimum 10000 lbs (4444kg) line pull. Hydraulic break out cylinder to develop a minimum line pull of 20000 lbs with 4 ft stroke. Hydraulic Cat works is to be complete with all fittings, hydraulic controls, turn-back sheaves, wirelines, hoses, rollers, piping to rig hydraulic system & installed on mast. Control for makeup & breakout to be located at Drillers console.

(2) Crown block integral with the mast, monogrammed to API 4F.

(i) Static load capacity - minimum 100 MT (110 ton)
(ii) 5 sheaves with crown block & 1cat line sheave as per API 8A/8C.
(iii) Integral design shall have 8 numbers of lines to block strung up.
(iv) Wire line size 1.1/8" - 500M long 6x19 construction, RH, regular, IWRC as per API 9A
(v) The sheave bearings shall have provision of lubrication from grease jerks provided at a convenient point.

(3) Sub structure API 4F with API monogram

(i) Sub structure shall be collapsible, pin type, telescoping / parallelogram / swing type.
Bracings on sub structure shall not obstruct handling, placement & removal of 7 1/16" - 3 stack BOP of Hydril / Cameron / Shaffer make.

(ii) (a) Shall provide working floor area(approximately 16'x16') with detachable railings on all sides and with provision to accommodate 17-1/2" rotary table.

(b) The side railings shall have the toe boards welded (plate of 0.15 meter height all around,at the bottom)

(iii) Collapsible substructure shall have minimum clear working height of 13 ft below rotary beam in workover mode, (However, height should be sufficient enough to accommodate the BOP stack along with riser nipple, considering 2 ft well head height) and the overall height of maximum 9 ft in collapsed condition for transportation.

(iv) Substructure shall be rated for minimum 160 MT (176 ton) rotary load, minimum 65 MT (71.5ton) set back load & minimum 225 MT (247.5 ton) simultaneous load.

(v) Structure floor and folding wings shall be plated with chequered floor plate. Set back area shall be covered with 3" thick wood.

(vi) Base area of substructure shall be plated with 10mm steel plate for improved floatation.

(vii) Suitable hydraulically operated mechanized system for easy and safe installation of Hydril/Shaffer/Cameron BOP of 7-1/16". The system should be easy to maintain and it should be so designed that it can be transported separately as well as can be retracted within the substructure and doesn't interfere in day to day rig operations. There should be safe provision of horizontal and vertical movements of the BOP during mounting and dismounting without much labour.

The substructure to be so designed that while placing against the well head no beam / member to foul with the standard well head. The base of the substructure should have minimum clear area of 2.85 M (length, along the outfit centre line) X 2.25 M (Wide; perpendicular to the outfit centre line).

(viii) Substructure shall be provided with nameplate containing all information required as per API 4F.

(ix) One ladder from sub structure floor to ground off drillers side & one ladder from substructure floor to carrier floor to be provided.

(x) Every open-sided floor or platform 1.8 meters or more above adjacent floor or ground level where any person is allowed to work or pass, be guarded by a standard railing.

(xi) On every derrick or portable mast, where a person has to work, a platform at least 0.60meters wide shall be provided on at least one side of the crown block. The platform shall be equipped on its outer edges with a two-rail railing at least one meter high and toe board of 0.15 meter high.

(xii) Pins / locks required for fitting / removing during unfolding / folding of sub structure should be at safe man height level and easily accessible.

(xiii) An Emergency escape slope from derrick floor to ground level shall be provided for escape of rig floor crew in emergency.

(4) V-door pipe slide:

V-door pipe slide of steel frame, metal plated with minimum 10mm thickness. Pipe -guide from catwalk level to substructure floor level. Slide unpins for transport. The pipe slide including a set of stair with railings from sub structure floor level to ground level and its slope should be such that pipes for 'running in' in singles for latching in elevator can be handled easily to achieve this it is suggested that the distance between centre of Rotary Table to V - Door should be around 3.25 meters, but safety of operating personnel also to be ensured. Provision to be kept for placement of V-door pipe slide both along the outfit (parallel to outfit) and also to be placed perpendicular to the outfit on off-driller side. The placement will be decided during the use of outfit depending on the availability and orientation of the well site plinth area.

One additional V-door Slide to be provided for pulling in and lowering of tools and smaller equipments to the ground from derrick floor. The V- door Slide to be placed on off-driller side of the floor.

(5) Catwalk/pipe racks:
One approx. 4' wide x approx. 3' 6" high x approx. 40' long **in two pieces** catwalk plated with minimum 10mm thickness steel plates along-with hinged pipe racks on each side. One sloping ramp at far end of cat walk with stairs to ground.

Pipe racks are to be placed parallel to the outfit. This will be required to reduce the overall plinth area requirement for the outfit placement.

SECTION B1

(1) Carrier ramps :

Carrier / Rig Ramp as per design – in two pieces, with tyre guides, load beams, jack supports, turnbuckles, mud boat decking of chequered plate, tie up arrangement with sub structure.

(2) Carrier

(i) The carrier shall be robustly built to take the full load with the mast under difficult travelling condition through hilly terrain, cross country, slushy and loose earth roads in the fields. Carrier shall be self propelled, right hand drive (when viewed from the rear)

(ii) The carrier shall be provided with adequate Nos. of Front and Rear axles to take the full load of the unit during stationary and travelling conditions. Individual Load on each axle (all front and rear) shall be within **85%** of Maximum Loading Capacity of the respective axle. i.e. Total Weight (Laden Weight) of the unit with all items including mast shall be within **85%(Eighty Five percent)** of Maximum Permissible Gross Vehicle Weight (i.e. Total Axle Capacity) of the unit.

(iii) Adequate Nos. of heavy duty drive axles and multi-speed transmission to move the unit in difficult road condition. Individual axle loading shall not exceed 12 MT. All drive axles shall have Inter Axle Lock and Differential Lock facilities. Axles shall be any of Rockwell, Fabco, Dana, Clarke, Meritor, Sisu make.

(iv) All steering front axles.

(v) Heavy duty suspension system both in the front and rear. Walking beam type in the rear axles of Hendrickson OR Neway make.

(vi) Right Hand drive hydraulically assisted steering system. Steering wheel shall be on the right hand side of the carrier when viewed from the rear. Turning radius shall be as minimum as possible for negotiating sharp turning in narrow field roads and shall not be more than 20 meters for the carrier fitted with mast. Suitable shifter to engage & disengage the steering pump from the engine to avoid idle running of the pump during rig operation may be provided. It shall be bidder's endeavour to supply

the steering box of make Spicer, ZF, Sheppard, Rane, TRW; steering pump of VICKERS, PARKER or REXROTH make.

(vii) Brake system-

(a) Service Brake – Pneumatic Multiple Circuit Foot-operated Power Brake acting on all wheels.
(b) Emergency/Parking Brakes - Automatically engaged Emergency Brake acting on all rear wheels in the event of low air pressure. All Emergency/Parking Brake Servos shall have manual release mechanism (Screw Type) to release the brake manually in case of low / no air pressure for maintenance and towing the unit whenever necessary.
(c) Manual Hand Operated Parking Brake acting on all wheels. All brake valves shall be of Bendix or Wabco or Rexroth make.
(d) Brake actuator shall be of S - cam type.

(viii) Wheels and tyres- The tyres with tubes should be from reputed International manufacturers and specifications should be such that the tyres are easily available in India. Two nos. Front wheels and two nos. Rear wheels shall be provided with each carrier as spare wheels (rims with tyres & tubes). Suitable carrier provision to be provided to carry one front wheel and one rear wheel along with the unit.

(ix) Driver's Cabin

(a) Two man cabin with two rear view mirrors and adjustable seat with shock absorber shall be provided.
(b) Carrier controls for selection of transmission speed, brake and on road application shall be provided inside the carrier cabin.
(c) The cabin shall be equipped with standard instrument panel with indicators, gauges, lighting.

(x) 2(Two) Nos. Stopper Block for rear wheels to be supplied along with the carrier.

(xi) Casing spool space for cut and slip provision to be provided between hydraulic tank and driver cabin. However, manufacturer may locate it in any other convenient location looking into availability of space. Sufficient space should be allowed for maintenance of equipment.

(xii) Carrier shall be equipped with individual control levers installed in the hydraulic valve bank.

(xiii) Two Nos Diesel tank each of 125 gallon (473 litres) capacity made of Aluminium/ stainless with filling cap, lock & key, drain plug etc. Digital fuel tank indicator with guard mounted at the top of the tank and in the control panel.

(xiv) Two standard toolboxes shall be provided on carrier.

(xv) Walkways and stairs- Folding walk ways along side of the unit on & off operator's side extending from rear of unit to engine area including stairway with hand rails from walk way to ground on both sides. Checker plate decking throughout. Suitable locking arrangement shall be provided for the walkways and railings to keep in folded positions to prevent accident during travelling.

(xvi) Detachable Stairs should be provided on both sides of the engine for quick access.

(xvii) Heavy-duty clevis pin type Towing Hooks both at front and rear capable of pulling/ towing the unit from bogged down situation from front as well as rear. (Pin size minimum 25 cm in length and 5.0 cm in diameter).

(xviii) Travelling height: maximum 14' 6" from ground to upper most point on mast in travelling condition.

(xix) Dead line anchor suitably mounted on the Carrier Frame for designed line size with API 8C monogram as applicable. The dead line anchor to be of suitable construction and ensure positive reliable transmission of the deadline load signal to the sensor.

(xx) Transmission shifter with locking arrangement for travelling / operations mode to be provided at convenient operating positions. This is to prevent accidental engagement of travelling transmission in Workover mode.

(xxi) Standard tools for engine, transmission, rotary system hydraulic system, pneumatic system and drawworks shall be provided. (List to be provided along with the technical bid).

(xxii) Ground clearance not less than 25 cm for enabling to move the outfit through uneven culvert and undulating & underfoot conditioned roads in our fields.

(xxiii) Total weight of the carrier with the mast shall not exceed 60 MT as our roads and bridges are rated for 60 MT only.

(xxiv) Overall dimensions of the carrier and rig components shall be as per road transportation regulation of India.

(xxv) Drive testing with full load at all speed/gears for to a maximum of two hours period to be carried out during pre dispatch inspection.

(xxvi) Bidder is to quote for the spares as per list provided vide Annexure-IV cost of which will be considered for bid evaluation purpose.

SECTION C1

(1) Engine on carrier:

(i) 01(one) No. Caterpillar C-18 ACERT fuel efficient electronic diesel engine, turbocharged, after cooled, Inline 6(Six) cylinder, capable of developing minimum 575-600 HP (net) @ 2100 RPM at flywheel end [operating speed range 1800-2200 RPM] under standard atmospheric temperature of 2°C-50°C, altitude not exceeding 150 Mtrs above mean sea level, relative humidity 95% at 35° C.
(ii) The engine should be suitable for continuous duty & capable of developing 10% in excess of its rated output at its rated speed for a period of 1hr in any period of 12 hrs continuous running without undue heating or any other mechanical trouble.
(iii) The engine should be unidirectional i.e. rotation is anti-clockwise when viewed from flywheel end and should conform to BS: 5514 or equivalent or latest.
(iv) Engine shall confirm to minimum EURO-III / BHARAT STAGE-III / TIER-III or equivalent emission norms.

(v) Engine Fault Diagnostic Tools [both software as well as hardware-CAT ET & Laptop] with accessories & also display on the engine panel shall be supplied along with each unit. Bidder shall categorically confirm in the bid that the offered software & hardware is for the particular engine of the truck.

(vi) All the accessories & fittings of engine viz. Radiator, Coolers, Silencer cum Spark Arrestor, Air Compressor, Engine Harness Wirings & accessories etc., must be of OEM supplied with proof of documents. Bidder must confirm in their offer to provide documentary evidence from OEM regarding supply of the above mentioned items at the time of inspection.

(vii) The engine should be equipped with:

a) Heavy duty Air Cleaner with pre-cleaner & Vacuum Indicator.
b) Spark Arrestor cum Silencer covered with heat resistant material & capable of max exhaust back pressure: 75mmHg. Exhaust is diverted to off-operator side with 85dB muffler and spark arrestors.

c) Heavy duty Radiator for Industrial use with Fan, Fan arrangement & low water level indication with alarm. The radiator must be having capacity of at least 20% in excess of total heat rejection of the engine.
d) Pneumatically operated Inlet Air shut off device & Fuel shut off device should be provided with the engine for emergency shut off & designed in such a way that it can be operated from engine as well as Driller's console. Proper drawing of Interconnection between the driller's console & the Air-shut off device to be provided along with the offer.
e) Instrument Panel should have Oil & Fuel pressure gauge, Oil, Water & Exhaust temperature gauge, Electronic Tachometer with R/Hrs meter, Emergency air shut off switch etc. There should be sufficient space for maintenance and repair of the Instrument Panel.

f) Suitable Safety Shut Off system with Alarm for Low lube oil pressure, High water temperature, Engine over speed etc. Bidder must mention the Safety Shut Off system offered for the engine & provide detail information with literature.
g) Air compressor with minimum capacity of 30 CFM (850LPM), @2100 rpm @ 120psi for meeting complete air requirement of the rig package as per rig design with air tank of suitable capacity. It should be suitable for all air control valves, clutches of rig system, rotary slips etc. Air dryer without heating system, mounted before the air receiver with pipe connection, filter-regulator-lubricator & gauges is to be provided.

Suitable capacity air receiver/s mounted on the carrier, size & capacity should be mentioned along with the offer.
Air receiver/s and lines shall be tested as per relevant API standard for any leakage. Test certificate to be provided along with the supply.
All air lines from compressor to tank / tank to supply end must be made out of solid line / hydraulic hose of SAE standard in place of PTFE tube. The bidder must confirm the same in the offer.
h) The critical wiring should be in separate rodent proof conduit with proper marking from other wiring for following:-

1) Engine shutdown signals.
2) Engine Throttle signal from derrick & Cabin.
3) Wiring which activates the special modes of engine like PTO enable, engine de-rate, idle RPM mode etc.
4) Interfacing wiring between engine, transmission and safety system.

Note: Engine Harness wirings must be of OEM supplied.

i) Engine starting system should have independent pneumatic & electric starter with interlock for use of one starter at a time.

2 (two) Nos. maintenance free Heavy duty battery suitable for hazardous area (Please refer extract of hazardous area and relevant regulations enclosed at Attachment-I), complete with cable & connection to be provided in a steel box with wood panelled inside the box. Each engine should have 24 volt battery charging flameproof alternator.

j) General

1) Vibration Dampener and guard.
2) Lifting eyes
3) Fumes disposal
4) Crankcase breather
5) Heavy duty servicing hour meter
6) Maintenance tools
7) Standard painting of the engine
8) Engine crank case design should be of shallow pan type.

k) Sound Barriers

The bidder should provide suitable Sound Barrier to reduce the noise of the engine.
The Sound Barrier should be sliding / easy removable type for ease of engine maintenance.
Details about the Sound Barrier with drawing, dimension, material, reduction of engine noise outside the sound barrier etc must be provided along with the offer.

l) Operating Site Condition

The engine should be suitable for operation at the following site condition:

a)	Engine site temperature	-	50°C(Max)
b)	Engine site temperature	-	2°C (Min)
c)	Maximum relative humidity at 21°C	-	100%
d)	Maximum relative humidity at 35°C	-	95%
e)	Maximum relative humidity at 45°C	-	70%
f)	Altitude above sea level	-	150 m.
g)	Average annual rainfall	-	343 cms.

m) Tool Kit for Engine & Transmission

01 (one) set of standard tools for each Workover outfit of Snap-on make in heavy duty 3/5 tray metal box with handles & locking arrangement for carrying out normal maintenance of engine as per Annexure –IB (Item No. 1 to 33) to be supplied.

Special tools should be supplied along with the consignment for carrying out engine major overhauling jobs as per enclosed Annexure-IB(Item No. 34 to 39). These tools must be supplied in proper tool box. Specific description, part nos., make, etc. and unit price of each item shall clearly be indicated in the bid.

Cost of the above tools as per Annexure –IB to be considered for evaluation purpose.

Any other tools necessary for maintenance to be mentioned in the offer.

viii) Spare Parts for CATERPILLAR Engine

Bidder should quote unit price for following spare parts. Item wise price of each spare part with part no should also be provided.

Bidder must mention in their offer the total quantity of each of the following spare part required for running of each engine for 2000hrs.

1) Fuel Filter
2) Lube Oil Filter
3) Air Filter
4) Electric Starter
5) Pneumatic Starter
6) Charging Alternator
7) Fuel Injector
8) Radiator & Alternator Power Transmission Belt Set
9) Lube Oil (ltr.)
10) Coolant (ltr.)
11) Air Compressor Repair Kit
12) Turbocharger Repair Kit

The unit cost of above spare parts will be considered for bid evaluation. However OIL reserves the right to decide the item & quantity of spare parts for procurement along with the main equipment.

ix) **Documentation & Bid Submission**

Bidder's response should clearly be defined. Bidder shall furnish specific details / specifications of all major components, system with make & model etc wherever applicable. Generalized response like- 'As per Tender Specifications/Technical Leaflet', 'Noted', 'Accepted' or in any similar fashion is not encouraged.

It shall be bidder's endeavour to offer the following items as per make & models indicated against each item. However other suitable makes & models are acceptable in case of operational and or design requirements supplemented with proper justification.

1) Steering Pump: Victor, Parker, Rexroth
2) Hydraulic Pump: Parker
3) Air Starter: IR
4) Air Dryer: Wabco Single Chamber Air dryer, without heater.

x) **SPECIAL NOTES:**

a) THE ENGINE WITH TRANSMISSION MUST BE MOUNTED ON A SINGLE, STRONG, SUITABLE SKID & SHOULD BE ANCHORED FIRMLY WITH THE MAIN CHASSIS OF THE WORKOVER OUTFIT.

b) ANNEXURE-IA: TECHNICAL CHECK LIST ATTACHED WITH TENDER.

BIDDERS MUST FILL UP THE SAME & RETURN WITH OFFER FOR TECHNICAL SCRUTINY.

c) ANNEXURE-IB: DETAILS OF MAINTENANCE TOOLS WITH QUANTITY ATTACHED WITH TENDER AS PER 1 (vii) (m) ABOVE.

BIDDERS MUST INCLUDE IN THEIR SCOPE OF SUPPLY & OFFER FOR THE SAME.

d) PARTS LIST, INSTRUCTION & SERVICE MANUAL

01(one) set of technical details of the engine, Allison transmission and dimensional drawing of all major components, is to be provided along with the offer.

The bidder shall furnish technical data sheets and dimensional drawing along with the quotation.

xi) **Test Certificate**

The complete sets have to be load tested at manufacturers work & test certificate have to be provided along with the delivery of material. Our engineer will visit to witness the load test.
The nature of after sales services, which can be provided by the successful bidder during initial commissioning as also in subsequent operation, should be clearly indicated.
Supplier must categorically confirm regarding compliance with the inspection / test procedure and other terms & conditions detailed above are very essential. Offers will be liable for rejection in the absence of such confirmation.

xii) **Deviation**
Deviation in respect of any specification as detailed above should be highlighted with technical calculation / catalogue / literature etc.

xiii) **Guarantee / Warranty**

The complete package / unit shall be under guarantee / warranty by the supplier for a minimum period of 1 (one) year from the date of successful Commissioning of the complete unit at site.
OIL reserves the right to inspect, test & if necessary reject any part / parts after delivery at site (including incomplete manuals, catalogues, etc.) in case of any fault on the part of the supplier.
It shall in no way be waived by the reason that the unit / item was previously inspected & passed by OIL as per Inspection Clause detailed elsewhere in the tender.
To keep the unit fully operational, in case of failure of any item during the warranty period, it is the supplier's responsibility to arrange replacement / repairing at site at their own cost including custom duty, freight, etc. within a period of maximum 3 (three) weeks from the date of notification of such failure.

(2) Transmission with integral torque convertor With Carrier Engine.

(i) Suitable capacity Allison transmission [Electronic – 5000 Series or Above] to cater maximum output torque of the engine with retarder brake, lock up clutch and drop box for transmitting power for rig operation and carrier drive, having minimum five forward & one reverse speeds, with dual controls i.e. from driver's cabin and driller console along with indicator and with safety interlock facility. Model of Allison transmission must be mentioned in the offer with technical brochure.
Bidder must confirm in their bid to provide O&M manual & parts book [Soft & hard copy in English language] along with the supply of Allison Transmission.

(ii) Rig manufacturer should ensure proper matching between rig engine & transmission to meet adequate power requirement for operating the rig / carrier. Programmed self diagnostic kit (both software as well as hardware) shall be supplied along with the unit. If additional software is required to maintain the electronics transmission system, same should be supplied with licence.
Bidder shall categorically confirm in the bid that the offered software is for the particular transmission of the rig. Moreover suitable weather protection for electronic system is to be provided.

(iii) Power take off (PTO) from transmission system with pneumatic clutch and controls for hydraulic pump.

(iv)Transmission wiring should be in separate rodent proof conduit with proper marking from other wiring. All cables must be terminated properly. If any cable is not used in the harness it should be removed from the harness. Suitable connectors with sufficient cable length are to be provided where flexibility is required as per instrument manufacturer design, so that the cables are not in stress.

(v) All the accessories, fittings / connections & harness wiring of Allison Transmission must be of OEM supplied with proof of documents. Bidder must confirm in their offer to provide documentary evidence from OEM regarding supply of the above mentioned items at the time of inspection.

(vi) Drillers console gear selector should have removable connector at both ends.

Note: - All the electrical / electronic circuit diagrams for operation of the Transmissions have to be furnished along with the offer for scrutiny

ANY ITEM/POINTS NOT INCLUDED BUT NECESSARY FOR EFFICIENT CONTROL AND OPERATION OF THE SYSTEM SHOULD BE STATED BY THE BIDDER

(vii) **SPARE PARTS FOR ALLISON TRANSMISSION**

Bidder should quote unit price for following spare parts. Item wise price of each spare part with part no should also be provided.

Bidder must mention in their offer the total quantity of each of the following spare part require for running of each transmission for 2000hrs.

a) Filter, Transmission Oil
b) Suction & Delivery Hose
c) Complete PTO
d) Transmission Oil (ltr.)

The unit cost of above spare parts will be considered for bid evaluation. However OIL reserves the right to decide the item & quantity of spare parts for procurement along with the main equipment.

(3) Power Transmission to Drawworks & Carrier

Suitable power transmission system, as per rig design shall be provided for transmitting power to draw works and rotary table in workover mode and to carrier in road-mode with dual control from cabin and driller's console along with safety interlocks and indicators.

(4) Hydraulic system

(i) Complete with hydraulic pump [make: Parker], hydraulic oil reservoir, suitable hydraulic lines, filters, hoses, pressure gauges, connections and valves, regulator etc. for the operations of / like mast raising / lowering, extending, levelling jacks, hydraulic cat works, hydraulic winches, hydraulic power tong drive, etc.

(ii) Capacity of the pump as per rig design, minimum 2000 PSI nominal working pressure. It shall be bidder's endeavour to supply the Hydraulic distributor, valve manifold, Hydraulic valves of VICKERS, COMMERCIAL HYDRAULICS, BENDIX, EATON, PARKER or REXROTH make only.

(iii) Hydraulic pump shall be driven from PTO of the Allison transmission with pneumatic clutch and controls. Total Interface drawing of Engine, Transmission & Hydraulic pump shall be supplied.

(iv) Protection for hydraulic pipe with guide pipes & support at intermittent locations to avoid damages to the hydraulic pipe.

(v) Tank, reservoir capacity as per design with filler cap, breather, oil level gauge filter, safety by-pass relief valve to prevent accidentally exceeding max rated working pressure, pressure & temperature gauges.

(vi) Hydraulic Test Certificates from reputed Certifying agencies to be made available for all hoses installed as per applicable SAE / DIN standards.

(vii) Bidder should quote unit price for following spare parts. Item wise price of each spare part with part no should also be provided.

1. Hydraulic pump [with make & model], complete
2. Hose, suction complete, Hydraulic pump
3. Hose, delivery complete, Hydraulic pump

The unit cost of above spare parts will be considered for bid evaluation. However OIL reserves the right to decide the item & quantity of spare parts for procurement along with the main equipment.

SECTION D1

(1) Drawworks (Main winch) on the Carrier

(i) Main drum suitable for hook load capacity of minimum 100 MT (110 Ton) in accordance with API 7K as applicable.

(ii) Single drum dynamically balanced draw works should have Axially mounted, water cooled with Disc Brake as auxiliary brake, suitable for minimum 100 MT (110 Ton), on the Brake Drum / shaft to carryout Retarding as well as Braking, also having provision of parking. The Band Type Brakes should also be provided as main Brakes. The Disc Brake and Band Brake should be complete with adjustment system & cooling system for working in 55 degree Celsius ambient temperature and at continuous full load. The electrical motor operated cooling system should either be mounted on the carrier or provided as a separate portable unit connected with the suitable hoses etc. The equipments should be mounted in such a way that safety during operation is ensured and there should be enough space for maintenance of the equipment. The Disc Brake is to be of National or Eaton Make. The control of the Disc Brake shall be provided at a convenient place in the hands of the Rig Operator, through a pneumatic Valve and the movement of Valve lever shall determine the braking Torque applied. Complete Rig operation should be possible independently with the help of Band Brakes as well as with the combination of Disc Brakes & Assist Brake.

(iii) Rated input horsepower suitable for rated hook load capacity, designed to provide empty block speed of 7 feet/sec & block speed at 100 MT hook load, 1st gear operation is 0.9 feet/sec, 8 lines strung up.

(iv) Main drum dimensions as per design with Lebus grooving for wire rope as per design to be provided for proper wire line spooling. However, the casing line size should be 1 1/8" (1.125 inch).

(v) The Draw works and its brakes shall have suitable water cooling system. Manifold, valves, reservoir, pump, exchanger should be included as per design.

(vi) Assist brake with chain drive in oil bath case, high speed positive air actuated drive clutch with control valve at operator's position, with manifold and water flow control valve and pedal control at operator's position to be provided as per design.

(vii) Drawworks should have sufficient range of forward speeds and one reverse speed.

(viii) Main drum driven by high capacity air balloon type airflex or equivalent make pneumatically operated clutches mounted outboard for easy accessibility & maintenance.

(ix) All roller chains of cotter pin / riveted type, with API 7F monogramming

(x) Wire rope with API 9A monogramming

(xi) Draw-works to have centralized greasing system (optional).

(xii) Chain drive shall be fully enclosed oil bath type, having lubrication as per design.
Chain guards shall be designed to have inspection windows to carry out repair and replacement of chains easily.

(xiii) Automatic crown block saver safety shut off device to limit block travel, installed on drawworks, automatically disengages clutch & sets main drum brake when block comes too close to crown block. (or required travel is reached)

(xiv) Automatic floor saver safety shutoff device to limit block travel, installed on drawworks, automatically disengages clutch & sets main drum brake when block comes too close to rotary table. (or required travel is reached)

(xv) (a) Automatic Hook load limiting device: - Automatic Hook load limiting device installed to prevent overloading of mast, linked up to weight indicator. Limiting device receives signal from weight indicator and applies brake & disengages draw works clutch simultaneously when the set hook load is reached.

(b) Suitable Casing Rope travel guide should be provided to prevent overlapping of the Rope on the Draw Works Drum.

(xvi) Driller's console /Control panel (Suitable for Hazardous area classified as per Attachment –1 Driller console to be located at rear of carrier with provision for elevating it to the base of the mast for use with substructure at derrick floor level. Mechanical controls located adjacent to Driller console for draw works brakes, include a chain tie down for the handle. Suitable arrangement to be provided to protect from ingress of rain water.

a) CONTROLS: Driller console should have Air control for main drum clutch, assist brake, engine throttle, engine shutdown and emergency shutdown, Hydraulic winch & Catwork control, Transmission shifter, Rotary drive clutch, Hydraulic pump, Pneumatic slip, Mud pump controls (if Connected), cooling water and assist brake water controls.

(b) Driller console should have following GAUGES / INDICATORS - Air, hydraulic, Mud Pump & Stand Pipe pressure gauges, SPM Meter for mud pump, Hook load, Tong torque, Transmission shifter indicators.

(2) Rotary drive system on Carrier

(i) Rotary drive system as per rig design from transmission to Rotary table with air balloon type clutch. Clutch control and engine throttle shall be at driller's console.

(ii) Elevated drive to rotary table with suitable protective guards.

(iii) Lubrication/ grease header to be provided.

(iv) Lubrication system as per rig design shall be provided.

However, centralised lubrication system for the outfit is a desired option. Bidder to quote for the item as optional and inclusion of the same in the price comparison will at OIL's discretion.

(3) Hydraulic Power tong circuit.

(i) Hydraulic power tong circuit with pressure and return line pressure gauge, adjustable relief valve with hydraulic outlet up to rear bumper shall be provided.

(ii) Tong hydraulic circuit shall be integral with rig hydraulic circuit.

(iii) Hydraulic pressure gauge and remote pressure control of tong circuit shall be located at the driller's console.

(4) Hydraulic winch on Carrier – 2 Nos

One to be mounted at suitable position on derrick floor and other on the carrier at a suitable position between drawworks and engine.

(i) Hydraulic winch, suitably mounted with two grooved sheaves, under crown, and cable. Minimum capacity of 10,000 lbs at 2,000 PSI oil pressure, with fail safe brake. Includes remote air control valve in control box & piping from & to valves, filters, safety controls, pressure gauges & all necessary fittings.

It shall be bidder's endeavour to provide Pull Master / Braden makes only.

(ii) Additional control on sub structure towards pipe rack side shall be provided.

(iii) Safety guards shall be installed on the winch

(5) Auxiliary Air Compressor

(i) 01(one) complete set of skid mounted Electric Motor Driven Auxiliary Rotary Screw Air Compressor package must be supplied along with the Workover Rig Package. The detail technical description of Air Compressor is as follows [compressor should be suitable for running, powered by a 30KVA diesel generator]:

a) Capacity: Min35 CFM
b) Pressure rating: 120-130PSI
c) Compressor Power rating: 7.0-7.5KW
d Sound Level: 65-69 dB(A) measured at a distance of 1mtr.
e) Air dryer: Non heater type
f) Make: IR / SULLAIR

g) Standard scope of supply:

- Screw Air Compressor with Lubrication system
- Cold Box / Hot Box design - electronic system for increased life of the components.
- Controls & Instrumentation- auto start/stop, blow down & load/unload solenoid, air pr gauge, total hr counter, fault warning etc.

h) The package shall include 01 (one) air receiver of 500 Ltrs capacity with necessary pipe connections. Connection should be made between the air tanks of air compressor & carrier. Compressor with motor must be mounted in a separate acoustic enclosure with proper ventilation.

The complete Air Compressor package [1no compressor with air vessel] must be mounted on a rugged oil field type rugged skidded hut for easy & secured transportation. Bidder must provide necessary drawing of skid and the schematic view of package along with the offer for technical scrutiny.

i) The bidder along with the offer must provide brochure of offered air compressor.

j) Air receiver and lines shall be tested as per relevant API standard for any leakage. **Test certificate to be provided along with the supply.**

(ii) System for filling air in tyres with required hose and adopters shall be provided. The system shall be hooked with air system with one extra out let tapping with valve.

(iii) Electrical Scope of supply for above mentioned Screw Compressor includes the following:

a) The suitable size of Cable used for connecting the motor from Power Distribution Panel shall be EPR (Ethylene Propylene Rubber) insulated, and HOFR (Heat Resistant, Oil Resistant and Fire Retardant), CSP (Chloro Sulphonated Polyethylene) sheathed screened 4 Core Copper conductor Cables and DGMS approved. Motor must be flame proof with DGMS certification.

b) Electrical Scope of supply includes the following:

Control panel to start / stop and protect the motor and compressor, with the following minimum facilities:

I. One adequately sized manually operated three-phase isolation switch to switch on/off all incoming power to the panel. Incoming power to the panel / motor will be connected to this switch.

II. Auto Start / Stop – Motor start / stop are to be controlled by the microprocessor – This is the default motor control scheme, MCCB and contactor based, with start/stop command from the Microprocessor controller.

III. Indication lamps: Input power available / Motor Running / Motor Stop / MotorTripped

IV. Emergency Stop Switch – A push button to instantly stop the motor. This should be “push to operate - turn to reset” type mushroom headed button.

V. Protection – Motor should be protected against the following:

a. Reverse rotation. Normal rotation as per the compressor direction of rotation
b. Overload
c. Single Phasing
d. Earth Leakage

c) Microprocessor based controller (This shall be ambient cooled and should not require any special means of cooling).
d) Temperature sensors input
e) Solenoid valves control (Blow down SV, Load/Unload SV)
f) Pressure Transducer sensor input
g) Package Air Pressure gauge
h) Total running hours counter
i) High discharge Air temperature indication lamp
j) Fluid Filter change indication lamp
k) Air / Fluid separator Element change indication lamp
l) Air intake filter change indication lamp
m) Display of all important parameters via indication lamps / on a screen

The control panel to be easily accessible, and IP 23 rated. All cables / sensor wires to beof bottom entry. All indication lights, meters and displays shall be located on the front.

The control cable connections in the panel should be done with copper conductors only.
For all other matters not specified above, the panel design and manufacture should be as per IS 8623.

Special Notes (Electrical):

a) Earthing studs – All electrical current carrying / consuming equipment or item should be provided with a minimum of two earthing studs.
b) Bidder should supply the electrical schematic drawing, clearly marking the motor starting system, the protection system, and the indications / safety devices employed.
c) All electrical schematics / wiring diagrams shall be approved by OIL before manufacture.
d) Power connections to the compressor from the external power source will be terminated on the isolator / MCCB of the control panel.
e) Only 01 (one) spare motor having specification, make & model exactly same with the above offered Screw Air Compressor must be supplied along with the Workover Rig package. The bidder should confirm the same in their offer.

(6) Rotary table API 7K monogrammed.

Rotary table, 17-1/2", with distance from center of table to center line of sprocket of 44".

(i) Dead load capacity minimum 160 MT (176 Ton).

(ii) Rotary table top to be flush with derrick floor.

(iii) Square drive split master bushing to be supplied with rotary table. It shall be supplied loose and API 7K monogrammed.

(iv) Rotary table shall be complete with hub for torque shaft drive or sprocket for chain drive or any other drive accessory required as per rig design to get drive from rig power transmission.

(v) Square drive Kelly bush for 3" Kelly, API 7K monogrammed. It shall be supplied packed separately as loose item.

(vi) Bit breaker adapter plate and lifting sling for split master bushing should be supplied loose & duly packed.

(vii) Manual locking system for Rotary Table to be provided.

(7) Unitized Hook block as per API 8A/8C with API monogram.

(i) Dead load capacity: Minimum 100MT (110 ton)

(ii) 4 No of sheaves, size and groove as per design, shall include hydraulic snubbing action, articulated connection and hook safety positioner / lock.

(8) Rotary hose

Rotary hose 3" x 55', 5000 PSI working pressure, however union shall be covered under the scope of stand pipe & swivel gooseneck for connecting to the rotary hose. Rotary hose shall be as per API 7K & monogrammed.

(9) Wire ropes
One roll casing line of standard length, API 9A monogrammed, on metallic spool with smooth drive for rotation with a provision for fixing stand on carrier for shifting of casing line.

One spare roll casing line of standard length, API 9A monogrammed shall also be provided.

(10) Stand pipe manifold

(i) Stand pipe 3" x 5000 PSI working pressure including gooseneck and hammer union mounted on mast (male and female portion of hammer unions are to be suitably provided, where ever it is specified along with pipe/goose neck/reducer etc so as to complete the stand pipe for connection with mud pump discharge on one side and swivel on the other side). Stand pipe and manifold shall consist of :-
(ii) Two (2) 2-1/16" 10,000 psi working pressure gate valves API 6A monogrammed.
(iii) Two (2) 2-1/16" 5,000 psi working pressure gate valves along with companion blind flange, API 6A monogrammed-to be supplied loose.
(iv) Three (3) 2" hammer unions, Fig 1502.
(v) One (1) 2" Line pipe threaded box connection for pressure gauge.
(vi) One (1) 2" Line pipe threaded box connection for pressure transducers.
(vii) One 3" fig 602 x 2" fig 1502 hammer union changeover.
(viii) API monogrammed 3" X 5000 PSI high pressure hammer union Fig 602, two (2) numbers to be supplied loose.
(ix) API monogrammed 2" X 10000 PSI high pressure hammer union Fig 1502, two (2) numbers to be supplied loose.
(x) API 6A monogrammed 2 1/16" X 10,000 PSI working pressure gate valve two (2) numbers to be supplied loose.
(xi) Two (2) 2" x 12' long, 10,000 PSI working pressure vibrator hose at pump discharge for connecting to high pressure line with 2" hammer union Fig 1502 end connection at both ends.
(xii) One (1), 2" x 12' long x 5000 PSI working pressure vibrator hose for connecting to standpipe manifold..

Kill line kit for field installation consisting of
(xiii) 2", 10,000 PSI pipe with hammer unions Fig 1502 10 ft long, 8 nos. ; 6 ft long, 4 nos. and 4 ft long, 4 nos.
(xiv) Four (4), 2" 10,000 psi working pressure, corner pipe 90 degree swivel joints and with hammer unions Fig 1502.
(xv) (a) 3", 10000 psi Fig 1502, 10ft-10 Nos (With hammer unions), (b) Swivel style 10 -10 Nos.,
(c)Swivel style 50– 10 Nos.
(xvi) 2", 1502 Plug valve-4 Nos, Check valve-4 Nos. (One end male and other female)
(xvii) 3", 1502 Plug valve-4 Nos, Check valve-4 Nos. (One end male and other female)

(11) Hydraulic tubing tong

(i) One set of Light weight hydraulic tubing tong of minimum torque rating 8000 ft lbs, as per API 7K & Monogrammed, replaceable jaws type for 27/8", 3½" tubings, complete with accessories like torque gauge assembly rating 8000 Ft. lbs., spring hanger assembly, Hydraulic Hoses with Quick couplings, Hydraulic Lift Cylinder Assembly for tong height adjustment and all other necessary items for its installation and operation.

(ii) Initially the tubing tong is to be supplied with jaws for 27/8"tubing, jaw sets for 3½" tubings to be supplied loose. Hydraulic tongs to be run from rig hydraulic system only. 10 sets of spare inserts for 2-7/8" tubing & 4 sets for 31/2 "tubing to be provided loose.

(12) WORKING TOOLS LIST PER RIG. Minimum listed below and additional specific tools eg for wheel repairs/ replacement, air filling, cardon shaft / cross repair, chain replacement, bearing replacement pullers, torque wrench, mud pump tools/ pullers for fluid end parts repair/ replacement, compensator charging tool kit etc. as per rig requirement, Heavy-duty Grease gun, 2(two) Nos. 50MT capacity Hydraulic Jacks with handles are to be supplied. Bidder to specify in the tech. bid.

(i) One set of ½" drive sockets set minimum 17 sockets, ratchet, hinge handle speed handle, and 3 extensions.
(ii) Open end wrench set combination size 5/16" to 1¼".
(iii) Adjustable wrench set of 4 suitable sizes
(iv) Heavy duty pipe wrench set of 36" & 48" size.
(v) 3/4" punch
(vi) Cold chisel
(vii) 10" pliers
(viii) Set of 2 Phillips screw driver suitable sizes
(ix) Allen wrench 7 piece set

(x) 2 lb hammer & 5 lb hammer - 1 each
(xi) Hack saw 10" with set of 10 blades
(xii) Tool box 24 x 9½ x 9½ w/tray Heavy-duty Grease gun, 2(two) Nos.
(xiii) Hydraulic Jacks 50MT capacity with handles are to be provided.
(xiv) Heavy duty aluminium alloy pipe wrench of size 18" & 24" – 2 Nos each.
(xv) One Heavy duty Chain tong 36" to be provided.
(xvi) Slogging wrench open end as well as ring type, 2 nos each of 36mm, 41mm, 46mm, 50mm, 55mm, 60mm & 75mm sizes may be provided.

(13) Rig instrumentation MARTIN DECKER make, suitable for Hazardous area classified as per Attachment-I

(i) Deadline weight indicator with sensator/ load cell on driller console/control panel, indicating load on hook for the designed capacity of the rig.

(ii) Mud pump pressure indicator, complete, on drillers console/control panel. 0-6000 PSI).

(iii) Pressure gauge mounted on stand pipe of 0-5000 PSI. Gauge should be in the clear view from the Driller's Console.

(iv) Suitable electronic recorder for recording hook load. The recorder display shall be mounted in weight indicator panel. The off-site printing of the recorded hook-load will be desired option. The storing space of the data in the recorder to be sufficient to store such cumulative data for operation of a week.

(v) Ton km indicator shall be provided near weight indicator box.

(vi) SPM indicator for mud pump discharge at driller's console & at local mud pump control panel.

(vii) All instrumentation tubings /pipings to be of stainless steel. However, suitable hoses are to be provided where flexibility is required as per instrument manufacturer design / as per mobile rig design.

(ix) Tong torque sensing system should be installed. Torque indicator for tong to be provided on drillers console.

x) In case of electronic sensor, same should have valid DGMS approval as per statutory regulations under Mines act as given in Attachment-I). Bidder needs to confirm to supply DGMS approved sensor at the time of submission of Bid. Successful bidder needs to produce the same before commissioning of the Rig.

Note: Calibration certificate for weight indicator, Mud pump Pressure indictor & pressure gauge mounted on stand pipe to be provided at the time of supply.

SECTION E1

Electrical

(1) Lighting system suitable for Hazardous area classified as per Attachment-I

(A) DGMS approved, Hazardous area flame proof lighting system for mast and carrier illumination as per rig design and as per API recommended practices 500 B and 505 B and has to meet Oil Mines regulations, 1984 as per Attachment-1. Requires 230V**,** phase to phase, 50Hz AC power supply from rig gen-sets to electrical power supply of the rig which

shall be converted to 110V AC for derrick and carrier illumination. The lighting shall be provided with minimum 2 independent circuits along-with suitable flame proof & weather proof well glass fittings, FLP junction boxes, FLP double compression glands and FLP plug socket for each light fittings suitable for screw type CFL / LED lamps shall be provided for derrick and carrier illumination. One no of red aviation light fitting with LED lamp (flickering type) shall be provided at crown block. These lamps are to be supplied separately packed & to be fitted during commissioning. The flexible Cable used for connecting the light fittings shall be EPR (Ethylene Propylene Rubber) insulated, and HOFR (Heat Resistant, Oil Resistant and Fire Retardant), CSP (Chloro Sulphonated Polyethylene) sheathed screened 3 Core Copper conductor Cables.

The fittings/system shall be suitable for hazardous area application as per classification of hazardous area in Oil Mines under Regulation 74 of the Oil Mines Regulations, 1984.(Extract of hazardous area and relevant regulations enclosed at Attachment-I)

(C) Lightening Arrester cum Safety conductor from top of the Rig Mast to the earth to be provided taking into account the flexibility required during Mast lowering &Raising during Rig moves.

(D) Suitable provision must be provided on either side of Rig Trailer, Mast & Structure, Brine Tanks, Catwalk, Pipe Racks and Control panels for earthing.

(2) **MOTORS** – Details of motors required are given in the two Annexure – "Annexure Electrical Scope", and "Annexure – Motor Specifications"(Annexure -IIA & IIB). All motors to be FLP enclosure, and DGMS approved. Copies of such approvals shall have to be provided to Oil India along with supply and categorical confirmation is required in the bid, failing which offer shall not be accepted.

(3) DRAWINGS: Bidder shall prepare and submit the following drawings along with the bid:

I) A single line diagram (SLD) clearly indicating the following:
   a. All generators, along with respective rating (kVA / kW), voltage, frequency
   b. All equipment driven by electrical motors, as well as the respective loads in kW / kVA as appropriate.
   c. All transformers utilized in the rig, along with the kVA rating of each
   d. All lighting circuits

II) A geographical layout diagram drawn to scale, showing the position of all electrical equipment deployed in the rig.

III) A schematic drawing of the Generator and Power distribution panel (PDP).

(4) SPECIAL REQUIREMENTS

The following minimum special requirements shall be fulfilled in the electrical system of the Rig:

(a) **Related to CEA** (Measures relating to safety and electric Supply) Regulations, 2010:

I) Regulation 37 (iii) (a) – The design shall provide a clear working space of at least one metre in front of all control panels and switch-boards.

II) Regulation 100 - Bidder shall design, install and commission an "Earth fault current limiting system", employing a restricted neutral system of power supply, to limit system earth fault current to 750 milliamperes. A suitable monitoring system for this system is also to be installed.

III) Regulation 102 (ii) - All lighting at hazardous areas shall be through 230 V (Phase to phase), with the neutral or mid-point connected to earth.

IV) Regulation 102 (ii) (b) (iv) – All remote control starters for motors and other devices located in hazardous areas shall be designed with intrinsically safe circuits (Ex-i type)

(b) **Related to DGMS / OISD / Statutory inspection bodies**:

I) **Electrical Equipment** used in hazardous areas should have DGMS approval. If DGMS approval is not available, the layout has to ensure that such unapproved equipment is placed outside the hazardous areas.

II) **Cables** used in hazardous areas – All cables used to supply power to hazardous areas should be approved for use in such areas by DGMS. All such cables should have copper conductors, four cores, and shielded. The cables shall be EPR insulated and HOFR/CSP sheathed.

III) **Cable Glands:** All cable glands shall be of FLP, double compression type, suitable for the type of equipment it is fitted on.

IV) **Plug Sockets –** All plug sockets for use in non-hazardous areas shall be similar to BCH make type DS plug sockets. For hazardous areas, Appleton make Explosion proof plug sockets shall be used.

(c) **Related to OMR 1984**

I) Rule 67 (3) – No naked light or open flame or spark shall be permitted within 30 metres of any well or any place where petroleum is stored – The generator, PDP and bunk houses shall be placed outside this distance. Cable lengths and cable trays shall be calculated accordingly.

(5) OTHER REQUIREMENTS

(a) Supply of electrical items shall include the following

I) **Cables** – All cables required in the system shall be in the scope of supplier. Cable Terminations shall also be within the supply scope.

II) **Earthing electrodes** – minimum length of 1.5 m, GI pipes with at least 3" diameter, with perforations along the length. Quantity to be as per geographical layout.

III) **Push-button Stations (PBS),** equipped with intrinsically safe circuits, to start and stop motors. Each motor shall have its own, dedicated PBS.

IV) **Cable Trays –** Short height cable trays to protect cables coming out from Power distribution panel to the different usage points. The exact requirement of cable trays to be decided after studying the geographical layout of equipment of the rig.

V) **Lights –** A complete lighting system, with lighting supply transformer (415/230VAC, 3 phase) of adequate kVA rating, FLP light fittings (DGMS approved) with CFL / MV lamps of adequate rating for hazardous areas, and area light fittings (including 10 foot high pedestals) with lamps and control gear for non hazardous areas. A dual fitting, red colour aviation warning lamp (LED type, constant glow) shall also be provided along with the above system for fitting on the mast as and when required. The lighting system should provide illumination in the following areas:
Mast and working area, Mud and fluid preparation / storage area, Bunk houses, Generator and PDP houses,

SECTION F1

(1)

A. INSPECTION / Testing of equipment at manufacturing stage:

Inspection shall be carried by any one of the OIL's approved **third party inspection** agencies viz. Lloyds/ BV/DNV/RITES/IRS as per requirements of various codes and standard mentioned in the supply order.

All equipment of rig shall be tested as per standard test procedure of Rig manufacturer and equipment manufacturers and as per relevant API codes.

Testing of mast shall be carried out as per API 4F. Testing of rig and systems after final assembly of all rig modules, including carrier, substructure, mast, mud pump, Gensets etc. after hooking up of the pneumatic & hydraulic lines between modules. Disassembly of rig package after testing packing.
Test certificates of equipment manufacturer for equipments & certificate of testing of rig after final assembly shall be submitted duly approved by TPI. Broad Scope of Third Party Inspection for Rig and Equipments shall be as under:-

(i) Inspection of rig (s) and equipments shall be carried out as per standard test procedures of rig / equipment manufacturing and as per relevant codes, components, as per requirement of API Q1 and relevant API Code.

(ii) Review/approval of QA plan and manufacturing program indicating various stages of inspection on receipt from manufacturer.

(iii) Upon approval of QA plan, manufacturer shall intimate readiness for inspection in stages to inspecting agency giving sufficient advance notice for deputing their inspectors.

(iv) Carry out all necessary NDT, Visual, Dimensional, Functional checks/ tests as per
QA approved plan including chemical and physical checks for raw material.

(v) Review/verification of material test certificate, QC documentations, material traceability records etc. by inspecting agency on receipt from manufacturer.

(vi) Visual inspection of various assemblies and sub-assemblies as per the specifications given in purchase order.

(vii) Inspection for proper workmanship of various welding jobs and mountings.

(viii) Witness final testing/ performance testing of equipment by inspecting agencyas per approved QA plan**.**

(ix) To witness load test of mast to rated hook load capacity for 100 MT for 100 MT
Rig at manufacturer premises for each rig and the load test certificate at specified load is to be submitted with the rig. During the test all assemblies, sub-assemblies are to be monitored for proper functioning.

(x) Inspection shall also be carried out for all items of each individual rig package and the inspection certificate is to be issued.

(xi) Issue of TPI certificate.

Note : Bidders will quote Third Party Inspection charges separately in priced bid only .

B. PRE-DESPATCH INSPECTION & TRAINING

On satisfactory clearance of TPI (Third Party Inspection), pre-despatch inspection call to be given to OIL. Complete rig along with engine package should be offered for inspection & functional testing to OIL by the supplier at manufacturer's premises at least 75 days prior to dispatch. The rig will be offered in fully assembled condition with all accessories fitted and ready for function testing.

A multidisciplinary team comprising of 7-8 engineers of OIL will visit to the supplier's premises / manufacturing plant for inspection of complete rig package & functional testing of equipments prior to despatch.

To & Fro travelling expenses from Duliajan, Assam, India with boarding, lodging & food expenses of OIL's engineers will be to OIL's account. Cost related to inspection to be borne by the Supplier.

The Inspection cum Acceptance process would include but not limited to the following minimum steps/tasks -

a) Physical verification / inspection of all the items / fittings / accessories including Parts Catalogue, Maintenance & Service Manuals, Schematics, all tools under complete tool kit as well as other tools, all spares as per the Spare Parts List for engine etc.

b) Any modification requirement arising out of design aspect consideration (on the part of the supplier) shall be in the scope of the supplier at no extra cost to OIL.

c) The minutes of inspection process would be prepared at the end of the inspection and jointly signed by both the parties.

d) Supplier shall confirm in writing compliance of all the points raised in the minutes of inspection as well as any other subsequent additions/changes, following deliberation with the inspector after arrival at Duliajan.

e) Any other testing / joint inspection indicated elsewhere in this tender.

The supplier should arrange comprehensive training programme **immediately after the pre-dispatch inspection** for the multidisciplinary team of OIL engineers at their manufacturing plant / works for a period of 1 (one) week on Maintenance, Troubleshooting & Working Principle of equipments, systems, items etc of the unit amongst other relevant subjects. The training on Engine, transmission and other major items is to be arranged by the supplier but imparted by respective OEM's.

Similarly, a separate hand on training on maintenance at supplier's manufacturing plant / works should be arranged for a multidisciplinary team of 4-5 technicians from OIL following the training of the engineers [Bidder should indicate separate training module with duration for engineer & technician in technical bid. To & Fro travelling expenses from Duliajan, Assam, India with boarding, lodging & food expenses during training will be on OIL's account. Cost related to imparting of training will be borne by the Supplier and will be indicated separately for engineers and technicians].

A broad guideline of training module for engineer is as follows:

For Transport Engineer:

I. Power assisted steering system including hydraulic pump and gearbox.
II. Pneumatic system for brake & gear shifter (of the carrier) including different valves.
III. Axle, brake & suspension systems.

For Equipment Maintenance Engineer:

I. The operation, maintenance, trouble shooting& rectification related to Engine, Allison transmission, Generating Set [if any], Screw Air Compressor etc.
II. Hydraulic system
III. Pneumatic system
IV. Draw-works, Rotary Table, Rotary Swivel & other major rig equipment maintenance

For Electrical Engineer:

I. Generating sets
II. Power Control
III. Power distribution

For Instrumentation Engineer:

I. Training on instrumentation & control system of IC engines
II. Driller's Console & Electronic sensors for monitoring drilling parameters
III. Allison Transmission system

For Drilling Engineer

I. Draw-works (with maintenance procedures)
II. Hydraulic system
III. Mast & controls
IV. Raising & lowering of Mast, Assembling & disassembling of Mast & Sub-structure, Assembling & disassembling of Mast from carrier and packaging & un-packaging of Mast & Sub-structure for transportation purpose.

(2) MANUALS & CATALOGUES

The successful bidder shall also provide documented training modules as well as video & CD presentation of their equipment for operation & maintenance.

5 sets (hard copies) of Operation & maintenance, repair/ overhaul manuals, part books, P&ID,s / Drawings of all rig equipments, sub-assemblies, components, instrumentation, hydraulic, air, electric, lighting, power flow systems, mast, substructure, rig carrier and its components like **steering system with pumps**, **carrier transmission system with prop shafts**, **gear shifter valves front axles**, **drive axles, differentials, suspension system, brakes system with shifters, valves & diaphragms**, **wheel rims, tyres, wheel studs,** power flow and other systems, valves, manifolds, hydraulic pumps, mud pump, generator, drillers console, crown-o-matic / flooromatic devices, air compressors, hydraulic catwork, BOP handling system, monkey board, hydraulic winch, pneumatic control valves, hydraulic control valves, tubing tongs, pneumatic slips, clutches, rotary drive system,

PTO, rotary table, swivel, pumps and motors, engines, transmissions, generators, light fittings, glands, tanks, bunk houses, hoses, couplings etc **in English** for each rig shall be supplied.

The bidder in addition to above shall also supply do's and don't for critical operations like carrier roading, carrier placing, mast raising & extending, engine and pumps start-up and shut down, tripping etc along with operation procedure from starting engine up-to doing various jobs as above.
Besides above sets of hard copies of all above manuals & drawings etc., the same are to be loaded on 2 sets of CD's per rig, and to be provided.
Welding procedure for mast, substructure shall be provided.

(3) Commissioning, on site performance demonstration / testing:
The Rig along with equipments to be Installed & Commissioned by the supplier within 45 days of notice intimation at Location (designated site) on completing total assembling and installation of the rigs (with its all ordered equipments) in presence of authorized representatives of OIL at that location.

The performance demonstration / testing of total rig system which shall be conducted at OIL's designated well site after complete assembling of all components. The performance demonstration / testing shall be conducted for 72 hrs continuously establishing trouble free operation of the rig and to be duly certified by the authorized representatives of OIL.

For the purpose of performance demonstration of systems running occasionally, the functional testing for two to three days shall be demonstrated to assure that all equipment / components of the assembled rig are functioning satisfactorily.

Bidder to indicate cost of commissioning in their offer.

SECTION G1

(1) Painting schedule: suitable for corrosive and saline environment

Blast cleaning of all accessible surfaces to SA 2.5 standard. At least (3 coats) polyurethane paint after applying primer. Under Coating with Anti Corrosive Treatment for cement & rust.

The colour shade should be as under.
MAST – WHITE
Draw Works – Orange
Carrier Chassis - Orange
Substructure - Black
Brine Tanks – Grey
Bunkhouses: - White
Crown, Travelling Blocks, Swivel, Racking Board & Rotary Table – Red
All working floors & walkways shall be painted with anti skid paint suitable for corrosive coastal field atmosphere.

NOTE

1) **Approximate external transportation dimensions are 9m length, 2.5m width and 2.8m height** (with skid beam).

2) Spare Parts

a) Bidder shall confirm in offer that supply of spares for the offered model is guaranteed for minimum of 10 years after supply.
b) Two years running spares for various major components of the unit including the carrier to be quoted by the bidder.
c) Bidder shall also quote instrumentation & electronic spares for two years of operation.
(b) and (c) above will not be considered for bid evaluation purpose.

3) Name Plate:

The name plate with the following details should be engraved/embossed on the equipment body as per clause 11.5 of API 16D :

a) Manufacturers name or mark
b) API monogram including API license number
c) Model name and number
d) Date of Manufacture
e) Weight of the equipment/component
f) Any other important/safety information

4) Documentation:

The vendor should provide the Operation, Maintenance/repair manual illustrating/indicating all parts by exploded part/assembly view – 3 sets as per clause 12.4of API 16 D along with performance test and material test reports with certificates etc.

5) Wherever API 4E, 4F, 6A, 7, 7F, 7K, 8A, 8C, 9A, 16A, 16C etc. are mentioned, it is to be read with their corresponding API Q1 certificate and the items/equipments shall be API monogrammed.

6) Any item / equipment / accessory not included but necessary for efficient Control and operation of the system shall be provided and indicated by the bidder in the bid.

7) Sample copy of Sale letter (Form 21) and Pollution Compliance Certificate (Form 22A) are attached for registration of the carrier as per Indian regulations.

8) Supplier shall provide separately cost of the carrier for facilitating registration of the vehicle with Indian registering authority.

Notwithstanding any clause mentioned elsewhere in the tender , the invoice for CARRIER WITH ENGINE & TRANSMISSION shall be submitted separately ,i.e. the same (invoice) shall include the cost of the chassis frame and all assemblies/components that are required for road movement of the unit only and the driver's cabin.

9)The motors, starters and the cable glands should be suitable for use in hazardous areas and duly certified by CMRI and approved by DGMS for Zone I and Gas group IIA & IIB of Oil Mines.The bidder shall submit copies of CMRI certificates & DGMS approvals for all the flameproof electric motors, starters and cable glands along with the supply.

10) GENERAL NOTES (In addition to notes mentioned elsewhere in this tender.)

(a) The offered Mobile Rig shall be brand new, unused, of recent manufacture, and free from any manufacturing defect. This shall be categorically stated by the bidders in their quotations.

(b) Any deviation(s) from the tender specification should be clearly highlighted specifying justification in support of deviation.

(c) Offers shall be complete in all respects and all the items/equipment as specified in the tender must be included in the package. Offers deemed to be incomplete shall be liable for outright rejection. (Bidders may quote additional items / equipment or accessories not covered in this enquiry, if felt necessary for the completeness and efficient operation of the rig package).

(d) The Bidder shall categorically confirm that the compatibility of all equipment offered has been thoroughly scrutinized and verified for smooth and trouble-free operation of the entire package to avoid unwarranted hitches during commissioning.

(e) Quotations shall be accompanied by detailed technical specifications, manufacturer's printed specification sheets, literature, drawings, layout drawings & catalogues as indicated.

(f) Bidders should specifically note the document submission schedule indicated elsewhere (i.e. in sections) including special documents requiring statutory clearances.

(g) All equipment to be supplied with the Rig Package shall be in full conformance to and monogrammed per the respective API Specification as mentioned in the tender viz. API Spec 4F, API Spec 5L, API Spec 7, API Spec 7-1, API Spec 7F, API Spec 7K, API Spec 8C, API Spec 9A, API RP 500 & API RP 13E, etc.

(h) Bidders shall confirm categorically that Installation & Commissioning of the Rig Package with all accessories would be carried out by their competent personnel at OIL's designated drill site, in Duliajan, ASSAM, INDIA.

(i) Bidders, quoting for any bought out items should undertake and comply with Guarantee/Warranty clause indicated elsewhere in this tender.

(j) Bidder is to confirm to provide the cost of the rig package broken down to major components like Carrier , Mast , Engine , Drawworks , Transmission etc. within 30 days of placement of order. The indicative list of major items is attached as Annexure – V.

Bidder should confirm in their technical bid that they will provide services on call out basis after the normal warranty & guarantee (as stated elsewhere in this tender) for a period not less than 3 years. The charges for such call out services should be indicated in the commercial bid but will not be considered in evaluation of the tenders.

SECTION H1

TECHNICAL CHECK LIST FOR ENGINE ANNEXURE-IA

Part ITECHNICAL

The following check list must be completed and returned with the offer. Please ensure that all these points are covered in your offer. These will ensure that your offer is properly evaluated. Please indicate details or Yes / No. as applicable to the following question, in the right hand column.

Sl. No.	PARAMETERS/REQUIREMENTS	BIDDER'S OFFER (To indicate details or yes/no, as applicable)	REMARKS, IF ANY
1	Whether quoted as OEM / Authorized dealer of OEM? Whether documentary evidences submitted?		
2	Whether separately highlighted deviation from the technical specification?		
3	Whether a detailed specification of Engine as per NIT specifications with manufacturer's technical literature / catalogue enclosed?		
4	Whether the offered engine is compatible to be fitted with offered Allison transmission as per NIT specifications?		
5	Whether test certificate of the engine will be submitted?		
6	Whether CMRI (India) certificate or equivalent certificate and DGMS (India) or equivalent certificate from competent authority from the country of origin for Electrical motor & Charging system of the Engine will be provided?		
7	Make & Model of Engine		
8	Make & Model of Air Compressor [Primary & Auxiliary both]		
9	Make & Model of Steering pump		
10	Make & Model of Air Shut off Device		
11	Have you met all BEC / BRC clauses?		

Part IIDOCUMENTATIONS

Sl. No.	DESCRIPTIONS	DOCUMENT ENCLOSED Yes or No	REMARKS, IF ANY
1	Whether Maintenance & Operators Manual, Engine built up records, Parts list of engine in soft as well as hard copy provided?		
2	Whether documents of Lubrication, fuel, hydraulic & electrical system of the engine provided?		
3	Whether documents of Performance rating curves of the engine provided?		
4	Whether documents of Specific fuel consumption of the engine provided?		
5	Whether documents of Emission norms of the engine provided?		
6	Whether documents of Heat load calculation of the engine provided		
7	Whether sketch / drawing for steering pump drive provided?		
8	Whether drawing of dimensional layout diagram with foot print of the engine offered?		

Offer Ref .....dated: .....
OIL's Tender No. .....
Signature _____
Name _____

Designation _____
Date _____

LIST OF TOOLS **Annexure- IB**

Sr. No.	Description of Item	Qty
1.	Open Jaw Double Ended Spanner set in Metric & Inch-12P/C per each set.	01 Set
2.	Double Ended Ring Spanner [deep offset hexagon ring] set in Metric & Inch-12P/C per each set.	01 Set
3.	Heavy duty Double Hexagon Standard Socket compatible for ½" Sq. Drive in Metric & Inch -8mm to 36mm [1/4" to 1 3/8"] per each set.	01 Set
4.	Reversible [quick release] Ratchet compatible for ½" Sq. Drive- overall length 250mm-01per set.	01 Set
5.	Sliding T-Bar compatible for ½" Sq. Drive-01per set.	01 Set
6.	Extension Bar compatible for ½" Sq. Drive- overall length 75mm-01per set.	01 Set
7.	Extension Bar compatible for ½" Sq. Drive- overall length 125mm-01per set.	01 Set
8.	Extension Bar compatible for ½" Sq. Drive- overall length 250mm-01per set.	01 Set
9.	Universal Joint compatible for ½" Sq. Drive- overall length 78mm-01per set.	01 Set
10.	L- Handle compatible for ½" Sq. Drive- overall length 250mm-01per set.	01 Set
11.	Adapter ¾" F X ½" M; 01per set.	01 Set
12.	Adapter ½" F X ¾" M; 01per set.	01 Set
13.	Universal Socket Wrench ½"; 01per set; [universal joint ½"].	01 Set
14.	Screw Driver Standard Blade, Cushion grip- 8mm X 250mm- 01per set.	01 Set
15.	Screw Driver 9 Tips with handle, Cushion grip- 01per set.	01 Set
16.	Adjustable Spanner- 200mm [8"]- 01per set.	01 Set
17.	Adjustable Spanner- 300mm [8"]- 01per set.	01 Set
18.	Allen Key Set-Long- Metric & Inch- 1.5mm to 12mm [12nos] & 1/16" to ½" [12nos] - 01per set.	01 Set
19.	Combination Pliers- 200mm [8"]- 01per set.	01 Set
20.	Long Nose Plier- 150mm-01per set.	01 Set
21.	Circlip Plier-Straight Tip [internal Circlip puller]-Length 175mm [7"]- 01per set.	01 Set
22.	Circlip Plier-Bent Tip [external Circlip puller]-Length 175mm [7"]- 01per set.	01 Set
23.	Center Punch-Forged tool Steel hardened & tampered – 6mm X 100mm [1/4" X 4"]- 01 per set.	01 Set
24.	Ball Pen Hammer- Head length 355mm [14"]- 16 OZ- 01 per set.	01 Set
25.	Soft Face [Polymer] Hammer- Head Ø25mm- 01 per set.	01 Set
26.	Feeler Gauge- 25 Blades-300mm Long in Metric & Inch- 01 each per set; Make: Freeman.	01 Set
27.	Measuring Tape- 5Mtrs metallic-Auto retractable- 01 per set; Make: Freeman.	01 Set
28.	Tin snips- Drop forged carbon steel, hardened & tempered-Size 300mm [12"]- 01 each per set.	01 Set
29.	Thread Gauge- BSW, Metric, UNC, UNF-01 each per set.	01 Set
30.	Caliper- Inside & Outside- 150mm [6"]- 01 each per set.	01 Set
31.	Screw Extractor Set-Hexagonal Head- 3mm to 18mm [1/8" to ¾"]; - 01 per set.	01 Set
32.	Spirit Level-ABS Plastic-3vials [horizontal, plumb & 45º] - 01 per set.	01 Set
33.	Cold Chisel-Forged Chrome-Vanadium steel, hardened, quenched & tempered-12mm X 150mm & 25mm X 150mm – 01each per set.	01 Set
34.	Liner Puller	01 Set
35.	Piston Insert tool	01 Set
36.	Piston ring expander	01 Set
37.	Injector puller	01 Set
38.	Timing adjustment tool	01 Set
39.	Bearing puller for fan shaft	01 Set

Note: A . Item 1 to 33 - All the tools should be Snap On make except otherwise specified and must be supplied in a heavy duty 3/5 tray metal box with handles & locking arrangement.
B. Item 34 to 39 - These tools must be supplied in proper tool box. Specific description, part nos., make, etc. shall clearly be indicated in the bid.

Annexure – IIA Motor Specifications

Motor specifications (for Flameproof motors)

Motor:		Squirrel cage Induction Motor, horizontal foot mounted with bi-directional cooling fan at NDE
Rated voltage:		415 V, 3 phase, Delta connected, all six terminals available at Connection box
HP/KW	:	As applicable
Frequency	:	50 Hz
Speed	:	1500 RPM (synchronous), **unless otherwise noted**.
Insulation class:		Class F, temperature rise limited to class B
Protection	:	IP 55 Minimum
Frame size	:	As applicable
Standards:		IS 2148/IEC 60079 (latest amendment / issue) and IS 325 (latest amendment / issue)
Connection	:	i) Delta for mud/ water agitators/ pill chamber motors ii) 100 HP motors for Desander, Desilter, Mud loading (mud mixers), superchargers and multi-stage pumps shall be provided with 6 (six) nos. of terminal studs inside the terminal box for star/delta starting
Rating	:	Continuously rated (S1)
Painting	:	Epoxy DA grey
Terminal box:		Suitable for use in oil and gas mines (NOT FOR UNDER GROUND COAL MINES) fitted with double compression FLP cable glands. Glands shall be supplied with the motor.
Earthing:		1 (one) no. inside terminal box and 2 (two) nos. on the body of the Motor
DGMS Approval:		A metal plate embossed with CMRI certificate no., DGMS approval no. and DGMS logo shall be riveted on the motor body.
Guarantee:		The motors would be guaranteed (Besides manufacturer's standard guarantee) for a period of one year from the date of commissioning. Any repair/ replacement during the guarantee period will be done free of cost by the supplier including to and fro transportation from OIL site.
Make :		M/s Bharat Bijlee/Crompton Greaves/Kirloskar/Marathon/LHP/ Siemens

[For mud agitators, frame sizes of the motors are MJ 130 for M/s Bharat Bijlee, India or E 132 M for M/S Crompton Greaves, India.

For 100 HP motors, the frame sizes are Type MJ 3284-4 of M/s Bharat Bijlee make or E 280M for M/s Crompton Greaves, India.]

ALL MOTORS, PBS'S AND CABLE GLANDS SHALL BE APPROVED BY DGMS (INDIA) FOR OPERATION IN HAZARDOUS AREA ZONE 1 AND ZONE 2, GAS GROUPS II A AND IIB OF OIL MINES.

A metal plate embossed with CMRI certificate No., DGMS approval No. and DGMS logo shall be riveted on the motor body/ PBS body at a conspicuous place.

Annexure –IIB Electrical- Additional

THE FOLLOWING ADDITIONAL POINTS REGARDING THE ELECTRICALS ARE TO BE NOTED AND COMPLIED WITH BY THE BIDDER:

1. All motors including PBS shall be supplied by the bidder.
2. Fully removable type canopy for all motors (covering motor and terminal box) shall be provided. PBS's are also to be provided with canopies. Canopy material should be minimum 1/8" (3 mm) thick good quality MS, painted DA grey.
3. Double earthing of all motors and PBS shall be in the scope of the supplier in accordance to Indian Electricity Rules, 1956 with latest amendments as applicable.
4. Tank to tank earth loops shall be in the scope of supplier.
5. GI earth strap joints shall be done with GI nuts, bolts and flat/spring washers (2 nos. minimum at each joint).
6. All motors and PBS are to be provided with suitably sized FLP double compression cable glands, approved by DGMS (India). The unused cable entry holes are to be plugged by FLP stopping plugs. Cable glands shall be suitable for entry of suitable capacity EPR insulated, CSP sheathed, screened, multi-strand Copper cables in use at present by OIL.
7. Galvanization of the earthing straps, fasteners and washers shall be as per IS: 2629- 1985, IS: 5358 and IS:1573 respectively (with latest amendments as applicable).
8. Mud agitators, water agitators and pill chamber motors (i.e. motors mounted on tanks) shall be longitudinally aligned (along the length of the tank) and nearer to the centre of the tank as far as possible to avoid collision with tree branches during transportation.
9. Cables for agitator motors are to be routed above the tank grating (flooring) with channels for protection against mechanical damage. Channels shall be permanently fixed to the flooring. Clamps can be provided on the channels to secure the cables.
10. PBS's for desander and desilter motors shall be provided near the mud attendant's cabin. PBS's for all other motors shall be local to the motor.
11. All sides of the tanks (excluding the sides with cable trays for the suction, intermediate and shaker tanks) shall be provided with suitable hangers/ hooks for supporting of cables, width 300 mm and placed 1000 mm apart.
12. All cable trays (if forming part of supply) are to be arranged in such a manner that operation of valves, gates etc. for super chargers, desanders, desilters, mud mixer lines are not hindered.
13. Gaps / holes (approx. 4" diameter) in the cable trays (if forming part of supply) or between the cable tray and tank side shall be provided near the location of PBS's which are mounted close to the front side of the tanks (facing the cellar side) for ease of entry/exit of plug connectors for PBSs.
14. Lighting posts for mud tank lighting shall be of such height that when suspended, a well-glass type light fitting is at a height of 2.5 m from the tank floor grating. Lighting posts shall be provided with sturdy double mounting hooks for suspension of 2 (two) light fittings.
15. AC motors terminal box should preferably be on right hand side, looking from the shaft (driving) end of the motor. So all fabrication job should be made accordingly.

Annexure –IIC ELECTRICAL – Statutory / DGMS guidelines

(This annexure is for information and guidance of bidders for taking note against the specific equipment.)

DEMARCATION OF HAZARDOUS AREAS

A. Drilling and Work-over Operations :

(1) Well-head area :

(a) When the derrick is not enclosed and the substructure is open to ventilation, the area in all directions from the base of rotary table extending up to 3.0 m shall be Zone 2 hazardous area. Any cellars, trenches and pits below the ground level shall be Zone 1 hazardous area; the area lying up to 3.0 m in horizontal direction from the edge of any cellars, trenches or pits and 0.5 m vertically above the cellars, trenches or pits shall be Zone 2 hazardous area.

(b) When the derrick floor and substructure are enclosed, the enclosed substructure below the derrick floor, including cellars, pits or sumps below the ground level, shall be Zone 1 hazardous area; the enclosed area above the derrick floor shall be Zone 2 hazardous area.

(2) Mud Tank and Channel :

The free space above the level of mud in tank and channel shall be Zone 1 hazardous area; the area in a radius of 3.0 m in all directions from the edge of mud tank and channel shall be Zone 2 hazardous area.

(3) Shale Shaker:

(a) The area within a radius of 1.5 m in all directions from the shale shaker to open air shall be Zone 1 hazardous area. The area beyond 1.5 m and up to 3 m in all directions from the shale shaker shall be Zone 2 hazardous area.

(b) When the shale shaker is located in an enclosure, the enclosed area shall be Zone 1 hazardous area to the extent of the enclosure. The area outside the shale shaker and up to 1.5 m in all directions from the shale shaker shall be Zone 2 hazardous area.

(4) Degasser :

The area within a radius of 1.5 m from the open end of the vent extending in all directions shall be Zone 1; the area beyond 1.5 m and up to 3 m in all directions from the open end of vent shall be Zone 2 hazardous area.

(5) Desander and Desilter :

The area within a radius of 1.5 m in all directions from the desander and desilter located in open air shall be Zone 2 hazardous area.

(6) Pump or Gas Compressors :

(a) Where a pump handling a flammable liquid or a gas compressor is located in open air or under well ventilated shed without walls, the area lying up to 3m in all directions from the pump or compressor shall be Zone 2 hazardous area

(b) Where a pump or compressor is located in an adequately ventilated building, the entire interior of such building including an area within 1.5 m of the vent shall be Zone 2 hazardous area.

(c) Pits, sumps, trenches below the ground level shall be Zone 1 hazardous area and the area lying up to 3.0 m in horizontal direction from the edge of any trench or pit and 0.5 m vertically above the pits, sumps or trenches shall be Zone 2 hazardous area.

(7) Storage Tanks :

(a) In case of floating roof tank, the space above the floating roof and inside the enclosure up to top level of the enclosure wall shall be Zone 1 hazardous area; the area beyond Zone 1 hazardous area and up to a radius of 4.5 m in all directions from tank shell and shell top shall be Zone 2 hazardous area. In case of a dyke, Zone 2 hazardous area shall extend vertically up to the height of the dyke and horizontally up to the physical boundary of the dyke.

(b) In case of fixed roof tank, the area inside the tank and within a radius of 1.5 m from all openings including breather valve, dip hatch, thief latch and safety valve shall be Zone 1 hazardous area; the area beyond Zone 1 hazardous area and up to a radius of 3 m in all directions from shell and roof of the tank shall be Zone 2 hazardous area. In case of a dyke, the sump in the dyke shall be Zone 1 hazardous area and an area extending vertically up to a height of the dyke and horizontally up to the physical boundary of the dyke shall be Zone 2 hazardous area.

B. Use of flexible cables in drilling rigs and in other similar equipments in Oil Mines (Extract)

(a) The flexible cables used to connect 3 phase electrical equipments shall be EPR (Ethylene Propylene Rubber [IE-2]) insulated and HOFR (heat resisting, oil resisting & flame retardant) Elastomeric CSP (Chloro-Sulphonated Polyethylene) sheathed, either individually or collectively copper screened, 4 core copper conductor cables with fourth core having 50% conductivity of the largest conductor and the combined screen having 50% conductivity of the largest conductor.

(b) The flexible cables used to connect light fittings shall be EPR insulated and HOFR elastomeric CSP sheathed unscreened 3 core copper conductor cables.

Termination of flexible cables with electrical equipments installed in hazardous area shall be through appropriate size of double compression glands and with electrical equipments installed in non-hazardous areas shall be through a readily detachable plug and socket assembly.

C. DGMS Approvals

DGMS approved shall be taken to mean a valid approval from DGMS (India) for the particular equipment being offered. Invalid approvals, approvals pertaining to other equipment, outdated approvals, approvals put up for field trial or renewal, or approvals not particularly for oilfield hazardous areas Zones 1 & 2 and Gas Groups 2A & 2B, shall be taken as not DGMS approved.

Annexure – III MAKE OF RIG ACCESSORIES

Make of rig major rig accessories for supply with rig package should be as per the following options. Bidder should confirm the make of these items in technical bid accordingly.

Sl. No.	Equipment / Accessories	Make / Name of Vendor	API Specification
1.	Mast & Sub-Structure	Any API licensed vendor	4F
2.	Disc Brake	1. Eaton Corporation 2. National Oilwell Varco	-
3.	Draw-works & Rotary Chains	1. Diamond Chain Company 2. Regina CateneCalibrateS.p.A. 3. Rexnord Kette GMBH	7F
4.	Rotary Table	1. American Block Company 2. Bharat Heavy Electricals Ltd 3. DrillmecS.p.A. 4. Hackers Industries 5. National Oilwell Varco	7K
5.	Rotary Swivel	1. American Block Company 2. Bharat Heavy Electricals Ltd 3. National Oilwell Varco 4. Soilmec / Drillmec	8C
6.	Travelling Block & Hook	1. American Block Company 2. Bharat Heavy Electricals Ltd 3. DrillmecS.p.A. 4. National Oilwell Varco	8C
7.	Elevator Links	1. Blohm& Voss GmbH 2. National Oilwell Varco	8C
8.	Dead Line Anchor	1. Dreco Energy Services 2. National Oilwell Varco	8C
9.	Casing / Drilling Line	1. Bridon American Corp. 2. Usha Martin Limited. 3. Wire Rope Corporation of America Inc.	9A
10.	Rotary Hose	1. Dunlop Argentina 2. Phoenix Beattle	7K
11.	Drilling Instruments & Gauges	1. Martin Decker 2. Can Global 3. Wagner 4. Oteco	-
12.	Pneumatic Winch	1. Ingersoll Rand International	-
13.	Hydraulic Cathead	1. National Oilwell Varco	-
14.	Engine	1. Caterpillar	-
15.	Carrier Axles	1. Rockwell 2. Fabco, 3. Dana, 4. Clarke, 5. Meritor, 6. Sisu	
16.	Heavy duty suspension system	1. Hendrickson 2. Neway	
17.	Steering Box	1. Spicer 2. ZF 3. Sheppard 4. Rane 5. TRW	
18.	Steering Pump	1. VICKERS 2. PARKER 3. REXROTH	
19.	Carrier brake valves	1. Bendix 2. Wabco 3. Rexroth	

20.	Pneumatic balloon type Clutches	1. Airflex of Equivalent	
21.	TOOL KIT FOR ENGINE & TRANSMISSION	1. Snap on	
22.	Hydraulic distributor, valve manifold, Hydraulic valves	1. VICKERS, 2. COMMERCIAL HYDRAULICS, 3. BENDIX, 4. EATON, 5. PARKER 6. REXROTH	
23.	Hydraulic winch	1. Pull Master 2. Braden	
24.	Auxiliary Air Compressor	1. IR 2. SULLAIR	
25.	Rig instrumentation	1. MARTIN DECKER	
26.	Electrical Plug Sockets	1. BCH make type DS or equivalent. 2. Appleton for Explosion proof sockets	
27.	Motor- Flameproof	1. M/s Bharat Bijlee 2. Crompton Greaves 3. Kirloskar 4. Marathon 5. LHP 6. Siemens	
28.	Hydraulic Pump	1. PARKER	

(Note: The equipment confirming to API specifications must have the API monogram die stamped on the body)

Annexure – IV SPARE PARTS LIST FOR CARRIER (FOR EACH UNIT)

A. FRONT AXLE-

1.	Wheel stud with nut(s)	1 full set for 2 wheel
2.	Axle Stud with nut	1 full set for 2 wheel
3.	Wheel hub oil seal	1 full set for 4 wheels
4.	Wheel hub bearing	1 full set for 2 wheels
5.	Differential oil seal (if any)	1 full set for all differentials

B. REAR AXLE-

1.	Wheel stud with nut(s)	1 full set for 4 wheel
2.	Axle Stud with nut	1 full set for 4 wheel
3.	Wheel hub oil seal	1 full set for 4 wheels
4.	Wheel hub bearing	1 full set for 2 wheels
5.	Differential oil seal	1 full set for all differentials
6.	Differntial Filter Element(if any)	1 set

C. DRIVE LINE(PROPELLER SHAFT)

1.	UJ Cross(Spider and Bearing)	1 set (for both Front & rear Propeller shaft)
2.	UJ Cross (if any) for steering pump	1 set

D. STEERING-

1.	Steering oil filter element	5 sets
2.	Steering pump Repair kit	2 sets
3.	Steering Box repair kit	2 sets
4.	Steering Power cylinder Repair kit	2 full sets
5.	Tie rod end	2 full sets
6.	Steering pump	1 no
7.	Steering power cylinder	1 no
8.	Power cylinder hose	2 sets
9.	Steering column UJ Cross	2 sets
10.	Pressure relief valve	2 sets
11.	Directinal control valve	2 sets.

E. PNEUMATIC SHIFTER OF STEERING PUMP-

1.	Shifter	1 no
2.	Shifter Repair kit	2 sets.
3.	Actuator for shifter(if any)	1 no
4.	Repair kit for Actuator(if any)	2 sets
5.	Pneumatic Hoses for Shifter system	2 complete set

F. BRAKE & PNEUMATIC CIRCUIT-

1.	Foot Brake Valve repair kit	4 sets
2.	Front wheel Servo repair kit	8 sets(for 8 servo)
3.	Rear Wheel Servo repair kit	8 sets(for 8 servo)
4.	Air Dryer Filter Element	5 nos.
5.	Repair Kit for all pneumatic valves	1 set each
6.	Maxi brake (parking brake)	2 sets.

G. GEAR SHIFTER (THE ONE INSIDE THE DRIVER'S CABIN)

1.	Gear shifter	1 no
2.	Gear shifter repair kit	2 sets
3.	Gear shifter Hoses	2 sets

H. SUSPENSION

1.	U-BOLT	4 nos.
2.	Front shock absorber	4 nos
3.	Rear shock absorber	4 nos
4.	Leaf spring set(front)	2 sets
5.	Walking beam(rear)	2 set

NOTE:-

1. All spares in specified quantity as applicable and indicated above shall be supplied along with the unit.

2. Specific description, part nos, make etc. and Unit Price of each and every item shall clearly be indicated in the bid. Total cost will be considered for bid evaluation purpose.

3. Bidder shall also quote separately for any additional spares with similar details as felt necessary but not covered in this list for future reference/procurement as indicated in the NIT.

Annexure – V - LIST OF MAJOR COMPONENTS OF RIG (FOR EACH UNIT)

	Major Components	Unit Cost
1	Mast & Sub-Structure	
2	Disc Brake *	
3	Draw-works & Rotary Chains	
4	Rotary Table	
5	Rotary Swivel	
6	Travelling Block & Hook	
7	Elevator Links	
8	Dead Line Anchor	
9	Casing / Drilling Line	
10	Rotary Hose	
11	Drilling Instruments & Gauges *	
12	Pneumatic Winch	
13	Hydraulic Cathead	
14	Engine	
15	Carrier Axles	
16	Heavy duty suspension system	
17	Steering Box	
18	Steering Pump	
19	Carrier brake valves	
20	Pneumatic balloon type Clutches	
21	TOOL KIT FOR ENGINE & TRANSMISSION	
22	Hydraulic distributor, valve manifold, Hydraulic valves	
23	Hydraulic winch	
24	Auxiliary Air Compressor	
25	Rig instrumentation *	
26	Electrical Plug Sockets *	
27	Motor- Flameproof *	
28	Hydraulic Pump	

Note : Items indicated with(*) may require DGMS certification to be used under the notified hazardous area of the well site. Any additional item of the rig package as per the specification of the tender requiring such DGMS certification has to be mentioned under the list indicated with price break up.

Attachment-I

THE MINES ACT,1952 ALONGWITH THE OIL MINES REGULATIONS,1984
CHAPTER VIII

A. Use of certain machinery and equipment-

(1) The chief Inspector may, from time to time,, by notification in the official Gazette, specify appliance, equipment, machinery or other material that are or may be used in a mine which shall be of such type, standard and make as approved by the Chief Inspector by a general order and where any such appliance, equipment, machinery or other material has been specified by the Chief Inspector ,no appliance, equipment, machinery or material other than that approved by the as aforesaid shall be used in any mine.

(2) Where in the opinion of the Chief Inspector or Regional Inspector any appliance, equipment, machinery or other material not notified under sub-regulation (i) is likely to endanger life or safety of any person employed in any mine, the Chief Inspector may by an order in the writing prohibit the use of such appliance, equipment, machinery or material in any mine.

B. Classification of hazardous area- After the coming into force of these regulations the areas in the mine shall be classified into different zones according to the degree of probability of the presence of hazardous atmosphere by the Chief Inspector or an Inspector assisted by such assistants and after such investigations as he may consider necessary.

C. Use of electrical equipment in hazardous area-

(1) No electrical appliance, equipment, or machinery including apparatus shall be used in zone “O” hazardous area.

(2) The Chief Inspector may from time to time by notification in the official Gazette specify appliances, equipment and machinery that are or may be used in zone 1 and zone 2 hazardous area which will be of such type, standard & make as approved by the Chief Inspector by a general or special order in writing. Where any such appliances, equipment, or machinery has been specified by the Chief Inspector, any appliances, equipment, or machinery other than that approved by the Chief Inspector as aforesaid shall not be used in such hazardous area.

Attachment-II

SAMPLECOPYOFFORM21&22

A. *Following is a **sample copy similar to FORM21 of Indian Motor Vehicle Act only**. The certificate to be issued by supplier shall contain following minimum information-*

SALECERTIFICATE

Certified that……..(brand name of the vehicle) has been delivered by us to……on……(date).

Name of the buyer……..
Address……

The details of the vehicles areas under-:

1.	Class of vehicle	……
2.	Maker's name & address	……
3.	Chassis is No.	……
4.	Engine No.	……
5.	Horse power or cubic capacity	……
6.	Fuel used	……
7.	Number of cylinders	……
8.	Month and year of manufacture	……
9.	Seating capacity(including driver)	……
10.	Maximum axle weight, number and description of tyres –	
	(a) Front axle	……
	(b) Rear axle/axles	……
	(c) Any other axle	……
11.	Colour (s) of the body	……
12.	Gross vehicle weight	……
13.	Make & Model of crane	……
14.	Maximum SWL	……

Date: …….. **Signature of the manufacturer / dealer**

B. *Following is a **sample copy similar to FORM22(A) of Indian Motor Vehicle Act only**. The certificate to be issued by supplier shall contain following minimum information.-*

CERTIFICATE OFCOMPLIANCEWITHPOLLUTION STANDARDS/SAFETY STANDARDSOFCOMPONENTSAND ROADWORTHINESS

Certified that……(brand name of the vehicle) bearing Chassis number …… and Engine number ……..complies with the……(name of Emission Standard–EuroIII,etc.) Emission standard as well as other Safety & Road Worthiness Standards as per provisions of the…….. (name of Motor Vehicles Act of country of origin).

It is also certified that body of the above vehicle has been fabricated by us and the same complies with the provisions of the ……..(name of Motor Vehicles Act of country of origin).

Signature of Manufacturer

---------X---------

Item No. 2 - Specifications of 125 MT Rig with Mud System, Qty = 1 No.

Single drum servicing and work over rig mounted on a self propelled back in type carrier, fitted with diesel engine, transmissions, draw-works, telescopic mast. The Rig shall also have substructure drilling / handling equipments, hydraulic, pneumatic, lighting systems etc, miscellaneous items / equipment, etc along-with necessary catalogues.

Rig and its equipments shall be suitable for Ambient Temp. 2 degree to 44 degree centigrade, relative humidity 95% maximum & altitude of 100 meter minimum.

Rig engine should be above carrier deck and layout of all rig equipment should be such that there is ease of maintenance.

The detailed specifications are as follows:

Sl No	Section	Description
1	A2	Mast & Substructure
2	B2	Carrier
3	C2	Engine & Transmission
4	D2	Draw-works & other Equipments
5	E2	Electrical System
6	F2	Inspection & Commissioning
7	G2	General Note
8	H2	Annexure & Attachments
9	I2	Mud System & Solid Control System with Power Pack

SECTION – A2

(1) Telescopic Mast in accordance with API 4F with API monogram

(i) Lightweight open faced four legged, two-section Telescoping Mast of efficient design having manufactured & monogrammed as per API Spec 4F, latest edition, with hydraulic mast tilting & extending systems, self actuating stabilizers and automatic locking device to lock the mast into its fully extended operating position; with safety chokes to assure a safe descent rate to protect the mast in the event of failure of the hydraulic system / abrupt loss of hydraulic pressure; an unobstructed line of vision to the crown block.

Mast rest pad complete with supporting frames should be suitably positioned on the carrier for resting the collapsed mast during transportation. The frame should not obstruct the driver's view in any case.

(ii) API rated hook load capacity of minimum 125 MT (136 ton, 275577.8 lb) with 8 line strung and with required wind guy lines and cross guys to racking board, design & construction in accordance with API 4F and API monogrammed. (Guy lines should be complete with heavy duty turn buckles & guy posts). The Minimum Wind Load Capacity of the Mast with full set back should be 80 miles/hr (128 Km/hr) with guy lines.

The guy line anchors should be designed to be placed at a radial distance of minimum 65ft and maximum 85ft distance from the well centre.

(iii) Clear working height (ground to underside of crown frame) – minimum 102 ft.

(iv) (a) Hydraulic mast tilting & extending systems and automatic locking device to lock the mast into its fully extended operating position as per Rig design. The system shall include manually operated bleed valve for removal of entrapped air, built in orifice system/check-choke system shall be provided to assure a safe descent rate to protect the mast in the event of failure of the hydraulic system / abrupt loss of hydraulic pressure.

(b) Audio alarm should be provided when the upper mast is fully raised and locked on the lower mast.

(v) Suitable capacity heavy-duty adjustable jackscrews with lock nuts shall be provided for centering / aligning of mast.

(vi) Automatic locking system shall be provided with additional safety manual lock. This is required after telescoping of mast to full height. This added safety feature is to prevent accidental unlocking of automatic locking system.

(vii) Automatic erecting type racking board designed to eliminate possible interference with wellhead equipments during raising & lowering of mast. Racking board to be of all welded construction be provided with height adjustment having 3 different positions at approx 16Metres, 17.5Metres & 19Metres from top of sub structure to enable stacking ofrange-2 tubing in doubles at sub-structure floor with capacity to rack minimum 16000 feet of 2-7/8" tubing in doubles. Additional pipe raft to be provided if required to stack the required length of pipes. Racking board shall also be suitable for racking of 2-7/8" and 3-1/2" tubing& drill pipes. Racking board shall be provided with folding railing &safety belt.

(viii) a) Racking board shall automatically lower into working position as mast is telescoped up & is raised into folded position as mast is telescoped down. Adjustable fingers are to be arranged for end racking only.

b)The railing of monkey board should get folded in the monkey board itself when the mast is lowered and should get unfolded when mast is raised.

(ix) Single standpipe of 3" size complete with upper tube turn, hammer union on upper end &steel elbow & hammer union at lower end shall be clamped to mast and opposite to operator's side. Working pressure shall be 5000 PSI.

(x) Mast climbing ladder along with suitable fall prevention device for person climbing the ladder, starting not more than 2ft height from the derrick floor up to crown block shall be provided.

(xi) Crown block platform (crown nest of minimum 0.6M width) shall be provided with handrails and entrance from ladder & floor of expanded metal. One suitable zin pole with pulley arrangement for lowering & assembly of fast line Sheaves.

(xii) Two Hydraulic catworks shall be fitted to the mast.

(xiii) Mast shall have an integral 'travelling block cradle' for use to secure travelling block while travelling.

(xiv) The mast shall be designed to withstand wind speed of minimum 80 miles/hr (128 Km/hr) as per Clause6.2.3 of API 4F with full pipe/ setback with all guy ropes properly placed as per standard API pattern.

(xv) External Mast guying shall be provided as per API 4F standard for specified wind velocity and full pipe/ setback. One set of crown & racking board wind guide line complete with wire lines along with thimbles clips, come longs& boomers shall be provided. Also to include internal load lines from crown to carrier

(xvi) Mast shall be painted as per the painting schedule indicated.

(xvii) Raising, lowering, locking & telescoping controls at operators position near base section of mast with clear view during operation.

(xviii) Escape device: DGMS approved Topman Emergency Escape device & Escape line is to be provided. This device is used to allow a worker to easily get to a safe distance on ground away from the work platform (monkey board) on the rig in emergency situation needing evacuation. It shall include wire line, mast anchor & ground anchor. There should be safe & sufficient clear passage at Monkey board for Top Man to the escape device.

(xix) The mast should be designed to ensure lowering and raising of mast with substructure in workover position at its full design height. During this process the substructure shall not obstruct the mast. Substructure shall also not interfere during removing of carrier from site with mast lowered onto it, in travel position.

(xx) The mast shall be provided with a nameplate having full information as required to be provided as per API 4F.

(xxi) Mast accessories: cable racks for guy lines storage on mast side.

(xxii) Spinning line roller guides located in mast for hydraulic catwork system.

(xxiii) One set of 2 counter weights for use with manual tongs installed on lower mast section must include weight buckets, guides, sheaves & wireline from buckets.

(xxiv) One additional sheave to be provided for rigging up Power tong.

(xxv) Diving board to be provided with foldable extension & handrail & toe board.

(xxvi) Hydraulic Cat works-

Hydraulic make up (spinning) cylinder with stroke multiplier, giving minimum 15 ft stroke providing minimum 10000 lbs (4444kg) line pull. Hydraulic break out cylinder to develop a minimum line pull of 20000 lbs with 4 ft stroke. Hydraulic Cat works is to be complete with all fittings, hydraulic controls, turn-back sheaves, wirelines, hoses, rollers, piping to rig hydraulic system & installed on mast. Control for makeup & breakout to be located at Drillers console.

(2) Crown block integral with the mast, monogrammed to API 4F.

(i) Static load capacity - minimum 125 MT (136 ton)
(ii) 5 sheaves with crown block & 1 cat line sheave as per API 8A/8C.
(iii) Integral design shall have 8 numbers of lines to block strung up.
iv) Wire line size 1.1/8" - 500M long 6x19 construction, RH, regular, IWRC as per API 9A
(iv) The sheave bearings shall have provision of lubrication from grease jerks provided at a convenient point.

(3) Sub structure API 4F with API monogram

(i) Sub structure shall be collapsible, pin type, telescoping / parallelogram / swing type.
Bracings on sub structure shall not obstruct handling, placement & removal of 7 1/16" - 3 stack BOP of Hydril / Cameron / Shaffer make.

(ii) (a) Shall provide working floor area(approximately 16'x16') with detachable railings on all sides and with provision to accommodate 17-1/2" rotary table.

(b) The side railings shall have the toe boards welded (plate of 0.15 meter height all around ,at the bottom)

(iii) Collapsible substructure shall have minimum clear working height of 13 ft below rotary beam in workover mode, (However, height should be sufficient enough to accommodate the BOP stack along with riser nipple, considering 2 ft well head height) and the overall height of maximum 9 ft in collapsed condition for transportation.

(iv) Substructure shall be rated for minimum 185 MT (203.9 ton) rotary load, minimum 90 MT (99.2 ton) set back load & minimum 275 MT (303.1 ton) simultaneous load.

(v) Structure floor and folding wings shall be plated with chequered floor plate. Set back area shall be covered with 3" thick wood.

(vi) Base area of substructure shall be plated with 10mm steel plate for improved floatation.

(vii) Suitable hydraulically operated mechanized system for easy and safe installation of Hydril/Shaffer/Cameron BOP of 7-1/16". The system should be easy to maintain and it should be so designed that it can be transported separately as well as can be retracted within the substructure and doesn't interfere in day to day rig operations. There should be safe provision of horizontal and vertical movements of the BOP during mounting and dismounting without much labour.

The substructure to be so designed that while placing against the well head no beam / member to foul with the standard well head. The base of the substructure should have minimum clear area of 2.85 M (length, along the outfit centre line) X 2.25 M (Wide; perpendicular to the outfit centre line).

(viii) Substructure shall be provided with nameplate containing all information required as per API 4F.

(ix) One ladder from sub structure floor to ground off drillers side & one ladder from substructure floor to carrier floor to be provided.

(x) Every open-sided floor or platform 1.8 meters or more above adjacent floor or ground level where any person is allowed to work or pass, be guarded by a standard railing.

(xi) On every derrick or portable mast, where a person has to work, a platform at least 0.60meters wide shall be provided on at least one side of the crown block. The platform shall be equipped on its outer edges with a two-rail railing at least one meter high and toe board of 0.15 meter high.

(xii) Pins / locks required for fitting / removing during unfolding / folding of sub structure should be at safe man height level and easily accessible.

(xiii) An Emergency escape slope from derrick floor to ground level shall be provided for escape of rig floor crew in emergency.

(4) V-door pipe slide:

V-door pipe slide of steel frame, metal plated with minimum 10mm thickness. Pipe -guide from catwalk level to substructure floor level. Slide unpins for transport. The pipe slide including a set of stair with railings from sub structure floor level to ground level and its slope should be such that pipes for 'running in' in singles for latching in elevator can be handled easily to achieve this it is suggested that the distance between centre of Rotary Table to V - Door should be around 3.25 meters, but safety of operating personnel also to be ensured. Provision to be kept for placement of V-door pipe slide both along the outfit (parallel to outfit) and also to be placed perpendicular to the outfit on off-driller side. The placement will be decided during the use of outfit depending on the availability and orientation of the well site plinth area.

One additional V-door Slide to be provided for pulling in and lowering of tools and smaller equipments to the ground from derrick floor. The V- door Slide to be placed on off-driller side of the floor.

(5) Catwalk/pipe racks:
One approx. 4' wide x approx. 3' 6" high x approx. 40' long **in two pieces** catwalk plated with minimum 10mm thickness steel plates along-with hinged pipe racks on each side. One sloping ramp at far end of cat walk with stairs to ground.

Pipe racks are to be placed parallel to the outfit. This will be required to reduce the overall plinth area requirement for the outfit placement.

SECTION B2

(1) Carrier ramps :

Carrier / Rig Ramp as per design – in two pieces, with tyre guides, load beams, jack supports, turnbuckles, mud boat decking of chequered plate, tie up arrangement with sub structure.

(2) Carrier

(i) The carrier shall be robustly built to take the full load with the mast under difficult travelling condition through hilly terrain, cross country, slushy and loose earth roads in the fields. Carrier shall be self propelled, right hand drive (when viewed from the rear)

(ii) The carrier shall be provided with adequate Nos. of Front and Rear axles to take the full load of the unit during stationary and travelling conditions. Individual Load on each axle (all front and rear) shall be within **85%** of Maximum Loading Capacity of the respective axle. i.e. Total Weight (Laden Weight) of the unit with all items including mast shall be within **85%(Eighty Five percent)** of Maximum Permissible Gross Vehicle Weight (i.e. Total Axle Capacity) of the unit.

(iii) Adequate Nos. of heavy duty drive axles and multi-speed transmission to move the unit in difficult road condition. Individual axle loading shall not exceed 12 MT. All drive axles shall have Inter Axle Lock and Differential Lock facilities. Axles shall be any of Rockwell, Fabco, Dana, Clarke, Meritor, Sisu make.

(iv) All steering front axles.

(v) Heavy duty suspension system both in the front and rear. Walking beam type in the rear axles of Hendrickson OR Neway make.

(vi) Right Hand drive hydraulically assisted steering system. Steering wheel shall be on the right hand side of the carrier when viewed from the rear. Turning radius shall be as minimum as possible for negotiating sharp turning in narrow field roads and shall not be more than 20 meters for the carrier fitted with mast. Suitable shifter to engage & disengage the steering pump from the engine to avoid idle running of the pump during rig operation may be provided. It shall be bidder's endeavour to supply the steering box of make Spicer, ZF, Sheppard, Rane, TRW; steering pump of VICKERS, PARKER or REXROTH make.

(vii) Brake system-

(a) Service Brake – Pneumatic Multiple Circuit Foot-operated Power Brake acting on all wheels.

(b) Emergency/Parking Brakes - Automatically engaged Emergency Brake acting on all rear wheels in the event of low air pressure. All Emergency/Parking Brake Servos shall have manual release mechanism (Screw Type) to release the brake manually in case of low / no air pressure for maintenance and towing the unit whenever necessary.

(c) Manual Hand Operated Parking Brake acting on all wheels. All brake valves shall be of Bendix or Wabco or Rexroth make.

(d) Brake actuator shall be of S - cam type.

(viii) Wheels and tyres- The tyres with tubes should be from reputed International manufacturers and specifications should be such that the tyres are easily available in India. Two nos. Front wheels and two nos. Rear wheels shall be provided with each carrier as spare wheels (rims with tyres & tubes). Suitable carrier provision to be provided to carry one front wheel and one rear wheel along with the unit.

(ix) Driver's Cabin

(a) Two man cabin with two rear view mirrors and adjustable seat with shock absorber shall be provided.
(b) Carrier controls for selection of transmission speed, brake and on road application shall be provided inside the carrier cabin.
(c) The cabin shall be equipped with standard instrument panel with indicators, gauges, lighting.

(x) 2(Two) Nos. Stopper Block for rear wheels to be supplied along with the carrier.

(xi) Casing spool space for cut and slip provision to be provided between hydraulic tank and driver cabin. However, manufacturer may locate it in any other convenient location looking into availability of space. Sufficient space should be allowed for maintenance of equipment.

(xii) Carrier shall be equipped with individual control levers installed in the hydraulic valve bank.

(xiii) Two Nos Diesel tank each of 125 gallon (473 litres) capacity made of Aluminium/ stainless with filling cap, lock & key, drain plug etc. Digital fuel tank indicator with guard mounted at the top of the tank and in the control panel.

(xiv) Two standard toolboxes shall be provided on carrier.

(xv) Walkways and stairs- Folding walk ways along side of the unit on & off operator's side extending from rear of unit to engine area including stairway with hand rails from walk way to ground on both sides. Checker plate decking throughout. Suitable locking arrangement shall be provided for the walkways and railings to keep in folded positions to prevent accident during travelling.

(xvi) Detachable Stairs should be provided on both sides of the engine for quick access.

(xvii) Heavy-duty clevis pin type Towing Hooks both at front and rear capable of pulling/ towing the unit from bogged down situation from front as well as rear. (Pin size minimum 25 cm in length and 5.0 cm in diameter).

(xviii) Travelling height: maximum 14' 6" from ground to upper most point on mast in travelling condition.

(xix) Dead line anchor suitably mounted on the Carrier Frame for designed line size with API 8C monogram as applicable. The dead line anchor to be of suitable construction and ensure positive reliable transmission of the deadline load signal to the sensor.

(xx) Transmission shifter with locking arrangement for travelling / operations mode to be provided at convenient operating positions. This is to prevent accidental engagement of travelling transmission in Workover mode.

(xxi) Standard tools for engine, transmission, rotary system hydraulic system, pneumatic system and drawworks shall be provided. (List to be provided along with the technical bid).

(xxii) Ground clearance not less than 25 cm for enabling to move the outfit through uneven culvert and undulating & underfoot conditioned roads in our fields.

(xxiii) Total weight of the carrier with the mast shall not exceed 60 MT as our roads and bridges are rated for 60 MT only.

(xxiv) Overall dimensions of the carrier and rig components shall be as per road transportation regulation of India.

(xxv) Drive testing with full load at all speed/gears for to a maximum of two hours period to be carried out during pre dispatch inspection.

(xxvi) Bidder is to quote for the spares as per list provided vide Annexure-IV cost of which will be considered for bid evaluation purpose.

SECTION C2

(1) Engine on carrier:

(i) 01(one) No. Caterpillar C-18 ACERT fuel efficient electronic diesel engine, turbocharged, after cooled, Inline 6(Six) cylinder, capable of developing minimum 575-600 HP (net) @ 2100 RPM at flywheel end [operating speed range 1800-2200 RPM] under standard atmospheric temperature of 2°C-50°C, altitude not exceeding 150 Mtrs above mean sea level, relative humidity 95% at 35° C.
(ii) The engine should be suitable for continuous duty & capable of developing 10% in excess of its rated output at its rated speed for a period of 1hr in any period of 12 hrs continuous running without undue heating or any other mechanical trouble.
(iii) The engine should be unidirectional i.e. rotation is anti-clockwise when viewed from flywheel end and should conform to BS: 5514 or equivalent or latest.
(iv) Engine shall confirm to minimum EURO-III / BHARAT STAGE-III / TIER-III or equivalent emission norms.

(v) Engine Fault Diagnostic Tools [both software as well as hardware-CAT ET & Laptop] with accessories & also display on the engine panel shall be supplied along with each unit. Bidder shall categorically confirm in the bid that the offered software & hardware is for the particular engine of the truck.

(vi) All the accessories & fittings of engine viz. Radiator, Coolers, Silencer cum Spark Arrestor, Air Compressor, Engine Harness Wirings & accessories etc., must be of OEM supplied with proof of documents. Bidder must confirm in their offer to provide documentary evidence from OEM regarding supply of the above mentioned items at the time of inspection.

(vii) The engine should be equipped with:

a) Heavy duty Air Cleaner with pre-cleaner & Vacuum Indicator.
b) Spark Arrestor cum Silencer covered with heat resistant material & capable of max exhaust back pressure: 75mmHg. Exhaust is diverted to off-operator side with 85dB muffler and spark arrestors.
c) Heavy duty Radiator for Industrial use with Fan, Fan arrangement & low water level indication with alarm. The radiator must be having capacity of at least 20% in excess of total heat rejection of the engine.
d) Pneumatically operated Inlet Air shut off device & Fuel shut off device should be provided with the engine for emergency shut off & designed in such a way that it can be operated from engine as well as Driller's console. Proper drawing of Interconnection between the driller's console & the Air-shut off device to be provided along with the offer.
e) Instrument Panel should have Oil & Fuel pressure gauge, Oil, Water & Exhaust temperature gauge, Electronic Tachometer with R/Hrs meter, Emergency air shut off switch etc. There should be sufficient space for maintenance and repair of the Instrument Panel.

f) Suitable Safety Shut Off system with Alarm for Low lube oil pressure, High water temperature, Engine over speed etc. Bidder must mention the Safety Shut Off system offered for the engine & provide detail information with literature.
g) Air compressor with minimum capacity of 30 CFM (850LPM), @2100 rpm @ 120psi for meeting complete air requirement of the rig package as per rig design with air tank of suitable capacity. It should be suitable for all air control valves, clutches of rig system, rotary slips etc. Air dryer without heating system, mounted before the air receiver with pipe connection, filter-regulator-lubricator & gauges is to be provided.

Suitable capacity air receiver/s mounted on the carrier, size & capacity should be mentioned along with the offer.
Air receiver/s and lines shall be tested as per relevant API standard for any leakage. Test certificate to be provided along with the supply.

All air lines from compressor to tank / tank to supply end must be made out of solid line / hydraulic hose of SAE standard in place of PTFE tube. The bidder must confirm the same in the offer.

h) The critical wiring should be in separate rodent proof conduit with proper marking from other wiring for following:-

1) Engine shutdown signals.
2) Engine Throttle signal from derrick & Cabin.
3) Wiring which activates the special modes of engine like PTO enable, engine de-rate, idle RPM mode etc.
4) Interfacing wiring between engine, transmission and safety system.

Note: Engine Harness wirings must be of OEM supplied.

i) Engine starting system should have independent pneumatic & electric starter with interlock for use of one starter at a time.

2 (two) Nos. maintenance free Heavy duty battery suitable for hazardous area (Please refer extract of hazardous area and relevant regulations enclosed at Attachment-I), complete with cable & connection to be provided in a steel box with wood panelled inside the box. Each engine should have 24 volt battery charging flameproof alternator.

j) **General**

1) Vibration Dampener and guard.
2) Lifting eyes
3) Fumes disposal
4) Crankcase breather
5) Heavy duty servicing hour meter
6) Maintenance tools
7) Standard painting of the engine
8) Engine crank case design should be of shallow pan type.

k) Sound Barriers

The bidder should provide suitable Sound Barrier to reduce the noise of the engine.
The Sound Barrier should be sliding / easy removable type for ease of engine maintenance.
Details about the Sound Barrier with drawing, dimension, material, reduction of engine noise outside the sound barrier etc must be provided along with the offer.

l) Operating Site Condition

The engine should be suitable for operation at the following site condition:

a) Engine site temperature	-	50°C(Max)
b) Engine site temperature	-	2°C (Min)
c) Maximum relative humidity at 21°C	-	100%
d) Maximum relative humidity at 35°C	-	95%
e) Maximum relative humidity at 45°C	-	70%
f) Altitude above sea level	-	150 m.
g) Average annual rainfall	-	343 cms.

m) Tool Kit for Engine & Transmission

01 (one) set of standard tools for each Workover outfit of Snap-on make in heavy duty 3/5 tray metal box with handles & locking arrangement for carrying out normal maintenance of engine as per Annexure –IB (Item No. 1 to 33) to be supplied.

Special tools should be supplied along with the consignment for carrying out engine major overhauling jobs as per enclosed Annexure-IB(Item No. 34 to 39). These tools must be

supplied in proper tool box. Specific description, part nos., make, etc. and unit price of each item shall clearly be indicated in the bid.

Cost of the above tools as per Annexure –IB to be considered for evaluation purpose.

Any other tools necessary for maintenance to be mentioned in the offer.

viii) Spare Parts for CATERPILLAR Engine

Bidder should quote unit price for following spare parts. Item wise price of each spare part with part no should also be provided.

Bidder must mention in their offer the total quantity of each of the following spare part required for running of each engine for 2000hrs.

1) Fuel Filter
2) Lube Oil Filter
3) Air Filter
4) Electric Starter
5) Pneumatic Starter
6) Charging Alternator
7) Fuel Injector
8)Radiator & Alternator Power Transmission Belt Set
9) Lube Oil (ltr.)
10) Coolant (ltr.)
11) Air Compressor Repair Kit
12) Turbocharger Repair Kit

The unit cost of above spare parts will be considered for bid evaluation. However OIL reserves the right to decide the item & quantity of spare parts for procurement along with the main equipment.

ix) **Documentation & Bid Submission**

Bidder's response should clearly be defined. Bidder shall furnish specific details / specifications of all major components, system with make & model etc wherever applicable. Generalized response like- 'As per Tender Specifications/Technical Leaflet', 'Noted', 'Accepted' or in any similar fashion is not encouraged.
It shall be bidder's endeavour to offer the following items as per make & models indicated against each item. However other suitable makes & models are acceptable in case of operational and or design requirements supplemented with proper justification.

1) Steering Pump: Victor, Parker, Rexroth
2) Hydraulic Pump: Parker
3) Air Starter: IR
4) Air Dryer: Wabco Single Chamber Air dryer, without heater.

x) **SPECIAL NOTES:**

a) THE ENGINE WITH TRANSMISSION MUST BE MOUNTED ON A SINGLE, STRONG, SUITABLE SKID & SHOULD BE ANCHORED FIRMLY WITH THE MAIN CHASSIS OF THE WORKOVER OUTFIT.

b) ANNEXURE-IA: TECHNICAL CHECK LIST ATTACHED WITH TENDER.

BIDDERS MUST FILL UP THE SAME & RETURN WITH OFFER FOR TECHNICAL SCRUTINY.

c) ANNEXURE-IB: DETAILS OF MAINTENANCE TOOLS WITH QUANTITY ATTACHED WITH TENDER AS PER 1 (vii) (m) ABOVE.

BIDDERS MUST INCLUDE IN THEIR SCOPE OF SUPPLY & OFFER FOR THE SAME.

d) PARTS LIST, INSTRUCTION & SERVICE MANUAL

01(one) set of technical details of the engine, Allison transmission and dimensional drawing of all major components, is to be provided along with the offer.
The bidder shall furnish technical data sheets and dimensional drawing along with the quotation.

xi) **Test Certificate**

The complete sets have to be load tested at manufacturers work & test certificate have to be provided along with the delivery of material. Our engineer will visit to witness the load test.
The nature of after sales services, which can be provided by the successful bidder during initial commissioning as also in subsequent operation, should be clearly indicated.
Supplier must categorically confirm regarding compliance with the inspection / test procedure and other terms & conditions detailed above are very essential. Offers will be liable for rejection in the absence of such confirmation.

xii) **Deviation**
Deviation in respect of any specification as detailed above should be highlighted with technical calculation / catalogue / literature etc.

xiii) **Guarantee / Warranty**

The complete package / unit shall be under guarantee / warranty by the supplier for a minimum period of 1 (one) year from the date of successful Commissioning of the complete unit at site.
OIL reserves the right to inspect, test & if necessary reject any part / parts after delivery at site (including incomplete manuals, catalogues, etc.) in case of any fault on the part of the supplier.
It shall in no way be waived by the reason that the unit / item was previously inspected & passed by OIL as per Inspection Clause detailed elsewhere in the tender.
To keep the unit fully operational, in case of failure of any item during the warranty period, it is the supplier's responsibility to arrange replacement / repairing at site at their own cost including custom duty, freight, etc. within a period of maximum 3 (three) weeks from the date of notification of such failure.

(2) Transmission with integral torque convertor With Carrier Engine.

(i) Suitable capacity Allison transmission [Electronic – 5000 Series or Above] to cater maximum output torque of the engine with retarder brake, lock up clutch and drop box for transmitting power for rig operation and carrier drive, having minimum five forward & one reverse speeds, with dual controls i.e. from driver’s cabin and driller console along with indicator and with safety interlock facility. Model of Allison transmission must be mentioned in the offer with technical brochure.
Bidder must confirm in their bid to provide O&M manual & parts book [Soft & hard copy in English language] along with the supply of Allison Transmission.

(ii) Rig manufacturer should ensure proper matching between rig engine & transmission to meet adequate power requirement for operating the rig / carrier. Programmed self diagnostic kit (both software as well as hardware) shall be supplied along with the unit. If additional software is required to maintain the electronics transmission system, same should be supplied with licence.
Bidder shall categorically confirm in the bid that the offered software is for the particular transmission of the rig. Moreover suitable weather protection for electronic system is to be provided.

(iii) Power take off (PTO) from transmission system with pneumatic clutch and controls for hydraulic pump.

(iv)Transmission wiring should be in separate rodent proof conduit with proper marking from other wiring. All cables must be terminated properly. If any cable is not used in the harness it should be removed from the harness. Suitable connectors with sufficient cable length are to be provided where flexibility is required as per instrument manufacturer design, so that the cables are not in stress.

(v) All the accessories, fittings / connections & harness wiring of Allison Transmission must be of OEM supplied with proof of documents. Bidder must confirm in their offer to provide documentary evidence from OEM regarding supply of the above mentioned items at the time of inspection.

(vi) Drillers console gear selector should have removable connector at both ends.

Note: - All the electrical / electronic circuit diagrams for operation of the Transmissions have to be furnished along with the offer for scrutiny

ANY ITEM/POINTS NOT INCLUDED BUT NECESSARY FOR EFFICIENT CONTROL AND OPERATION OF THE SYSTEM SHOULD BE STATED BY THE BIDDER

(vii) **SPARE PARTS FOR ALLISON TRANSMISSION**

Bidder should quote unit price for following spare parts. Item wise price of each spare part with part no should also be provided.

Bidder must mention in their offer the total quantity of each of the following spare part require for running of each transmission for 2000hrs.

a) Filter, Transmission Oil
b) Suction & Delivery Hose
c) Complete PTO
d) Transmission Oil (ltr.)

The unit cost of above spare parts will be considered for bid evaluation. However OIL reserves the right to decide the item & quantity of spare parts for procurement along with the main equipment.

(3) Power Transmission to Drawworks & Carrier

Suitable power transmission system, as per rig design shall be provided for transmitting power to draw works and rotary table in workover mode and to carrier in road-mode with dual control from cabin and driller's console along with safety interlocks and indicators.

(4) Hydraulic system

(i) Complete with hydraulic pump [make: Parker], hydraulic oil reservoir, suitable hydraulic lines, filters, hoses, pressure gauges, connections and valves, regulator etc. for the operations of / like mast raising / lowering, extending, levelling jacks, hydraulic cat works, hydraulic winches, hydraulic power tong drive, etc.

(ii) Capacity of the pump as per rig design, minimum 2000 PSI nominal working pressure. It shall be bidder's endeavour to supply the Hydraulic distributor, valve manifold, Hydraulic valves of VICKERS, COMMERCIAL HYDRAULICS, BENDIX, EATON, PARKER or REXROTH make only.

(iii) Hydraulic pump shall be driven from PTO of the Allison transmission with pneumatic clutch and controls. Total Interface drawing of Engine, Transmission & Hydraulic pump shall be supplied.

(iv) Protection for hydraulic pipe with guide pipes & support at intermittent locations to avoid damages to the hydraulic pipe.

(v) Tank, reservoir capacity as per design with filler cap, breather, oil level gauge filter, safety by-pass relief valve to prevent accidentally exceeding max rated working pressure, pressure & temperature gauges.

(vi) Hydraulic Test Certificates from reputed Certifying agencies to be made available for all hoses installed as per applicable SAE / DIN standards.

(vii) Bidder should quote unit price for following spare parts. Item wise price of each spare part with part no should also be provided.

1. Hydraulic pump [with make & model], complete
2. Hose, suction complete, Hydraulic pump

3. Hose, delivery complete, Hydraulic pump

The unit cost of above spare parts will be considered for bid evaluation. However OIL reserves the right to decide the item & quantity of spare parts for procurement along with the main equipment.

SECTION D2

(1) Drawworks (Main winch) on the Carrier

(i) Main drum suitable for hook load capacity of minimum 125 MT (136 ton) in accordance with API 7K as applicable.

(ii) Single drum dynamically balanced draw works should have Axially mounted, water cooled with Disc Brake as auxiliary brake, suitable for minimum 125 MT (136 ton), on the Brake Drum / shaft to carryout Retarding as well as Braking, also having provision of parking. The Band Type Brakes should also be provided as main Brakes. The Disc Brake and Band Brake should be complete with adjustment system & cooling system for working in 55 degree Celsius ambient temperature and at continuous full load. The electrical motor operated cooling system should either be mounted on the carrier or provided as a separate portable unit connected with the suitable hoses etc. The equipments should be mounted in such a way that safety during operation is ensured and there should be enough space for maintenance of the equipment. The Disc Brake is to be of National or Eaton Make. The control of the Disc Brake shall be provided at a convenient place in the hands of the Rig Operator, through a pneumatic Valve and the movement of Valve lever shall determine the braking Torque applied. Complete Rig operation should be possible independently with the help of Band Brakes as well as with the combination of Disc Brakes & Assist Brake.

(iii) Rated input horsepower suitable for rated hook load capacity, designed to provide empty block speed of 7 feet/sec & block speed at 125 MT hook load, 1st gear operation is 0.9 feet/sec, 8 lines strung up.

(iv) Main drum dimensions as per design with Lebus grooving for wire rope as per design to be provided for proper wire line spooling. However, the casing line size should be 1 1/8" (1.125 inch).

(v) The Draw works and its brakes shall have suitable water cooling system. Manifold, valves, reservoir, pump, exchanger should be included as per design.

(vi) Assist brake with chain drive in oil bath case, high speed positive air actuated drive clutch with control valve at operator's position, with manifold and water flow control valve and pedal control at operator's position to be provided as per design.

(vii) Drawworks should have sufficient range of forward speeds and one reverse speed.

(viii) Main drum driven by high capacity air balloon type airflex or equivalent make pneumatically operated clutches mounted outboard for easy accessibility & maintenance.

(ix) All roller chains of cotter pin / riveted type, with API 7F monogramming

(x) Wire rope with API 9A monogramming

(xi) Draw-works to have centralized greasing system (optional).

(xii) Chain drive shall be fully enclosed oil bath type, having lubrication as per design.
Chain guards shall be designed to have inspection windows to carry out repair and replacement of chains easily.

(xiii) Automatic crown block saver safety shut off device to limit block travel, installed on drawworks, automatically disengages clutch & sets main drum brake when block comes too close to crown block. (or required travel is reached)

(xiv) Automatic floor saver safety shutoff device to limit block travel, installed on drawworks, automatically disengages clutch & sets main drum brake when block comes too close to rotary table. (or required travel is reached)

(xv) (a) Automatic Hook load limiting device: - Automatic Hook load limiting device installed to prevent overloading of mast, linked up to weight indicator. Limiting device receives signal from weight indicator and applies brake & disengages draw works clutch simultaneously when the set hook load is reached.

(b) Suitable Casing Rope travel guide should be provided to prevent overlapping of the Rope on the Draw Works Drum.

(xvi) Driller's console /Control panel (Suitable for Hazardous area classified as per Attachment –1 Driller console to be located at rear of carrier with provision for elevating it to the base of the mast for use with substructure at derrick floor level. Mechanical controls located adjacent to Driller console for draw works brakes, include a chain tie down for the handle. Suitable arrangement to be provided to protect from ingress of rain water.

a) CONTROLS: Driller console should have Air control for main drum clutch, assist brake, engine throttle, engine shutdown and emergency shutdown, Hydraulic winch &Catwork control, Transmission shifter, Rotary drive clutch, Hydraulic pump, Pneumatic slip, Mud pump controls (if Connected), cooling water and assist brake water controls.

(b) Driller console should have following GAUGES / INDICATORS - Air, hydraulic, Mud Pump & Stand Pipe pressure gauges, SPM Meter for mud pump, Hook load, Tong torque, Transmission shifter indicators.

(2) Rotary drive system on Carrier

(i) Rotary drive system as per rig design from transmission to Rotary table with air balloon type clutch. Clutch control and engine throttle shall be at driller's console.

(ii) Elevated drive to rotary table with suitable protective guards.

(iii) Lubrication/ grease header to be provided.

(iv) Lubrication system as per rig design shall be provided.

However, centralised lubrication system for the outfit is a desired option. Bidder to quote for the item as optional and inclusion of the same in the price comparison will at OIL's discretion.

(3) Hydraulic Power tong circuit.
(i) Hydraulic power tong circuit with pressure and return line pressure gauge, adjustable relief valve with hydraulic outlet up to rear bumper shall be provided.

(ii) Tong hydraulic circuit shall be integral with rig hydraulic circuit.

(iii) Hydraulic pressure gauge and remote pressure control of tong circuit shall be located at the driller's console.

(4) Hydraulic winch on Carrier – 2 Nos

One to be mounted at suitable position on derrick floor and other on the carrier at a suitable position between drawworks and engine.

(i) Hydraulic winch, suitably mounted with two grooved sheaves, under crown, and cable. Minimum capacity of 10,000 lbs at 2,000 PSI oil pressure, with fail safe brake. Includes remote air control valve in control box & piping from & to valves, filters, safety controls, pressure gauges & all necessary fittings.

It shall be bidder's endeavour to provide Pull Master / Braden makes only.

(ii) Additional control on sub structure towards pipe rack side shall be provided.

(iii) Safety guards shall be installed on the winch

(5) Auxiliary Air Compressor

(i) 01(one) complete set of skid mounted Electric Motor Driven Auxiliary Rotary Screw Air Compressor package must be supplied along with the Workover Rig Package. The detail technical description of Air Compressor is as follows [compressor should be suitable for running, powered by a 30KVA diesel generator]:

a) Capacity: Min35 CFM
b) Pressure rating: 120-130PSI
c) Compressor Power rating: 7.0-7.5KW
d Sound Level: 65-69 dB(A) measured at a distance of 1mtr.
e) Air dryer: Non heater type
f) Make: IR / SULLAIR

g) Standard scope of supply:

- Screw Air Compressor with Lubrication system
- Cold Box / Hot Box design - electronic system for increased life of the components.
- Controls & Instrumentation- auto start/stop, blow down & load/unload solenoid, air pr gauge, total hr counter, fault warning etc.

h) The package shall include 01 (one) air receiver of 500 Ltrs capacity with necessary pipe connections. Connection should be made between the air tanks of air compressor & carrier. Compressor with motor must be mounted in a separate acoustic enclosure with proper ventilation.

The complete Air Compressor package [1no compressor with air vessel] must be mounted on a rugged oil field type rugged skidded hut for easy & secured transportation. Bidder must provide necessary drawing of skid and the schematic view of package along with the offer for technical scrutiny.

i) The bidder along with the offer must provide brochure of offered air compressor.
j) Air receiver and lines shall be tested as per relevant API standard for any leakage. **Test certificate to be provided along with the supply.**

(ii) System for filling air in tyres with required hose and adopters shall be provided. The system shall be hooked with air system with one extra out let tapping with valve.

(iii) Electrical Scope of supply for above mentioned Screw Compressor includes the following:
a) The suitable size of Cable used for connecting the motor from Power Distribution Panel shall be EPR (Ethylene Propylene Rubber) insulated, and HOFR (Heat Resistant, Oil Resistant and Fire Retardant), CSP (Chloro Sulphonated Polyethylene) sheathed screened 4 Core Copper conductor Cables and DGMS approved. Motor must be flame proof with DGMS certification.

b) Electrical Scope of supply includes the following:
Control panel to start / stop and protect the motor and compressor, with the following minimum facilities:

I. One adequately sized manually operated three-phase isolation switch to switch on/off all incoming power to the panel. Incoming power to the panel / motor will be connected to this switch.

II. Auto Start / Stop – Motor start / stop are to be controlled by the microprocessor – This is the default motor control scheme, MCCB and contactor based, with start/stop command from the Microprocessor controller.

III. Indication lamps: Input power available / Motor Running / Motor Stop / MotorTripped

IV. Emergency Stop Switch – A push button to instantly stop the motor. This should be "push to operate - turn to reset" type mushroom headed button.

V. Protection – Motor should be protected against the following:

a. Reverse rotation. Normal rotation as per the compressor direction of rotation
b. Overload
c. Single Phasing
d. Earth Leakage

c) Microprocessor based controller (This shall be ambient cooled and should not require any special means of cooling).
d) Temperature sensors input
e) Solenoid valves control (Blow down SV, Load/Unload SV)
f) Pressure Transducer sensor input
g) Package Air Pressure gauge
h) Total running hours counter
i) High discharge Air temperature indication lamp
j) Fluid Filter change indication lamp
k) Air / Fluid separator Element change indication lamp
l) Air intake filter change indication lamp
m) Display of all important parameters via indication lamps / on a screen

The control panel to be easily accessible, and IP 23 rated. All cables / sensor wires to beof bottom entry. All indication lights, meters and displays shall be located on the front.
The control cable connections in the panel should be done with copper conductors only.
For all other matters not specified above, the panel design and manufacture should be as per IS 8623.
Special Notes (Electrical):

a) Earthing studs – All electrical current carrying / consuming equipment or item should be provided with a minimum of two earthing studs.
b) Bidder should supply the electrical schematic drawing, clearly marking the motor starting system, the protection system, and the indications / safety devices employed.
c) All electrical schematics / wiring diagrams shall be approved by OIL before manufacture.
d) Power connections to the compressor from the external power source will be terminated on the isolator / MCCB of the control panel.
e) Only 01 (one) spare motor having specification, make & model exactly same with the above offered Screw Air Compressor must be supplied along with the Workover Rig package. The bidder should confirm the same in their offer.

(6) Rotary table API 7K monogrammed.

Rotary table, 17-1/2", with distance from center of table to center line of sprocket of 44".

(i) Dead load capacity minimum 160 MT (176 Ton).

(ii) Rotary table top to be flush with derrick floor.

(iii) Square drive split master bushing to be supplied with rotary table. It shall be supplied loose and API 7K monogrammed.

(iv) Rotary table shall be complete with hub for torque shaft drive or sprocket for chain drive or any other drive accessory required as per rig design to get drive from rig power transmission.

(v) Square drive Kelly bush for 3" Kelly, API 7K monogrammed. It shall be supplied packed separately as loose item.

(vi) Bit breaker adapter plate and lifting sling for split master bushing should be supplied loose & duly packed.

(vii) Manual locking system for Rotary Table to be provided.

(7) Unitized Hook block as per API 8A/8C with API monogram.

(i) Dead load capacity: Minimum 100MT (110 ton)

(ii) 4 No of sheaves, size and groove as per design, shall include hydraulic snubbing action, articulated connection and hook safety positioner / lock.

(8) Rotary hose

Rotary hose 3" x 55', 5000 PSI working pressure, however union shall be covered under the scope of stand pipe & swivel gooseneck for connecting to the rotary hose. Rotary hose shall be as per API 7K & monogrammed.

(9) Wire ropes

One roll casing line of standard length, API 9A monogrammed, on metallic spool with smooth drive for rotation with a provision for fixing stand on carrier for shifting of casing line.

One spare roll casing line of standard length, API 9A monogrammed shall also be provided.

(10) Stand pipe manifold

(i) Stand pipe 3" x 5000 PSI working pressure including gooseneck and hammer union mounted on mast (male and female portion of hammer unions are to be suitably provided, where ever it is specified along with pipe/goose neck/reducer etc so as to complete the stand pipe for connection with mud pump discharge on one side and swivel on the other side). Stand pipe and manifold shall consist of :-
(ii) Two (2) 2-1/16" 10,000 psi working pressure gate valves API 6A monogrammed.
(iii) Two (2) 2-1/16" 5,000 psi working pressure gate valves along with companion blind flange, API 6A monogrammed-to be supplied loose.
(iv) Three (3) 2" hammer unions, Fig 1502.
(v) One (1) 2" Line pipe threaded box connection for pressure gauge.
(vi) One (1) 2" Line pipe threaded box connection for pressure transducers.
(vii) One 3" fig 602 x 2" fig 1502 hammer union changeover.
(viii) API monogrammed 3" X 5000 PSI high pressure hammer union Fig 602, two (2) numbers to be supplied loose.
(ix) API monogrammed 2" X 10000 PSI high pressure hammer union Fig 1502, two (2) numbers to be supplied loose.
(x) API 6A monogrammed 2 1/16" X 10,000 PSI working pressure gate valve two (2) numbers to be supplied loose.
(xi) Two (2) 2" x 12' long, 10,000 PSI working pressure vibrator hose at pump discharge for connecting to high pressure line with 2" hammer union Fig 1502 end connection at both ends.
(xii) One (1), 2" x 12' long x 5000 PSI working pressure vibrator hose for connecting to standpipe manifold..

Kill line kit for field installation consisting of
(xiii) 2", 10,000 PSI pipe with hammer unions Fig 1502 10 ft long, 8 nos. ; 6 ft long, 4 nos. and 4 ft long, 4 nos.
(xiv) Four (4), 2" 10,000 psi working pressure, corner pipe 90 degree swivel joints and with hammer unions Fig 1502.
(xv) (a) 3", 10000 psi Fig 1502, 10ft-10 Nos (With hammer unions), (b) Swivel style 10 -10 Nos.,
(c)Swivel style 50– 10 Nos.
(xvi) 2", 1502 Plug valve-4 Nos, Check valve-4 Nos. (One end male and other female)
(xvii) 3", 1502 Plug valve-4 Nos, Check valve-4 Nos. (One end male and other female)

(11) Hydraulic tubing tong

(i) One set of Light weight hydraulic tubing tong of minimum torque rating 8000 ftlbs, as per API 7K & Monogrammed, replaceable jaws type for 27/8", 3½" tubings, complete with accessories like torque gauge assembly rating 8000 Ft. lbs., spring hanger assembly, Hydraulic Hoses with Quick couplings,

Hydraulic Lift Cylinder Assembly for tong height adjustment and all other necessary items for its installation and operation.

(ii) Initially the tubing tong is to be supplied with jaws for 27/8"tubing, jaw sets for 3½" tubings to be supplied loose. Hydraulic tongs to be run from rig hydraulic system only. 10 sets of spare inserts for 2-7/8" tubing & 4 sets for 31/2 "tubing to be provided loose.

(12) WORKING TOOLS LIST PER RIG. Minimum listed below and additional specific tools eg for wheel repairs/ replacement, air filling, cardon shaft / cross repair, chain replacement, bearing replacement pullers, torque wrench, mud pump tools/ pullers for fluid end parts repair/ replacement, compensator charging tool kit etc. as per rig requirement, Heavy-duty Grease gun, 2(two) Nos. 50MT capacity Hydraulic Jacks with handles are to be supplied. Bidder to specify in the tech. bid.
(i) One set of ½" drive sockets set minimum 17 sockets, ratchet, hinge handle speed handle, and 3 extensions.
(ii) Open end wrench set combination size 5/16" to 1¼".
(iii) Adjustable wrench set of 4 suitable sizes
(iv) Heavy duty pipe wrench set of 36" & 48" size.
(v) 3/4" punch
(vi) Cold chisel
(vii) 10" pliers
(viii) Set of 2 Phillips screw driver suitable sizes
(ix) Allen wrench 7 piece set
(x) 2 lb hammer & 5 lb hammer - 1 each
(xi) Hack saw 10" with set of 10 blades
(xii) Tool box 24 x 9½ x 9½ w/tray Heavy-duty Grease gun, 2(two) Nos.
(xiii) Hydraulic Jacks 50MT capacity with handles are to be provided.
(xiv) Heavy duty aluminium alloy pipe wrench of size 18" & 24" – 2 Nos each.
(xv) One Heavy duty Chain tong 36" to be provided.
(xvi) Slogging wrench open end as well as ring type, 2 nos each of 36mm, 41mm, 46mm, 50mm, 55mm, 60mm & 75mm sizes may be provided.

(13) Rig instrumentation MARTIN DECKER make, suitable for Hazardous area classified as per Attachment-I

(i) Deadline weight indicator with sensator/ load cell on driller console/control panel, indicating load on hook for the designed capacity of the rig.

(ii) Mud pump pressure indicator, complete, on drillers console/control panel. 0-6000 PSI).

(iii) Pressure gauge mounted on stand pipe of 0-5000 PSI. Gauge should be in the clear view from the Driller's Console.

(iv) Suitable electronic recorder for recording hook load. The recorder display shall be mounted in weight indicator panel. The off-site printing of the recorded hook-load will be desired option. The storing space of the data in the recorder to be sufficient to store such cumulative data for operation of a week.

(v) Ton km indicator shall be provided near weight indicator box.

(vi) SPM indicator for mud pump discharge at driller's console & at local mud pump control panel.

(vii) All instrumentation tubings /pipings to be of stainless steel. However, suitable hoses are to be provided where flexibility is required as per instrument manufacturer design / as per mobile rig design.

(ix) Tong torque sensing system should be installed. Torque indicator for tong to be provided on drillers console.

x) In case of electronic sensor, same should have valid DGMS approval as per statutory regulations under Mines act as given in Attachment-I). Bidder needs to confirm to supply

DGMS approved sensor at the time of submission of Bid. Successful bidder needs to produce the same before commissioning of the Rig.

Note: Calibration certificate for weight indicator, Mud pump Pressure indictor & pressure gauge mounted on stand pipe to be provided at the time of supply.

SECTION E2

Electrical

(1) Lighting system suitable for Hazardous area classified as per Attachment-I

(A) DGMS approved, Hazardous area flame proof lighting system for mast and carrier illumination as per rig design and as per API recommended practices 500 B and 505 B and has to meet Oil Mines regulations, 1984 as per Attachment-1. Requires 230V**,** phase to phase, 50Hz AC power supply from rig gen-sets to electrical power supply of the rig which shall be converted to 110V AC for derrick and carrier illumination. The lighting shall be provided with minimum 2 independent circuits along-with suitable flame proof & weather proof well glass fittings, FLP junction boxes, FLP double compression glands and FLP plug socket for each light fittings suitable for screw type CFL / LED lamps shall be provided for derrick and carrier illumination. One no of red aviation light fitting with LED lamp (flickering type) shall be provided at crown block. These lamps are to be supplied separately packed & to be fitted during commissioning. The flexible Cable used for connecting the light fittings shall be EPR (Ethylene Propylene Rubber) insulated, and HOFR (Heat Resistant, Oil Resistant and Fire Retardant), CSP (Chloro Sulphonated Polyethylene) sheathed screened 3 Core Copper conductor Cables.

The fittings/system shall be suitable for hazardous area application as per classification of hazardous area in Oil Mines under Regulation 74 of the Oil Mines Regulations, 1984.(Extract of hazardous area and relevant regulations enclosed at Attachment-I)

(C) Lightening Arrester cum Safety conductor from top of the Rig Mast to the earth to be provided taking into account the flexibility required during Mast lowering &Raising during Rig moves.

(D) Suitable provision must be provided on either side of Rig Trailer, Mast & Structure, Brine Tanks, Catwalk, Pipe Racks and Control panels for earthing.

(2) **MOTORS** – Details of motors required are given in the two Annexure – "Annexure Electrical Scope", and "Annexure – Motor Specifications"(Annexure -IIA & IIB). All motors to be FLP enclosure, and DGMS approved. Copies of such approvals shall have to be provided to Oil India along with supply and categorical confirmation is required in the bid, failing which offer shall not be accepted.

(3) **DRAWINGS**: Bidder shall prepare and submit the following drawings along with the bid:

I) A single line diagram (SLD) clearly indicating the following:
   a. All generators, along with respective rating (kVA / kW), voltage, frequency
   b. All equipment driven by electrical motors, as well as the respective loads in kW / kVA as appropriate.
   c. All transformers utilized in the rig, along with the kVA rating of each
   d. All lighting circuits.

II) A geographical layout diagram drawn to scale, showing the position of all electrical equipment deployed in the rig.

III) A schematic drawing of the Generator and Power distribution panel (PDP).

(4) SPECIAL REQUIREMENTS

The following minimum special requirements shall be fulfilled in the electrical system of the Rig:

(a) **Related to CEA** (Measures relating to safety and electric Supply) Regulations, 2010:

I) Regulation 37 (iii) (a) – The design shall provide a clear working space of at least one metre in front of all control panels and switch-boards.
II) Regulation 100 - Bidder shall design, install and commission an "Earth fault current limiting system", employing a restricted neutral system of power supply, to limit system earth fault current to 750 milliamperes. A suitable monitoring system for this system is also to be installed.
III) Regulation 102 (ii) - All lighting at hazardous areas shall be through 230 V (Phase to phase), with the neutral or mid-point connected to earth.
IV) Regulation 102 (ii) (b) (iv) – All remote control starters for motors and other devices located in hazardous areas shall be designed with intrinsically safe circuits (Ex-i type)

(b) **Related to DGMS / OISD / Statutory inspection bodies**:

I) Electrical Equipment used in hazardous areas should have DGMS approval. If DGMS approval is not available, the layout has to ensure that such unapproved equipment is placed outside the hazardous areas.
II) Cables used in hazardous areas – All cables used to supply power to hazardous areas should be approved for use in such areas by DGMS. All such cables should have copper conductors, four cores, and shielded. The cables shall be EPR insulated and HOFR/CSP sheathed.
III) Cable Glands: All cable glands shall be of FLP, double compression type, suitable for the type of equipment it is fitted on.
IV) Plug Sockets – All plug sockets for use in non-hazardous areas shall be similar to BCH make type DS plug sockets. For hazardous areas, Appleton make Explosion proof plug sockets shall be used.

(c) **Related to OMR 1984**

I) Rule 67 (3) – No naked light or open flame or spark shall be permitted within 30 metres of any well or any place where petroleum is stored – The generator, PDP and bunk houses shall be placed outside this distance. Cable lengths and cable trays shall be calculated accordingly.

(5) OTHER REQUIREMENTS

(a) Supply of electrical items shall include the following :

I) Cables – All cables required in the system shall be in the scope of supplier. Cable Terminations shall also be within the supply scope.
II) Earthing electrodes – minimum length of 1.5 m, GI pipes with at least 3" diameter, with perforations along the length. Quantity to be as per geographical layout.
III) Push-button Stations (PBS), equipped with intrinsically safe circuits, to start and stop motors. Each motor shall have its own, dedicated PBS.
IV) Cable Trays – Short height cable trays to protect cables coming out from Power distribution panel to the different usage points. The exact requirement of cable trays to be decided after studying the geographical layout of equipment of the rig.
V) Lights – A complete lighting system, with lighting supply transformer (415/230VAC, 3 phase) of adequate kVA rating, FLP light fittings (DGMS approved) with CFL / MV lamps of adequate rating for hazardous areas, and area light fittings (including 10 foot high pedestals) with lamps and control gear for non hazardous areas. A dual fitting, red colour aviation warning lamp (LED type, constant glow) shall also be provided along with the above system for fitting on the mast as and when required. The lighting system should provide illumination in the following areas:
Mast and working area, Mud and fluid preparation / storage area, Bunk houses, Generator and PDP houses,

SECTION F2

(1)

A. INSPECTION / Testing of equipment at manufacturing stage:

Inspection shall be carried by any one of the OIL's approved **third party inspection** agencies viz. Lloyds/ BV/DNV/RITES/IRS as per requirements of various codes and standard mentioned in the supply order.

All equipment of rig shall be tested as per standard test procedure of Rig manufacturer and equipment manufacturers and as per relevant API codes.

Testing of mast shall be carried out as per API 4F. Testing of rig and systems after final assembly of all rig modules, including carrier, substructure, mast, mud pump, Gensets etc. after hooking up of the pneumatic & hydraulic lines between modules. Disassembly of rig package after testing packing.
Test certificates of equipment manufacturer for equipments & certificate of testing of rig after final assembly shall be submitted duly approved by TPI. Broad Scope of Third Party Inspection for Rig and Equipments shall be as under:-

(i) Inspection of rig (s) and equipments shall be carried out as per standard test procedures of rig / equipment manufacturing and as per relevant codes, components, as per requirement of API Q1 and relevant API Code.

(ii) Review/approval of QA plan and manufacturing program indicating various stages of inspection on receipt from manufacturer.

(iii) Upon approval of QA plan, manufacturer shall intimate readiness for inspection in stages to inspecting agency giving sufficient advance notice for deputing their inspectors.

(iv) Carry out all necessary NDT, Visual, Dimensional, Functional checks/ tests as per
QA approved plan including chemical and physical checks for raw material.

(v) Review/verification of material test certificate, QC documentations, material traceability records etc. by inspecting agency on receipt from manufacturer.

(vi) Visual inspection of various assemblies and sub-assemblies as per the specifications given in purchase order.

(vii) Inspection for proper workmanship of various welding jobs and mountings.

(viii) Witness final testing/ performance testing of equipment by inspecting agency as per approved QA plan**.**

(ix) To witness load test of mast to rated hook load capacity for 100 MT for 100 MT
Rig at manufacturer premises for each rig and the load test certificate at specified load is to be submitted with the rig. During the test all assemblies, sub-assemblies are to be monitored for proper functioning.

(x) Inspection shall also be carried out for all items of each individual rig package and the inspection certificate is to be issued.

(xi) Issue of TPI certificate.

Note : Bidders will quote Third Party Inspection charges separately in the priced bid only.

B. PRE-DESPATCH INSPECTION & TRAINING

On satisfactory clearance of TPI (Third Party Inspection), pre-despatch inspection call to be given to OIL. Complete rig along with engine package should be offered for inspection & functional testing to OIL by the supplier at manufacturer's premises at least 75 days prior to dispatch. The rig will be offered in fully assembled condition with all accessories fitted and ready for function testing.

A multidisciplinary team comprising of 7-8 engineers of OIL will visit to the supplier's premises / manufacturing plant for inspection of complete rig package & functional testing of equipmentsprior to despatch.

To & Fro travelling expenses from Duliajan, Assam, India with boarding, lodging & food expenses of OIL's engineers will be to OIL's account. Cost related to inspection to be borne by the Supplier.

The Inspection cum Acceptance process would include but not limited to the following minimum steps/tasks -

a) Physical verification / inspection of all the items / fittings / accessories including Parts Catalogue, Maintenance & Service Manuals, Schematics, all tools under complete tool kit as well as other tools, all spares as per the Spare Parts List for engine etc.

b) Any modification requirement arising out of design aspect consideration (on the part of the supplier) shall be in the scope of the supplier at no extra cost to OIL.

c) The minutes of inspection process would be prepared at the end of the inspection and jointly signed by both the parties.

d) Supplier shall confirm in writing compliance of all the points raised in the minutes of inspection as well as any other subsequent additions/changes, following deliberation with the inspector after arrival at Duliajan.

e) Any other testing / joint inspection indicated elsewhere in this tender.

The supplier should arrange comprehensive training programme **immediately after the pre-dispatch inspection** for the multidisciplinary team of OIL engineers at their manufacturing plant / works for a period of 1 (one) week on Maintenance, Troubleshooting & Working Principle of equipments, systems, items etc of the unit amongst other relevant subjects. The training on Engine, transmission and other major items is to be arranged by the supplier but imparted by respective OEM's.

Similarly, a separate hand on training on maintenance at supplier's manufacturing plant / works should be arranged for a multidisciplinary team of 4-5 technicians from OIL following the training of the engineers [Bidder should indicate separate training module with duration for engineer & technician in technical bid. To & Fro travelling expenses from Duliajan, Assam, India with boarding, lodging & food expenses during training will be on OIL's account. Cost related to imparting of training will be borne by the Supplier and will be indicted separately for engineers and technicians].

A broad guideline of training module for engineer is as follows:

For Transport Engineer:

I. Power assisted steering system including hydraulic pump and gearbox.
II. Pneumatic system for brake & gear shifter (of the carrier) including different valves.
III. Axle, brake & suspension systems.

For Equipment Maintenance Engineer:

I. The operation, maintenance, trouble shooting & rectification related to Engine, Allison transmission, Generating Set [if any], Screw Air Compressor etc.
II. Hydraulic system
III. Pneumatic system
IV. Draw-works, Rotary Table, Rotary Swivel & other major rig equipment maintenance

For Electrical Engineer:

I. Generating sets
II. Power Control
III. Power distribution

For Instrumentation Engineer:

I. Training on instrumentation & control system of IC engines
II. Driller's Console & Electronic sensors for monitoring drilling parameters
III. Allison Transmission system

For Drilling Engineer

I. Draw-works (with maintenance procedures)
II. Hydraulic system
III. Mast & controls
IV. Raising & lowering of Mast, Assembling & disassembling of Mast & Sub-structure, Assembling & disassembling of Mast from carrier and packaging & un-packaging of Mast & Sub-structure for transportation purpose.

(2) MANUALS & CATALOGUES

The successful bidder shall also provide documented training modules as well as video & CD presentation of their equipment for operation & maintenance.

5 sets (hard copies) of Operation & maintenance, repair/ overhaul manuals, part books, P&ID,s / Drawings of all rig equipments, sub-assemblies, components, instrumentation, hydraulic, air, electric, lighting, power flow systems, mast, substructure, rig carrier and its components like **steering system with pumps**, **carrier transmission system with prop shafts**, **gear shifter valves front axles**, **drive axles, differentials, suspension system, brakes system with shifters, valves & diaphragms**, **wheel rims, tyres, wheel studs,** power flow and other systems, valves, manifolds, hydraulic pumps, mud pump, generator, drillers console, crown-o-matic / flooromatic devices, air compressors, hydraulic catwork, BOP handling system, monkey board, hydraulic winch, pneumatic control valves, hydraulic control valves, tubing tongs, pneumatic slips, clutches, rotary drive system, PTO, rotary table, swivel, pumps and motors, engines, transmissions, generators, light fittings, glands, tanks, bunk houses, hoses, couplings etc **in English** for each rig shall be supplied.

The bidder in addition to above shall also supply do's and don't for critical operations like carrier roading, carrier placing, mast raising & extending, engine and pumps start-up and shut down, tripping etc along with operation procedure from starting engine up-to doing various jobs as above.
Besides above sets of hard copies of all above manuals & drawings etc., the same are to be loaded on 2 sets of CD's per rig, and to be provided.
Welding procedure for mast, substructure shall be provided.

(3) Commissioning, on site performance demonstration / testing:

The Rig along with equipments to be Installed & Commissioned by the supplier within 60 days of notice intimation at Location (designated site) on completing total assembling and installation of the rigs (with its all ordered equipments) in presence of authorized representatives of OIL at that location.

The performance demonstration / testing of total rig system which shall be conducted at OIL's designated well site after complete assembling of all components. The performance demonstration / testing shall be conducted for 72 hrs continuously establishing trouble free operation of the rig and to be duly certified by the authorized representatives of OIL.

For the purpose of performance demonstration of systems running occasionally, the functional testing for two to three days shall be demonstrated to assure that all equipment / components of the assembled rig are functioning satisfactorily.

Bidder to indicate cost of commissioning in their offer.

SECTION G2

(1) Painting schedule: suitable for corrosive and saline environment

Blast cleaning of all accessible surfaces to SA 2.5 standard. At least (3 coats) polyurethane paint after applying primer.Under Coating with Anti Corrosive Treatment for cement & rust.

The colour shade should be as under.
MAST – WHITE
Draw Works – Orange
Carrier Chassis - Orange
Substructure - Black
Brine Tanks – Grey
Bunkhouses: - White
Crown, Travelling Blocks, Swivel, Racking Board & Rotary Table – Red
All working floors & walkways shall be painted with anti skid paint suitable for corrosive coastal field atmosphere.

NOTE

1) Approximate external transportation dimensions are 9m length, 2.5m width and 2.8m height (with skid beam).

2) Spare Parts

a) Bidder shall confirm in offer that supply of spares for the offered model is guaranteed for minimum of 10 years after supply.
b) Two years running spares for various major components of the unit including the carrier to be quoted by the bidder.
c) Bidder shall also quote instrumentation & electronic spares for two years of operation.

(b) and (c) above will not be considered for bid evaluation purpose.

3) Name Plate:

The name plate with the following details should be engraved/embossed on the equipment body as per clause 11.5 of API 16D :

a) Manufacturers name or mark
b) API monogram including API license number
c) Model name and number
d) Date of Manufacture
e) Weight of the equipment/component
f) Any other important/safety information

4) Documentation:

The vendor should provide the Operation, Maintenance/repair manual illustrating/indicating all parts by exploded part/assembly view – 3 sets as per clause 12.4of API 16 D along with performance test and material test reports with certificates etc.

5) Wherever API 4E, 4F, 6A, 7, 7F, 7K, 8A, 8C, 9A, 16A, 16C etc. are mentioned, it is to be read with their corresponding API Q1 certificate and the items/ equipments shall be API monogrammed.

6) Any item / equipment / accessory not included but necessary for efficient Control and operation of the system shall be provided and indicated by the bidder in the bid.

7)Sample copy of Sale letter (Form 21) and Pollution Compliance Certificate (Form 22A) are attached for registration of the carrier as per Indian regulations.

8) Supplier shall provide separately cost of the carrier for facilitating registration of the vehicle with Indian registering authority.

Notwithstanding any clause mentioned elsewhere in the tender , the invoice for CARRIER WITH ENGINE & TRANSMISSION shall be submitted separately ,i.e. the same (invoice) shall include the cost of the chassis frame and all assemblies/components that are required for road movement of the unit only and the driver's cabin.

9)The motors, starters and the cable glands should be suitable for use in hazardous areas and duly certified by CMRI and approved by DGMS for Zone I and Gas group IIA & IIB of Oil Mines.The bidder shall submit copies of CMRI certificates & DGMS approvals for all the flameproof electric motors, starters and cable glands along with the supply.

10) GENERAL NOTES (In addition to notes mentioned elsewhere in this tender.)

(a) The offered Mobile Rig shall be brand new, unused, of recent manufacture, and free from any manufacturing defect. This shall be categorically stated by the bidders in their quotations.

(b) Any deviation(s) from the tender specification should be clearly highlighted specifying justification in support of deviation.

(c) Offers shall be complete in all respects and all the items/equipment as specified in the tender must be included in the package. Offers deemed to be incomplete shall be liable for outright rejection. (Bidders may quote additional items / equipment or accessories not covered in this enquiry, if felt necessary for the completeness and efficient operation of the rig package).

(d) The Bidder shall categorically confirm that the compatibility of all equipment offered has been thoroughly scrutinized and verified for smooth and trouble-free operation of the entire package to avoid unwarranted hitches during commissioning.

(e) Quotations shall be accompanied by detailed technical specifications, manufacturer's printed specification sheets, literature, drawings, layout drawings & catalogues as indicated.

(f) Bidders should specifically note the document submission schedule indicated elsewhere (i.e. in sections) including special documents requiring statutory clearances.

(g) All equipment to be supplied with the Rig Package shall be in full conformance to and monogrammed per the respective API Specification as mentioned in the tender viz. API Spec 4F, API Spec 5L, API Spec 7, API Spec 7-1, API Spec 7F, API Spec 7K, API Spec 8C, API Spec 9A, API RP 500 & API RP 13E, etc.

(h) Bidders shall confirm categorically that Installation & Commissioning of the Rig Package with all accessories would be carried out by their competent personnel at OIL's designated drill site, in Duliajan, ASSAM, INDIA.

(i) Bidders, quoting for any bought out items should undertake & comply with Guarantee/Warranty clause indicated elsewhere in this tender.

(j) Bidder is to confirm to provide the cost of the rig package broken down to major components like Carrier , Mast , Engine , Drawworks , Transmission etc. within 30

days of placement of order. The indicative list of major items is attached as Annexure – V.

Bidder should confirm in their technical bid that they will provide services on call out basis after the normal warranty & guarantee (as stated elsewhere in this tender) for a period not less than 3 years. The charges for such call out services should be indicated in the commercial bid but will not be considered in evaluation of the tenders.

SECTION I2

Mud System:

1. MUD & WATER TANK SYSTEM WITH ACCESSORIES:

One (1) Mud & Water Tank System consisting of the following:

1A: Active and Reservoir Mud Tanks: 3 + 2 = 05 (Five) tanks

- 01 (One) Shaker tank – 250 Barrels (40KL)
- 01 (One) Intermediate tank – 250 Barrels (40KL)
- 01 (One) Suction tank 250 Barrels (40KL)
- 02 (Two) Reserve tanks of Capacity 250 Barrels (40KL) each (Total capacity: 500 barrels, 80KL) complete with Mixing Pumps and Mud agitators.

1B: Water / Chemical Tanks: 02 (Two) tanks

1C: Auxiliary Equipment & Accessories for the Mud Tank System:

- 01 (One) Mud Loading System
- 01 (One) Mud Pump Super Charger System
- 01 (One) Feed Pump System for Solid Control System

TECHNICAL DETAILS OF THE ABOVE (MUD SYSTEM):

1A: Active and Reservoir Mud Tanks:

Each mud tank should have approximately the following dimensions:

Length: 8000 mm (excluding 300 mm skid extension on each end for tail boarding)

Breadth: 2500 mm

Height: 2100 mm (excluding skid height)

Tank Walls: The walls of each of the tank (including partition walls) are to be constructed with 8 mm thick MS crimped plates. Tank bottom, to be constructed with 8 mm thick plain plates; should be sloped from a maximum of 3" (75.0 mm) in suction side & gradually decreased to towards the tank cleaning doors to facilitate cleaning.

Body Frame: The Body Frame of the tank should be made out of

i) Vertical Post [Min 5nos]: 90mm to 100mm NB SHS of min 6.0mm thick.

ii) Horizontal Wall Framing [bottom & middle]: 90mm to 100mm NB SHS of min 6.0mm thick.

iii) Other steel structural item may be used for fabrication of Strong Tank Frame. The detail should be shown in the drawings which need to be provided along with the offer.

Master Skid: The tanks should be mounted on three runner oilfield type skids fabricated from 300 mm beams (ISMB) reinforced with suitable channels [min 5 nos cross member]. The ends of the skid should project out from the tank by 300mm and curve upwards. 150 NB X Sch 80 pipe with provision for lifting should reinforce the end of the skids for tail boarding.

Tank Doors: 02 (Two) clean out gates should be provided at the rear of each reserve, suction and intermediate tanks and 03 (three) clean out gates in the shaker tanks.

Sand Traps of approx. 10 – 12 cum capacity are to be provided in the Shaker Tank. Approx. 3" (75 mm) slope is to be maintained towards the clean out gate end.

Valves and Couplings: Ditch [dresser type] pipe couplings, butterfly valves [make Audco / Intervalve] and dumb valves with companion flange of std ANSI B16.5 #150 should be provided.

Mud Channels and gates: Mud channel with diversion gates should be provided in all the tanks per the mud system requirement.

Water, Mud and Equalizing Lines: MS Square tube of sizes 152 mm X 6 mm and 101 mm X 6 mm shall be used for Mud rolling line and Water rim line respectively. Equalizing lines (273mmdia.) should be provided between shaker tank and intermediate tank with ditch [dresser type] pipe couplings for end connections. These lines should be provided with suitably placed manifolds / isolating butterfly valves and gates etc. for separation or isolation of tanks or tank in the system. The rim line water tapping for mud system shall be with 1" NPT vertical insert and a plug (2 nos. for each tank). Suction lines of 250 mm (10") nominal dia with butterfly valves and ditch [dresser type] pipe couplings for two nos. of mud pumps should be provided in the Suction Tank and in the Intermediate Tank. The suction valves and suction valve system shall be supplied with 10" NB X 6.3 mm thick pipes. Mud hopper suction line of 200mm (8") nominal dia. with butterfly valve and ditch [dresser type] type pipe coupling should be provided in the Suction Tank and all the reserve tanks.

Tank Top, Handrails and Staircases: All tank top open spaces should be covered with iron serrated bar gratings (Heavy-duty grills) and should have sufficient support and fixing arrangements to ensure stiffness and ruggedness. Detachable type handrails of height 1000mm from the top of the tank with two-rail railings & 150mm high toe board made out of min 40mm X 4.5mm square pipe should be provided all along the periphery of the tank. Bidder must be provided separate drawing for the railing along with the offer.

All handrails should consist of top rail, knee rail and tick board. Stairways of 1000mm width and 45 degree maximum angle with handrails as described above on both sides should be provided at convenient places for climbing on to the tanks from ground level and from cable tray to suction tank. These staircases shall be resting on the walkway and also wherever possible be permanently attached / anchored to the tanks. All tanks should have fixed staircases without handrails from tank top to tank bottom for going into the tank. The walkway arrangement shall be Folding type flush with tank top.

Tank Volume Measuring Scale: All the tanks should be provided with permanently attached measuring scale made of anti-corrosive metal / alloy graduated in inch and foot to indicate volume per inch height.

Bottom Mud Gun: On the low pressure mud rolling lines a sufficient number of bottom mud guns complete with nipples, pipes, butterfly valves, hammer unions and a handle to rotate the gun from tank surface etc. should be provided in all the tanks.

Mud Agitator: Each mud tank shall be equipped with mud agitators so positioned to have proper churning of mud, each complete with flameproof electric motor(s) of 10hp which shall operate on 415 Volts, 3-phase, 50 Hz AC power supply. The mud agitators should be of aerofoil design impeller and heli-bevel type gearbox. The turn-over rate of the agitators should be around 50 seconds.

Provision for Mounting Solids Control Equipment: Provision should be kept for mounting / installing solid control equipment [Desander & Desilter unit] on the Shale Shaker and Intermediate tank. The required partitions, outlets with 200 mm (8.0") butterfly valves and ditch [dresser type] couplings should be provided in the shale shaker tank and intermediate tank for operating all these solid control equipment in the mud system. The skid with feed pumps to all these equipment should be placed in front of the shale shaker/ intermediate tank near their interconnections. A common manifold for suction and delivery of the feed pumps for solid control equipment is to be provided with isolating valves to use either of the two pumps to feed Desander or Desilter.

Material Specification: Material for fabrication of tanks should be as follows:

i. Beam, Channel, Angle, Plate etc.: as per IS-2062

ii. Tail Boarding Pipe: ASTM-A106 Gr.B- Sch80-150mm NB

Welding Procedure: All welding procedure should be followed as per standard norms & done by certified welder. All welding electrodes should be as per IS: 814. There should be minimum 3(three) layers of welding & all welds should be visually inspected / examined. The critical welds should be subjected to radiography test, magnetic particle test and dye penetration test. Necessary test certificate must be shown at the time of inspection & provided along with dispatch documents.

Surface Preparation: After completion of all fabrication jobs, the surface preparation should be carried as follows:

i. All welds should be made free of slag, slag inclusion, pinholes, spatters etc. Scrapping & Wire brushing should be carried out on all steelworks after removing all oil & grease deposit if any using approved degreasing agent & solvent.

ii. Sand blast cleaning should be carried out in a controlled blasting shop & not during inclement weather conditions.

iii. The air used during blast cleaning & after cleaning should be dry & free from moisture & all oil contamination.

iv. All sand blast cleaned surfaces should be coated with the prescribed primer within 4(four) hours of blasting.

Painting:

i. 2(two) coat of inorganic zinc primer of 70-80 micron DFT should be applied all over the inner & outer tank wall surface, ladders & skid of the tank.
ii. 2(two) coats of Repack high build polyurethane (Berger, ICI, Nerolac, Shalimar) of 90-100 micron DFT of Grey colour should be applied on the inner & outer tank wall surface, ladder, connections etc.
iii. 2(two) coats of synthetic enamel paint (Berger, ICI, Nerolac, Shalimar) of 90-100 micron DFT of Black colour should be applied on the Skid of the tank.

Electrical Earthing System:

(i) Each mud tank should have two nos. of GI straps 50 X 6 mm mounted on the outside of the walls facing mud pumps and mud mix skid side.
ii) The straps 50 X 6 mm should be welded to the sturdy supports that are welded to the tank wall. The gap between tank wall and strap: 50mm. Spacing between supports: 1000mm. The strap length should be the same as the tank length/ width. Gap between straps should be 150mm.
iii) Holes to be drilled in each strap are: (a) one no of 15mm dia. hole near each agitator (b) two nos. of 15mm dia. holes with a spacing of 100mm near each strap end.
iv) Straps should be mounted at a convenient height for ease of connection.
v) Galvanization of the straps should be of the high quality to withstand the corrosive environment. 2 nos. each 25 X 3 mm GI strips shall be welded to the main strips and the agitator skids (approx. perpendicular to the main strips 50 X 6mm).
vi) Two (2) GI straps of size 50 X 6 mm shall be suitably mounted on each skid to facilitate independent double earthing of the pump motors.
vii) Holes to be drilled in each strap are: a) two nos. of 15 mm dia holes with a spacing of 100 mm near each motor b) two nos. of 15 mm dia holes with a spacing of 100 mm near each strap end.
viii) Foldable type hangers should be mounted on tank wall below the earthing straps to support the mud system cables. Spacing between hangers should be 1000mm. Width of the hangers: 300mm.

Mounting of Push button station: Mounting assembly for push button station of each mud/ water tank agitator to be welded to the tank near respective agitator assembly.
Mud Pill Chamber: A chamber of approx. 10 cu m (50 bbls) capacity with isolating valves should be provided inside the suction tank for preparation of special mud pills. A suitable sized agitator of stainless steel 304 Aerofoil 3 blade design of approx. dia 36" coupled with flameproof electric drive motor of 10hp capacity should be provided in this chamber for proper mixing of the mud additives. The pill tank agitator is to be such that it should not foul with the bottom/ internal piping. This chamber should be connected with the suction line for the rig pumps and also with an independent line from the mud loading system with isolating valves.
Chemical Operator's Cabin: One (1) cabin of size approximately 4.2 m long x 2 m wide x 2.5 m high skid-mounted cabin with proper heat insulation & ventilation, complete with one sliding door, safety glass windows, adequate provision for keeping mud testing equipment and accommodating 2 (two) persons, and with tool box, Baroid mud balance and MF viscometer. The cabin should be placed near the intermediate tank at the level of the walkways.

1B: Water / Chemical Tanks:

02 (Two) water / chemical tanks fabricated as detailed above for item 1(A) and having approx. dimensions:
Length: 8000 mm (excluding 300 mm skid extension on each end for tail boarding)
Breadth: 2500 mm
Height: 2100 mm (excluding skid height)
The following features should be provided in the water / chemical tanks: -
01 (one) tank should have open top and one tank should have covered top with two manholes in each tank.
02 (Two) centrifugal pumps each coupled with 20 HP Electric Motors mounted on a separate skid in front of water tank (with covered top) with suction and discharge piping for fresh water supply to various points.
The open top tank should be covered with the serrated floorings as described above at 1A(h).

02 (Two) horizontal multistage centrifugal pumps set (along with flameproof electric motor), make: Kirloskar, India model – RKB, complete with piping / Ditch (Dresser type) couplings and butterfly valves should be mounted on an independent three runner oilfield skid.

2" line size hopper shall be fabricated and mounted on the same skid in front of the centrifugal pump & the whole unit will be placed in front of the open top tank.

These pump sets will be used to load chemicals through hoppers to open top water tank to gun the mixture and to feed chemical-mixed (gauging) water in the cement hopper for preparation of cement slurry. The two horizontal multi stage centrifugal pumps should have cast steel body, bronze / cast iron impeller, EN 8 shaft with gland type packing and each should be capable of developing 150 mtr. of head. The discharge of each pump should be about 60.0 m^3 / hr at 1450 rpm.

Small, rugged, collapsible type platforms of preferable size 2000mm (L) x 2000mm (B) x 500mm (H) should be provided near the hopper to stack a few sacks of chemicals prior to loading.

All the two tanks should be provided with strongly built sturdy ladder both from inside and outside the tanks. Handrails are to be provided for both the tanks with bar grating platforms and walkway between the two tanks.

02 (Two) clean out gates should be provided at the rear side of each tank. These gates should be provided with 12" Butterfly valves. Approx. 3" (75mm) slope is to be maintained towards the clean out gate side.

All the tanks should be provided with 100mm drain out plug at the floor of the tanks.

The open tanks should be provided with permanently attached measuring scale made out of anti-corrosive metal / alloy graduated in inch and foot to indicate volume per inch height.

The inlet feed line shall be supplied with 100mm (4") Sch.40 ASTM 106 Grade 'B' pipes with butterfly valve and should be anchored firmly with the sidewall of the tank. The rim line water tapping for water tanks shall be with 1" NPT vertical insert and a plug (2 nos. for each tank).

All the tanks shall be provided with 152.4mm (6") Sch.40 ASTM 106 Grade 'B' manifold with butterfly valve in the front side of the tanks for interconnection.

The open top tanks should be provided with bottom guns at four sides of the tanks with rotating (180^0) facility from the tank top.

Each open-top tank should be provided with two (2) agitators having heli-bevel type gear box. The mud agitators shall be with stainless steel 304 Aerofoil 3 blade design of approx. dia 36". The agitators should be driven by 10hp, 415 volts, 3-phase, 50 Hz horizontal foot mounted, squirrel cage rotor induction motor with bi-directional cooling fan at NDE. The motor should be fully enclosed fan cooled and offering protection to IP55. Insulation: Class F but the temperature rise should be limited to that of Class B. Earthing: Two nos. of earth points on the enclosure and one no. inside the terminal box. Termination: Motors should have terminal box with studs for connection of supply cable. Canopy: Motors should be provided with a removable type canopy for protection against rain. Canopies should be supported on agitator skids. Paint: Motors should be painted with epoxy paint of DA Grey shade

The overall height of the tanks including the agitators should not exceed 3400 mm for transport limitations.

1(C): Auxiliary Equipment & Accessories for the Mud Tank System:

I. Mud Loading System: 01 (One)
II. Mud Pump Super Charger System: 01 (One)
III. Feed Pump System for Solid Control System: 01 (One)

I. Mud Loading System:

The following equipment should be mounted on an oilfield three runner skid and top floor with inter connections through piping, ditch [Dresser type] couplings and butterfly valves [skid drg & schematic drg with equipment to be provided along with the offer]:

Centrifugal Pump sets: 02 (Two) centrifugal pumps of TRW Mission make of size 8" x 6" x 14" with 14" size impeller. The mud mix system shall be provided with 10" suction valve system with 8" suction header.

Each pump will be coupled to a 75 hp, 415 Volts, 3-phase, 50 Hz 1500-rpm flameproof weatherproof electric motor. The motors, starters and the cable glands should be suitable for use in hazardous areas and duly certified by CMRI (UL or the equivalent certifying authority of the country of origin)and approved by DGMS for Zone I and Gas group IIA & IIB of Oil Mines.

The bidder shall submit copies of CMRI certificates (UL or the equivalent certifying authority of the country of origin) & DGMS approvals for all the flameproof electric motors, starters and cable glands along with the supply.

Loading Hoppers: 02 (Two) hoppers shall be provided for Bentonite / Barite loading. One hopper should be suitable for use for loading barites and the other hopper coupled with 01 (one) High Performance Aqua–Shear Jet Shearing / Mixing System capable of handling 1000 GPM of fluid, should be suitable for loading polymer chemicals. The Jet shearing system shall be provided with hopper having 4" line size on a separate skid which shall be placed by the side of / parallel to mud mix skid. The inlet and outlet of the jet shearing system shall be connected to one of the mud mix hopper lines with necessary isolation valves.

II Two Mud Pump Supercharging System:

Supercharging units should be mounted on an oilfield three runner skid and top floor with inter connections through piping, ditch [Dresser type] couplings and butterfly valves [skid drg & schematic drg with equipment to be provided along with the offer]:
02 (Two) centrifugal pumps of TRW Mission make of size 8" x 6" x 14" with 14" size impeller should be suitably positioned and mounted on a three runner oilfield skid and floor with inter connections through piping, dresser type couplings and butterfly valves to super-charge the mud pumps suction. Gap between supercharger system and mud tank shall be approx. 900 mm to facilitate / ease of slinging of supercharger skid. The supercharger system shall be provided with 10" isolation Butterfly valves and 10" suction header.
Each pump will be coupled to a 75 hp, 415 Volts, 3-phase, 50 Hz 1500-rpm flameproof weather proof electric motor. The motors, starters and the cable glands should be suitable for use in hazardous areas and duly certified by CMRI (UL or the equivalent certifying authority of the country of origin)and approved by DGMS for Zone I and Gas group IIA & IIB of Oil Mines.
The bidder shall submit copies of CMRI certificates (UL or the equivalent certifying authority of the country of origin) & DGMS approvals for all the flameproof electric motors, starters and cable glands along with the supply.

III. Feed Pump System for Solid Control System:

Solid Control units should be mounted on an oilfield three runner skid and top floor with inter connections through piping, ditch [Dresser type] couplings and butterfly valves [skid drg & schematic drg with equipment to be provided along with the offer]:
Desander and Desilter Feed Pump Set: 02 (Two) centrifugal pumps of TRW Mission make of size 8" x 6" x 14" with 14" size impeller should be suitably positioned and mounted on a three runner oilfield skid and floor with inter connections through piping & connected to Desander & Desilter units. Gap between pump skid and mud tank shall be approx. 900mm to facilitate / ease of slinging of the skid.
Each pump will be coupled to a 75 hp, 415 Volts, 3-phase, 50 Hz 1500-rpm flameproof weather proof electric motor. The motors, starters and the cable glands should be suitable for use in hazardous areas and duly certified by CMRI (UL or the equivalent certifying authority of the country of origin)and approved by DGMS for Zone I and Gas group IIA & IIB of Oil Mines.
The bidder shall submit copies of CMRI certificates (UL or the equivalent certifying authority of the country of origin) & DGMS approvals for all the flameproof electric motors, starters and cable glands along with the supply.
All components of the tanks should be new, unused and free from all defects.
The tanks should be hydraulically tested for 24 hours.

MUD LOADING SYSTEM/ BARITES RAMP:

One (1) Mud Loading System / Barites Ramp of 600 – 800 sq. ft. area and 4 ft high for placement adjacent to the Active Mud System, with shade over the ramp for storing Bentonite, Barites and other bulk chemicals.

TRIP TANK:

One (1) trip tank 10 m^3 capacity with 2(two) Electric motors (5.5 kW each) driven centrifugal pumps make Chengdu West Petroleum Equipment Co. Ltd., model: LSB (3"x2"x12") with fps gauging system visible from Derrick Floor.

LWC TANK:

A standard LWC Tank, Capacity: 100 Barrels (Approx) with covered top and with a 100 mm dia. filling cap. A 6.0-ft high staging including connection to Suction tank & Pre-flush tanks shall be provided. Detachable type railing around the periphery of the tank must be provided for safety.

2. Solid Control System:

A. Shale Shaker:

Two (2) units of Linear motion "High G" (Minimum 7G) shale shakers with suitable flow divider & mounted side by side on a rugged oilfield type master skid over the shaker tank, each unit of LMSS rated at 500 GPM and capable of running up to 250 plus mesh size screens without overflowing. (The units of LMSS should not be permanently fixed on to the skid but should be designed for easy attaching & detaching on to the skid).

The dimensions of the master skid & LMSS unit should meet the transportable dimensions stated in NOTE.

B. Desander:

One (1) 2-cone Desander with manifold constructed of 8" Sch 40 pipe, mounted the third shaker, having two (2) 10" polyurethane cones with grooved end inlet and overflow, Desanding Capacity: 1000 GPM minimum. Capable of separation between 40 – 100 microns.

C. Desilter:

One (1) Desilter Assembly, 16-cone with manifold constructed of 8" Sch 40 pipe, mounted on an angle iron base, having sixteen (16) 4" cones with grooved end inlet and overflow, Desilting Capacity: 1000 GPM minimum. Capable of separation between 40 – 100 microns.

3.0 POWER PACK ENGINE

02 (Two) nos Power Pack of the following specifications shall be required to power the Solids Control Equipment, Rig Auxiliaries, etc:

Each Power pack shall comprise of an Engine coupled with Alternator that should be unitized and enclosed in a weather proof rugged skid mounted acoustic enclosure. The Engine should be:

i) Compatible to power and torque trend (varying loading pattern).
ii) Compatible to total rig environment (Ruggedness).

Engine and alternator should be load tested prior to dispatch and shall be commissioned in our field. Technical specifications of Engine and Alternator are as detailed below: -

ENGINE:

1. 02 (Two) Nos. Caterpillar make**,** Turbocharged, after cooled, four stroke, Air start, electronically controlled [ECM] direct injection, diesel engines with counter clockwise rotation as viewed from flywheel end, capable of developing net Horsepower as per total load requirement designed by the supplier based on the motor load mentioned under Annexure- Electrical Scope, A-Motor [for the bidder's ref].

The engine should be suitable for continuous duty with an overload capacity of 10% for a period not exceeding one hour per 12 hour running without undue heating or any other mechanical trouble.

The Engines should conform to specifications IS: 10000 / BS: 5514 or equivalent.
Each power pack should be complete with compatible AC generator [refer details of Generator under heading Generator in Electrical section] is for 50 cycles operation at the site conditions given below:

- Maximum ambient Temperature : 50º C
- Minimum ambient Temperature : 2º C

- ❖ Maximum Relative Humidity at 35º C : 95%
- ❖ Maximum Altitude above mean sea level : 150 M
- ❖ Average annual rainfall : 343 cms.

2. Detailed dimensional /GA drawings of the Power pack including Footprint shall be submitted by the bidder along with the quotation

3. Each Power pack shall comprise of an Engine coupled with Alternator that shall be in unitized condition and enclosed in a single, weather proof, skid mounted Acoustic Enclosure. Engine and Alternator shall be:

a) Compatible to power and torque trend (varying loading pattern), responsive to instantaneous load and torque changes including no load.

b) Easily serviceable in-situ and at outside the well-site Facility.

c) Of up-to-date technology.

d) Shall be able to withstand the shock and vibration associated with the frequent movement of rigs from place to place and also to withstand severe environmental conditions including heat and humidity. The Alternator rotor shall be dynamically balanced and engineered to withstand 125% load over normal load.

e) Shall be manufactured to International Standards and shall meet or exceed BIS, NEMA, IEEE, ANSI etc. requirements.

f) Engine and Alternator shall be load tested prior to dispatch and to be commissioned in Oil India Limited's drilling location.

4. Engine Fault Diagnostic Tools (both software as well as hardware [CAT ET & Laptop] with accessories & also display on the engine panel shall be supplied along with each unit. Bidder shall categorically confirm in the bid that the offered software & hardware is for the particular engine.

5. All the accessories & fittings of engine viz. Radiator, Coolers, Silencer cum Spark Arrestor, Engine Harness Wirings & accessories etc., must be of OEM supplied with proof of documents. Bidder must confirm in their offer to provide documentary evidence from OEM regarding supply of the above mentioned items at the time of inspection.

6. The engine should be equipped with:

a) Heavy duty Air Cleaner with pre-cleaner & Vacuum Indicator.

b) Spark Arrestor cum Silencer.

c) Heavy duty Radiator for Industrial use with Fan, Fan arrangement & low water level indication with alarm. The radiator must be having capacity of at least 20% in excess of total heat rejection of the engine.

d) Instrument Panel should have Oil & Fuel pressure gauge, Oil, Water & Exhaust temperature gauge, Electronic Tachometer with R/Hrs meter etc. There should be sufficient space for maintenance and repair of the Instrument Panel.

e) Suitable Safety Shut Off system with Alarm for Low lube oil pressure, High water temperature, Engine over speed etc. Bidder must mention the Safety Shut Off system offered for the engine & provide detail information with literature.

f) The critical wiring should be in separate rodent proof conduit with proper marking from other wiring.

Engine Harness wirings must be of OEM supplied.

7. The specifications of Fuel to be used by the Engines are as follows:

a) High Speed Diesel: conforming to IS: 1593

b) Cetane No: 42.5

c) Gross Calorific value: 19.480 BTU/lb (10.800 Cal/gm)

8. The bidder should specify the following information along with relevant performance curves with conditions:

a) Gross Horse Power developed at rated RPM

b) Deduction for Altitude, Temperature etc.

c) Deduction for Fan and ancillary equipment

d) Net HP available at rated RPM & site conditions.

e) Specific Fuel Consumption at rated speed and Power and 110%, 75%, 50% and 25% of full load.

f) Performance Curves of the Engines.

9. The Noise–level produced by the engine at full load should not exceed 75 Db measured at a distance of 1(one) meter from the source.

10. **Acoustic Enclosure**: The acoustic enclosure shall be designed for minimum 25 db(A) insertion loss or for meeting the ambient noise standards, whichever is on the higher side. [As per guidelines of The Central Pollution Control Board, January, 2008; Ministry of Environment & Forests, Govt. of India].

The DG set shall be provided with proper exhaust muffler with insertion loss of minimum 25 db(A)
Authorized agencies for certification as per CPCB

i) Automotive Research Association of India, Pune

ii) National Physical Laboratory, New Delhi

iii) Naval Science & Technology Laboratory, Visakhapatnam

iv) Fluid Control Research Institute, Palghat.

v) National Aerospace Laboratory, Bangalore

11. The Engine offered shall be complete in all respect with the following major components and systems mounted on it:

a) Control System:

Electronic Module Control Panel (EMCP) with suitable Battery and charging system.

b) The engine will be used as prime mover for suitable AC Generator [refer point no 1 above].

12. The engine offered should be complete with the following components:

Air Inlet System

a) Heavy duty Air Cleaner with pre-cleaner.
b) Vacuum Indicator

Exhaust System

a) Having Spark Arresting Muffler cum Silencer.

All necessary exhaust fittings [flange, weldable, elbow etc] must be provided along with supply & the bidder must confirm the same in their offer.

Cooling System

a) Heavy duty Radiator for Industrial use with Fan & Fan Arrangement
b) Thermostat
c) Water Pump
d) After Cooler & Oil Cooler
e) Radiator safety: Should have low water level indication & alarm.

All the above items must be mounted on the engine. The radiator must be having capacity of at least 20% in excess of total heat rejection of the engine. Heat load calculations are to be submitted along with the offer for our scrutiny.

FUEL SYSTEM

a) Fuel Pump with Primary & Secondary Fuel Filter, Transfer Pump etc.

LUBRICATING OIL SYSTEM

a) Lube Oil Sump: Shallow Oil Pan with drain valve.
b) Lube Oil Cooler: Water cooled; integral with engine coolant circuit.
c) Crankcase breather

01(one) no trolley mounted air operated Lube oil evacuating pump system [Graco make] & 01 (one) no trolley mounted air operated Lube oil dispensing pump system [Graco make] must be supplied along with the Rig. Details of the pump brochure should be provided along with the offer for technical scrutiny.

STARTING SYSTEM:

Suitable Air starting system with Air motor.

INSTRUMENT PANEL

Instrument Panel LH 8 Hole.7 Gauge

a) Oil & Fuel Pressure gauge.
b) Oil, Water & Exhaust Temperature gauge.
c) Electronic Tachometer with R/Hrs meter.
d) Caterpillar diagnostic display.

All gauges are as per engine manufacturer's standard.

SAFETY SYSTEM

a) ECM Controlled Safety System that covers:
  i) Low lube oil pressure
  ii) High water temperature
  iii) Engine over speed

SECTION H2

TECHNICAL CHECK LIST FOR ENGINE ANNEXURE-IA

Part ITECHNICAL

The following check list must be completed and returned with the offer. Please ensure that all these points are covered in your offer. These will ensure that your offer is properly evaluated. Please indicate details or Yes / No. as applicable to the following question, in the right hand column.

Sl. No.	PARAMETERS/REQUIREMENTS	BIDDER'S OFFER (To indicate details or yes/no, as applicable)	REMARKS, IF ANY
1	Whether quoted as OEM / Authorized dealer of OEM? Whether documentary evidences submitted?		
2	Whether separately highlighted deviation from the technical specification?		
3	Whether a detailed specification of Engine as per NIT specifications with manufacturer's technical literature / catalogue enclosed?		
4	Whether the offered engine is compatible to be fitted with offered Allison transmission as per NIT specifications?		
5	Whether test certificate of the engine will be submitted?		
6	Whether CMRI (India) certificate or equivalent certificate and DGMS (India) or equivalent certificate from competent authority from the country of origin for Electrical motor & Charging system of the Engine will be provided?		
7	Make & Model of Engine		
8	Make & Model of Air Compressor [Primary & Auxiliary both]		
9	Make & Model of Steering pump		
10	Make & Model of Air Shut off Device		
11	Have you met all BEC / BRC clauses?		

Part IIDOCUMENTATIONS

Sl. No.	DESCRIPTIONS	DOCUMENT ENCLOSED Yes or No	REMARKS, IF ANY
1	Whether Maintenance & Operators Manual, Engine built up records, Parts list of engine in soft as well as hard copy provided?		
2	Whether documents of Lubrication, fuel, hydraulic & electrical system of the engine provided?		
3	Whether documents of Performance rating curves of the engine provided?		
4	Whether documents of Specific fuel consumption of the engine provided?		
5	Whether documents of Emission norms of the engine provided?		
6	Whether documents of Heat load calculation of the engine provided		
7	Whether sketch / drawing for steering pump drive provided?		
8	Whether drawing of dimensional layout diagram with foot print of the engine offered?		

Offer Ref .....dated: .....
OIL's Tender No. .....
Signature _____
Name _____

Designation _____
Date _____

LIST OF TOOLS **Annexure- IB**

Sr. No.	Description of Item	Qty
1.	Open Jaw Double Ended Spanner set in Metric & Inch-12P/C per each set.	01 Set
2.	Double Ended Ring Spanner [deep offset hexagon ring] set in Metric & Inch-12P/C per each set.	01 Set
3.	Heavy duty Double Hexagon Standard Socket compatible for ½" Sq. Drive in Metric & Inch -8mm to 36mm [1/4" to 1 3/8"] per each set.	01 Set
4.	Reversible [quick release] Ratchet compatible for ½" Sq. Drive- overall length 250mm-01per set.	01 Set
5.	Sliding T-Bar compatible for ½" Sq. Drive-01per set.	01 Set
6.	Extension Bar compatible for ½" Sq. Drive- overall length 75mm-01per set.	01 Set
7.	Extension Bar compatible for ½" Sq. Drive- overall length 125mm-01per set.	01 Set
8.	Extension Bar compatible for ½" Sq. Drive- overall length 250mm-01per set.	01 Set
9.	Universal Joint compatible for ½" Sq. Drive- overall length 78mm-01per set.	01 Set
10.	L- Handle compatible for ½" Sq. Drive- overall length 250mm-01per set.	01 Set
11.	Adapter ¾" F X ½" M; 01per set.	01 Set
12.	Adapter ½" F X ¾" M; 01per set.	01 Set
13.	Universal Socket Wrench ½"; 01per set; [universal joint ½"].	01 Set
14.	Screw Driver Standard Blade, Cushion grip- 8mm X 250mm- 01per set.	01 Set
15.	Screw Driver 9 Tips with handle, Cushion grip- 01per set.	01 Set
16.	Adjustable Spanner- 200mm [8"]- 01per set.	01 Set
17.	Adjustable Spanner- 300mm [8"]- 01per set.	01 Set
18.	Allen Key Set-Long- Metric & Inch- 1.5mm to 12mm [12nos] & 1/16" to ½" [12nos] - 01per set.	01 Set
19.	Combination Pliers- 200mm [8"]- 01per set.	01 Set
20.	Long Nose Plier- 150mm-01per set.	01 Set
21.	Circlip Plier-Straight Tip [internal Circlip puller]-Length 175mm [7"]- 01per set.	01 Set
22.	Circlip Plier-Bent Tip [external Circlip puller]-Length 175mm [7"]- 01per set.	01 Set
23.	Center Punch-Forged tool Steel hardened & tampered – 6mm X 100mm [1/4" X 4"]- 01 per set.	01 Set
24.	Ball Pen Hammer- Head length 355mm [14"]- 16 OZ- 01 per set.	01 Set
25.	Soft Face [Polymer] Hammer- Head Ø25mm- 01 per set.	01 Set
26.	Feeler Gauge- 25 Blades-300mm Long in Metric & Inch- 01 each per set; Make: Freeman.	01 Set
27.	Measuring Tape- 5Mtrs metallic-Auto retractable- 01 per set; Make: Freeman.	01 Set
28.	Tin snips- Drop forged carbon steel, hardened & tempered-Size 300mm [12"]- 01 each per set.	01 Set
29.	Thread Gauge- BSW, Metric, UNC, UNF-01 each per set.	01 Set
30.	Caliper- Inside & Outside- 150mm [6"]- 01 each per set.	01 Set
31.	Screw Extractor Set-Hexagonal Head- 3mm to 18mm [1/8" to ¾"]; - 01 per set.	01 Set
32.	Spirit Level-ABS Plastic-3vials [horizontal, plumb & 45º] - 01 per set.	01 Set
33.	Cold Chisel-Forged Chrome-Vanadium steel, hardened, quenched & tempered-12mm X 150mm & 25mm X 150mm – 01each per set.	01 Set
34.	Liner Puller	01 Set
35.	Piston Insert tool	01 Set
36.	Piston ring expander	01 Set
37.	Injector puller	01 Set
38.	Timing adjustment tool	01 Set
39.	Bearing puller for fan shaft	01 Set

Note: A . Item 1 to 33 - All the tools should be Snap On make except otherwise specified and must be supplied in a heavy duty 3/5 tray metal box with handles & locking arrangement.
B. Item 34 to 39 - These tools must be supplied in proper tool box. Specific description, part nos., make, etc. shall clearly be indicated in the bid.

Annexure – IIA Motor Specifications

Motor specifications (for Flameproof motors)

Motor:		Squirrel cage Induction Motor, horizontal foot mounted with bi-directional cooling fan at NDE
Rated voltage:		415 V, 3 phase, Delta connected, all six terminals available at Connection box
HP/KW	:	As applicable
Frequency	:	50 Hz
Speed	:	1500 RPM (synchronous), **unless otherwise noted**.
Insulation class:		Class F, temperature rise limited to class B
Protection	:	IP 55 Minimum
Frame size	:	As applicable
Standards:		IS 2148/IEC 60079 (latest amendment / issue) and IS 325 (latest amendment / issue)
Connection	:	i) Delta for mud/ water agitators/ pill chamber motors ii) 100 HP motors for Desander, Desilter, Mud loading (mud mixers), superchargers and multi-stage pumps shall be provided with 6 (six) nos. of terminal studs inside the terminal box for star/delta starting
Rating	:	Continuously rated (S1)
Painting	:	Epoxy DA grey
Terminal box:		Suitable for use in oil and gas mines (NOT FOR UNDER GROUND COAL MINES) fitted with double compression FLP cable glands. Glands shall be supplied with the motor.
Earthing:		1 (one) no. inside terminal box and 2 (two) nos. on the body of the Motor
DGMS Approval:		A metal plate embossed with CMRI certificate no., DGMS approval no. and DGMS logo shall be riveted on the motor body.
Guarantee:		The motors would be guaranteed (Besides manufacturer's standard guarantee) for a period of one year from the date of commissioning. Any repair/ replacement during the guarantee period will be done free of cost by the supplier including to and fro transportation from OIL site.
Make :		M/s Bharat Bijlee/Crompton Greaves/Kirloskar/Marathon/LHP/ Siemens

[For mud agitators, frame sizes of the motors are MJ 130 for M/s Bharat Bijlee, India or E 132 M for M/S Crompton Greaves, India.

For 100 HP motors, the frame sizes are Type MJ 3284-4 of M/s Bharat Bijlee make or E 280M for M/s Crompton Greaves, India.]

ALL MOTORS, PBS'S AND CABLE GLANDS SHALL BE APPROVED BY DGMS (INDIA) FOR OPERATION IN HAZARDOUS AREA ZONE 1 AND ZONE 2, GAS GROUPS II A AND IIB OF OIL MINES.

A metal plate embossed with CMRI certificate no., DGMS approval No. and DGMS logo shall be riveted on the motor body/ PBS body at a conspicuous place.

Annexure –IIB Electrical- Additional

THE FOLLOWING ADDITIONAL POINTS REGARDING THE ELECTRICALS ARE TO BE NOTED AND COMPLIED WITH BY THE BIDDER:

1. All motors including PBS shall be supplied by the bidder.
2. Fully removable type canopy for all motors (covering motor and terminal box) shall be provided. PBS's are also to be provided with canopies. Canopy material should be minimum 1/8" (3 mm) thick good quality MS, painted DA grey.
3. Double earthing of all motors and PBS shall be in the scope of the supplier in accordance to Indian Electricity Rules, 1956 with latest amendments as applicable.
4. Tank to tank earth loops shall be in the scope of supplier.
5. GI earth strap joints shall be done with GI nuts, bolts and flat/spring washers (2 nos. minimum at each joint).
6. All motors and PBS are to be provided with suitably sized FLP double compression cable glands, approved by DGMS (India). The unused cable entry holes are to be plugged by FLP stopping plugs. Cable glands shall be suitable for entry of suitable capacity EPR insulated, CSP sheathed, screened, multi-strand Copper cables in use at present by OIL.
7. Galvanization of the earthing straps, fasteners and washers shall be as per IS: 2629- 1985, IS: 5358 and IS:1573 respectively (with latest amendments as applicable).
8. Mud agitators, water agitators and pill chamber motors (i.e. motors mounted on tanks) shall be longitudinally aligned (along the length of the tank) and nearer to the centre of the tank as far as possible to avoid collision with tree branches during transportation.
9. Cables for agitator motors are to be routed above the tank grating (flooring) with channels for protection against mechanical damage. Channels shall be permanently fixed to the flooring. Clamps can be provided on the channels to secure the cables.
10. PBS's for desander and desilter motors shall be provided near the mud attendant's cabin. PBS's for all other motors shall be local to the motor.
11. All sides of the tanks (excluding the sides with cable trays for the suction, intermediate and shaker tanks) shall be provided with suitable hangers/ hooks for supporting of cables, width 300 mm and placed 1000 mm apart.
12. All cable trays (if forming part of supply) are to be arranged in such a manner that operation of valves, gates etc. for super chargers, desanders, desilters, mud mixer lines are not hindered.
13. Gaps / holes (approx. 4" diameter) in the cable trays (if forming part of supply) or between the cable tray and tank side shall be provided near the location of PBS's which are mounted close to the front side of the tanks (facing the cellar side) for ease of entry/exit of plug connectors for PBSs.
14. Lighting posts for mud tank lighting shall be of such height that when suspended, a well-glass type light fitting is at a height of 2.5 m from the tank floor grating. Lighting posts shall be provided with sturdy double mounting hooks for suspension of 2 (two) light fittings.
15. AC motors terminal box should preferably be on right hand side, looking from the shaft (driving) end of the motor. So all fabrication job should be made accordingly.

A. Motors:

Item	No of Tank / Eqpt / Skid	Motors per tank/ Eqpt/ Skid	Total Number of Motors	Rating of individual equipment (HP)	PBS Required near motor?
Mud Agitator in Mud Tanks	5	2	10	10	Yes
Pill chamber motor	1	1	1	10	Yes
Water Feed Pump- Closed Top Water Tank	1	2	2	20	Yes – At Ground level
Multistage Pumps	1	2	2	75	Yes
Agitator for Water tank with Open top	1	2	2	10	Yes – At Ground Level
Mud Loading System - Centrifugal Pump	1	2	2	75	Yes
Mud Superchargers	1	2	2	75	Yes
Feed Pump System for solid control	1	2	2	75	Yes – Near Mud attendant cabin
Trip Tank	1	2	2	7.5	Yes
Submersible Pump	1	1	1	5	Yes – Complete Starter
Shale Shaker motor	2	2	4	5	Yes
Cellar Pump motor	1	1	1	10	Yes
Area Light (250W SON fitting x 5)	1	-	-	7.5	No – Central Control
Reserve Power (@ 10% of above)	1	-	-	80	No – Not Applicable

B. Generators (fitted with NGR) coupled to Diesel Engine Sets:
Rating – As per calculation (to be provided by bidder along with offer). Details in the specific section.
Qty – 2

C .Power Distribution Panel/MCC – A power distribution panel cum MCC (suitable for generators as sized above). The PDP shall be placed inside all-weather housing, and mounted on an oil-field type skid. **Qty – One.**

D. Other Items

Sl. No.	Description	Details of Supply
1	**Cables**	All cables required in the system shall be in the scope of supplier. Cable Terminations shall also be within the supply scope.
2	**Earthing electrodes**	Minimum length of 1.5 m, GI pipes with at least 3" diameter, with perforations along the length. **Quantity to be as per geographical layout.**
3	**Push-button Stations (PBS),**	Qty to match motor. Each PBS should be equipped with intrinsically safe circuits, to start and stop motors. **Each motor shall have its own, dedicated PBS.**
4	**Cable Trays**	Short height cable trays to protect cables coming out from Power distribution panel to the different usage points. The exact requirement of cable trays to be decided after studying the geographical layout of equipment of the rig.
5	**Lights**	A complete lighting system, with lighting supply transformer (415/230VAC, 3 phase) of adequate kVA rating, FLP light fittings (DGMS approved) with CFL / MV lamps of adequate rating for hazardous areas, and area light fittings (including 10 foot high pedestals) with lamps and control gear for non hazardous areas. A dual fitting, red colour aviation warning lamp (LED type, constant glow) shall also be provided along with the above system for fitting on the mast as and when required.

Annexure –IID ELECTRICAL – Statutory / DGMS guidelines

(This annexure is for information and guidance of bidders for taking note against the specific equipment.)

DEMARCATION OF HAZARDOUS AREAS

A. Drilling and Work-over Operations :

(1) Well-head area :

(a) When the derrick is not enclosed and the substructure is open to ventilation, the area in all directions from the base of rotary table extending up to 3.0 m shall be Zone 2 hazardous area. Any cellars, trenches and pits below the ground level shall be Zone 1 hazardous area; the area lying up to 3.0 m in horizontal direction from the edge of any cellars, trenches or pits and 0.5 m vertically above the cellars, trenches or pits shall be Zone 2 hazardous area.

(b) When the derrick floor and substructure are enclosed, the enclosed substructure below the derrick floor, including cellars, pits or sumps below the ground level, shall be Zone 1 hazardous area; the enclosed area above the derrick floor shall be Zone 2 hazardous area.

(2) Mud Tank and Channel :

The free space above the level of mud in tank and channel shall be Zone 1 hazardous area; the area in a radius of 3.0 m in all directions from the edge of mud tank and channel shall be Zone 2 hazardous area.

(3) Shale Shaker:

(a) The area within a radius of 1.5 m in all directions from the shale shaker to open air shall be Zone 1 hazardous area. The area beyond 1.5 m and up to 3 m in all directions from the shale shaker shall be Zone 2 hazardous area.

(b) When the shale shaker is located in an enclosure, the enclosed area shall be Zone 1 hazardous area to the extent of the enclosure. The area outside the shale shaker and up to 1.5 m in all directions from the shale shaker shall be Zone 2 hazardous area.

(4) Degasser :

The area within a radius of 1.5 m from the open end of the vent extending in all directions shall be Zone 1; the area beyond 1.5 m and up to 3 m in all directions from the open end of vent shall be Zone 2 hazardous area.

(5) Desander and Desilter :

The area within a radius of 1.5 m in all directions from the desander and desilter located in open air shall be Zone 2 hazardous area.

(6) Pump or Gas Compressors :

(a) Where a pump handling a flammable liquid or a gas compressor is located in open air or under well ventilated shed without walls, the area lying up to 3m in all directions from the pump or compressor shall be Zone 2 hazardous area

(b) Where a pump or compressor is located in an adequately ventilated building, the entire interior of such building including an area within 1.5 m of the vent shall be Zone 2 hazardous area.

(c) Pits, sumps, trenches below the ground level shall be Zone 1 hazardous area and the area lying up to 3.0 m in horizontal direction from the edge of any trench or pit and 0.5 m vertically above the pits, sumps or trenches shall be Zone 2 hazardous area.

(7) Storage Tanks :

(a) In case of floating roof tank, the space above the floating roof and inside the enclosure up to top level of the enclosure wall shall be Zone 1 hazardous area; the area beyond Zone 1 hazardous area and up to a radius of 4.5 m in all directions from tank shell and shell top shall be Zone 2 hazardous area. In case of a dyke, Zone 2 hazardous area shall extend vertically up to the height of the dyke and horizontally up to the physical boundary of the dyke.

(b) In case of fixed roof tank, the area inside the tank and within a radius of 1.5 m from all openings including breather valve, dip hatch, thief latch and safety valve shall be Zone 1 hazardous area; the area beyond Zone 1 hazardous area and up to a radius of 3 m in all directions from shell and roof of the tank shall be Zone 2 hazardous area. In case of a dyke, the sump in the dyke shall be Zone 1 hazardous area and an area extending vertically up to a height of the dyke and horizontally up to the physical boundary of the dyke shall be Zone 2 hazardous area.

C. Use of flexible cables in drilling rigs and in other similar equipments in Oil Mines (Extract)

(a) The flexible cables used to connect 3 phase electrical equipments shall be EPR (Ethylene Propylene Rubber [IE-2]) insulated and HOFR (heat resisting, oil resisting & flame retardant) Elastomeric CSP (Chloro-Sulphonated Polyethylene) sheathed, either individually or collectively copper screened, 4 core copper conductor cables with fourth core having 50% conductivity of the largest conductor and the combined screen having 50% conductivity of the largest conductor.

(b)The flexible cables used to connect light fittings shall be EPR insulated and HOFR elastomeric CSP sheathed unscreened 3 core copper conductor cables.

Termination of flexible cables with electrical equipments installed in hazardous area shall be through appropriate size of double compression glands and with electrical equipments installed in non-hazardous areas shall be through a readily detachable plug and socket assembly.

C. DGMS Approvals

DGMS approved shall be taken to mean a valid approval from DGMS (India) for the particular equipment being offered. Invalid approvals, approvals pertaining to other equipment, outdated approvals, approvals put up for field trial or renewal, or approvals not particularly for oilfield hazardous areas Zones 1 & 2 and Gas Groups 2A & 2B, shall be taken as not DGMS approved.

Annexure – III MAKE OF RIG ACCESSORIES

Make of rig major rig accessories for supply with rig package should be as per the following options. Bidder should confirm the make of these items in technical bid accordingly.

Sl. No.	Equipment / Accessories	Make / Name of Vendor	API Specification
1.	Mast & Sub-Structure	Any API licensed vendor	4F
2.	Disc Brake	1. Eaton Corporation 2. National Oilwell Varco	-
3.	Draw-works & Rotary Chains	1. Diamond Chain Company 2. Regina Catene Calibrate S.p.A. 3. Rexnord Kette GMBH	7F
4.	Rotary Table	1. American Block Company 2. Bharat Heavy Electricals Ltd 3. Drillmec S.p.A. 4. Hackers Industries 5. National Oilwell Varco	7K
5.	Rotary Swivel	6. American Block Company 7. Bharat Heavy Electricals Ltd 8. National Oilwell Varco 9. Soilmec / Drillmec	8C
6.	Travelling Block & Hook	1. American Block Company 2. Bharat Heavy Electricals Ltd 3. Drillmec S.p.A. 4. National Oilwell Varco	8C
7.	Elevator Links	1. Blohm & Voss GmbH 2. National Oilwell Varco	8C
8.	Dead Line Anchor	1. Dreco Energy Services 2. National Oilwell Varco	8C
9.	Casing / Drilling Line	1. Bridon American Corp. 2. Usha Martin Limited. 3. Wire Rope Corporation of America Inc.	9A
10.	Rotary Hose	1. Dunlop Argentina 2. Phoenix Beattle	7K
11.	Solid Control Equipments (Shale Shakers, Desander, Desilter, Degasser)	1. Derrick Equipment Co. 2. National Oilwell Varco 3. Swaco Norge AS	-
12.	Drilling Instruments & Gauges	1. Martin Decker 2. Can Global 3. Wagner 4. Oteco	-
13.	Pneumatic Winch	1. Ingersoll Rand International	-
14.	Hydraulic Cathead	1. National Oilwell Varco	-
15.	Engine	1. Caterpillar	-
16.	DC Motors	1. G.E. 2. BHEL	-
17.	Generator & Control	1. Ross Hill	-
18.	Carrier Axles	1. Rockwell 2. Fabco, 3. Dana, 4. Clarke, 5. Meritor, 6. Sisu	
19.	Heavy duty suspension system	1. Hendrickson 2. Neway	
20.	Steering Box	1. Spicer 2. ZF 3. Sheppard 4. Rane	

		5. TRW	
21.	Steering Pump	1. VICKERS 2. PARKER 3. REXROTH	
22.	Carrier brake valves	1. Bendix 2. Wabco 3. Rexroth	
23.	Pneumatic balloon type Clutches	1. Airflex of Equivalent	
24.	TOOL KIT FOR ENGINE & TRANSMISSION	1. Snap on	
25.	Hydraulic distributor, valve manifold, Hydraulic valves	1. VICKERS, 2. COMMERCIAL HYDRAULICS, 3. BENDIX, 4. EATON, 5. PARKER 6. REXROTH	
26.	Hydraulic winch	1. Pull Master 2. Braden	
27.	Auxiliary Air Compressor	1. IR 2. SULLAIR	
28.	Rig instrumentation	1. MARTIN DECKER	
29.	Butterfly valves (For Mud System)	1. Audco 2. Intervalve	
30.	Flameproof electric motor for Horizontal multistage centrifugal pumps. (For Mud System)	1. Kirloskar, India. 2. Crompton Greaves India 3. LHP, India	
31.	Centrifugal Pump sets (For Mud System)	1. TRW Mission 2. NOV Mission	
32.	TRIP TANK- Electric motors driven centrifugal pumps. (For Mud System)	1. Chengdu West Petroleum Equipment Co. Ltd.	
33.	Electrical Plug Sockets	1. BCH make type DS or equivalent. 2. Appleton for Explosion proof sockets	
34.	Motor- Flameproof	1. M/s Bharat Bijlee 2. Crompton Greaves 3. Kirloskar 4. Marathon 5. LHP 6. Siemens	
35.	Engine Feeler Gauge, Measuring Tape,	1. Freeman	

(Note: The equipment confirming to API specifications must have the API monogram die stamped on the body)

Annexure – IV SPARE PARTS LIST FOR CARRIER (FOR EACH UNIT)

A. FRONT AXLE-

1. Wheel stud with nut(s)	1 full set for 2 wheel
2. Axle Stud with nut	1 full set for 2 wheel
3. Wheel hub oil seal	1 full set for 4 wheels
4. Wheel hub bearing	1 full set for 2 wheels
5. Differential oil seal (if any)	1 full set for all differentials

B. REAR AXLE-

1. Wheel stud with nut(s)	1 full set for 4 wheel
2. Axle Stud with nut	1 full set for 4 wheel
3. Wheel hub oil seal	1 full set for 4 wheels
4. Wheel hub bearing	1 full set for 2 wheels
5. Differential oil seal	1 full set for all differentials
6. Differntial Filter Element(if any)	1 set

C. DRIVE LINE(PROPELLER SHAFT)

1. UJ Cross(Spider and Bearing)	1 set (for both Front & rear Propeller shaft)
2. UJ Cross (if any) for steering pump	1 set

D. STEERING-

1. Steering oil filter element	5 sets
2. Steering pump Repair kit	2 sets
3. Steering Box repair kit	2 sets
4. Steering Power cylinder Repair kit	2 full sets
5. Tie rod end	2 full sets
6. Steering pump	1 no
7. Steering power cylinder	1 no
8. Power cylinder hose	2 sets
9. Steering column UJ Cross	2 sets
10. Pressure relief valve	2 sets
11. Directional control valve	2 sets.

E. PNEUMATIC SHIFTER OF STEERING PUMP-

1. Shifter	1 no.
2. Shifter Repair kit	2 sets.
3. Actuator for shifter(if any)	1 no
4. Repair kit for Actuator(if any)	2 sets
5. Pneumatic Hoses for Shifter system	2 complete set

F.BRAKE & PNEUMATIC CIRCUIT-

1. Foot Brake Valve repair kit	4 sets
2. Front wheel Servo repair kit	8 sets(for 8 servo)
3. Rear Wheel Servo repair kit	8 sets(for 8 servo)
4. Air Dryer Filter Element	5 nos.
5. Repair Kit for all pneumatic valves	1 set each
6. Maxi brake (parking brake)	2 sets.

G.GEAR SHIFTER (THE ONE INSIDE THE DRIVER'S CABIN)

1. Gear shifter	1 no
2. Gear shifter repair kit	2 sets
3. Gear shifter Hoses	2 sets

H.SUSPENSION

1. U-BOLT	4 nos.
2. Front shock absorber	4 nos.
3. Rear shock absorber	4 nos
4. Leaf spring set(front)	2 sets
5. Walking beam(rear)	2 set

NOTE:-

1. All spares in specified quantity as applicable and indicated above shall be supplied along with the unit.

2. Specific description, part nos, make etc. and Unit Price of each and every item shall clearly be indicated in the bid. Total cost will be considered for bid evaluation purpose.

3. Bidder shall also quote separately for any additional spares with similar details as felt necessary but not covered in this list for future reference/procurement as indicated in the NIT.

Annexure – V - LIST OF MAJOR COMPONENTS OF RIG (FOR EACH UNIT)

	Major Components	Unit Cost
1	Mast & Sub-Structure	
2	Disc Brake *	
3	Draw-works & Rotary Chains	
4	Rotary Table	
5	Rotary Swivel	
6	Travelling Block & Hook	
7	Elevator Links	
8	Dead Line Anchor	
9	Casing / Drilling Line	
10	Rotary Hose	
11	Drilling Instruments & Gauges *	
12	Pneumatic Winch	
13	Hydraulic Cathead	
14	Engine	
15	Carrier Axles	
16	Heavy duty suspension system	
17	Steering Box	
18	Steering Pump	
19	Carrier brake valves	
20	Pneumatic balloon type Clutches	
21	TOOL KIT FOR ENGINE & TRANSMISSION	
22	Hydraulic distributor, valve manifold, Hydraulic valves	
23	Hydraulic winch	
24	Auxiliary Air Compressor	
25	Rig instrumentation *	
26	Electrical Plug Sockets *	
27	Motor- Flameproof *	
28	Hydraulic Pump	
29	Mud tankages set	
30	Solid Control system *	
31	Mud Tank Agitator System *	

Note : Items indicated with(*) may require DGMS certification to be used under the notified hazardous area of the well site. Any additional item of the rig package as per the specification of the tender requiring such DGMS certification has to be mentioned under the list indicated with price break up.

Attachment-I

THE MINES ACT,1952 ALONGWITH THE OIL MINES REGULATIONS,1984
CHAPTER VIII

A. Use of certain machinery and equipment-

(1) The chief Inspector may, from time to time,, by notification in the official Gazette, specify appliance, equipment, machinery or other material that are or may be used in a mine which shall be of such type, standard and make as approved by the Chief Inspector by a general order and where any such appliance, equipment, machinery or other material has been specified by the Chief Inspector ,no appliance, equipment, machinery or material other than that approved by the as aforesaid shall be used in any mine.

(2) Where in the opinion of the Chief Inspector or Regional Inspector any appliance, equipment, machinery or other material not notified under sub-regulation (i) is likely to endanger life or safety of any person employed in any mine, the Chief Inspector may by an order in the writing prohibit the use of such appliance, equipment, machinery or material in any mine.

B. Classification of hazardous area- After the coming into force of these regulations the areas in the mine shall be classified into different zones according to the degree of probability of the presence of hazardous atmosphere by the Chief Inspector or an Inspector assisted by such assistants and after such investigations as he may consider necessary.

C. Use of electrical equipment in hazardous area-

(1) No electrical appliance, equipment, or machinery including apparatus shall be used in zone “O” hazardous area.

(2) The Chief Inspector may from time to time by notification in the official Gazette specify appliances, equipment and machinery that are or may be used in zone 1 and zone 2 hazardous area which will be of such type, standard & make as approved by the Chief Inspector by a general or special order in writing. Where any such appliances, equipment, or machinery has been specified by the Chief Inspector, any appliances, equipment, or machinery other than that approved by the Chief Inspector as aforesaid shall not be used in such hazardous area.

Attachment-II

SAMPLECOPYOFFORM21&22

A. *Following is a **sample copy similar to FORM21 of Indian Motor Vehicle Act only**. The certificate to be issued by supplier shall contain following minimum information-*

SALECERTIFICATE

Certified that……..(brand name of the vehicle) has been delivered by us to……on……(date).

Name of the buyer…….
Address
…….
……

The details of the vehicles areas under-:

1.	Class of vehicle	……
2.	Maker's name & address	……
3.	Chassis No.	……
4.	Engine No.	……
5.	Horsepower or cubic capacity	……
6.	Fuel used	……
7.	Number of cylinders	……
8.	Month and year of manufacture	……
9.	Seating capacity (including driver)	……
10.	Maximum axle weight, number and description of tyres –	
	(a) Front axle	……
	(b) Rear axle/axles	……
	(c) Any other axle	……
11.	Colour (s)of the body	……
12.	Gross vehicle weight	……
13.	Make & Mode lof crane	……
14.	Maximum SWL	……

Date: …….. **Signature of the manufacturer / dealer**

B. *Following is a **sample copy similar to FORM22(A) of Indian Motor Vehicle Act only**. The certificate to be issued by supplier shall contain following minimum information.-*

CERTIFICATE OFCOMPLIANCEWITHPOLLUTION STANDARDS/SAFETY STANDARDSOFCOMPONENTSAND ROADWORTHINESS

Certified that……(brand name of the vehicle) bearing Chassis number …… and Engine number ……..complies with the……..(name of Emission Standard–EuroIII,etc.) Emission standard as well as other Safety & Road Worthiness Standards as per provisions of the…….. (name of Motor Vehicles Act of country of origin).

It is also certified that body of the above vehicle has been fabricated by us and the same complies with the provisions of the ……..(name of Motor Vehicles Act of country of origin).

Signature of Manufacturer

---------X---------

Item No. 3 - Specifications of 125MT Rig ,Qty = 3 Nos.

Single drum servicing and work over rig mounted on a self propelled back in type carrier, fitted with diesel engine, transmissions, draw-works, telescopic mast. The Rig shall also have substructure drilling / handling equipments, hydraulic, pneumatic, lighting systems etc, miscellaneous items / equipment, etc along-with necessary catalogues.

Rig and its equipments shall be suitable for Ambient Temp. 2 degree to 44 degree centigrade, relative humidity 95% maximum & altitude of 100 meter minimum.

Rig engine should be above carrier deck and layout of all rig equipment should be such that there is ease of maintenance.

The detailed specifications are as follows:

Sl No	Section	Description
1	A3	Mast & Substructure
2	B3	Carrier
3	C3	Engine & Transmission
4	D3	Draw-works & other Equipments
5	E3	Electrical System
6	F3	Inspection & Commissioning
7	G3	General Note
8	H3	Annexure & Attachments

SECTION – A3

(2) Telescopic Mast in accordance with API 4F with API monogram

(i) Lightweight open faced four legged, two-section Telescoping Mast of efficient design having manufactured & monogrammed as per API Spec 4F, latest edition, with hydraulic mast tilting & extending systems, self actuating stabilizers and automatic locking device to lock the mast into its fully extended operating position; with safety chokes to assure a safe descent rate to protect the mast in the event of failure of the hydraulic system / abrupt loss of hydraulic pressure; an unobstructed line of vision to the crown block.

Mast rest pad complete with supporting frames should be suitably positioned on the carrier for resting the collapsed mast during transportation. The frame should not obstruct the driver's view in any case.

(ii) API rated hook load capacity of minimum 125 MT (136 ton, 275577.8 lb) with 8 line strung and with required wind guy lines and cross guys to racking board, design & construction in accordance with API 4F and API monogrammed. (Guy lines should be complete with heavy duty turn buckles & guy posts). The Minimum Wind Load Capacity of the Mast with full set back should be 80 miles/hr (128 Km/hr) with guy lines.

The guy line anchors should be designed to be placed at a radial distance of minimum 65ft and maximum 85ft distance from the well centre.

(iii) Clear working height (ground to underside of crown frame) – minimum 102 ft.

(iv) (a) Hydraulic mast tilting & extending systems and automatic locking device to lock the mast into its fully extended operating position as per Rig design. The system shall include manually operated bleed valve for removal of entrapped air, built in orifice system/check-choke system shall be provided

to assure a safe descent rate to protect the mast in the event of failure of the hydraulic system / abrupt loss of hydraulic pressure.

(b) Audio alarm should be provided when the upper mast is fully raised and locked on the lower mast.

(v) Suitable capacity heavy-duty adjustable jackscrews with lock nuts shall be provided for centering / aligning of mast.

(vi) Automatic locking system shall be provided with additional safety manual lock. This is required after telescoping of mast to full height. This added safety feature is to prevent accidental unlocking of automatic locking system.

(vii) Automatic erecting type racking board designed to eliminate possible interference with wellhead equipments during raising & lowering of mast. Racking board to be of all welded construction be provided with height adjustment having 3 different positions at approx 16Metres, 17.5Metres & 19Metres from top of sub structure to enable stacking ofrange-2 tubing in doubles at sub-structure floor with capacity to rack minimum 16000 feet of 2-7/8" tubing in doubles. Additional pipe raft to be provided if required to stack the required length of pipes. Racking board shall also be suitable for racking of 2-7/8" and 3-1/2" tubing& drill pipes. Racking board shall be provided with folding railing &safety belt.

(viii) a) Racking board shall automatically lower into working position as mast is telescoped up & is raised into folded position as mast is telescoped down. Adjustable fingers are to be arranged for end racking only.

b)The railing of monkey board should get folded in the monkey board itself when the mast is lowered and should get unfolded when mast is raised.

(ix) Single standpipe of 3" size complete with upper tube turn, hammer union on upper end &steel elbow & hammer union at lower end shall be clamped to mast and opposite to operator's side. Working pressure shall be 5000 PSI.

(x) Mast climbing ladder along with suitable fall prevention device for person climbing the ladder, starting not more than 2ft height from the derrick floor up to crown block shall be provided.

(xi) Crown block platform (crown nest of minimum 0.6M width) shall be provided with handrails and entrance from ladder & floor of expanded metal. One suitable zin pole with pulley arrangement for lowering & assembly of fast line Sheaves.

(xii) Two Hydraulic catworks shall be fitted to the mast.

(xiii) Mast shall have an integral 'travelling block cradle' for use to secure travelling block while travelling.

(xiv) The mast shall be designed to withstand wind speed of minimum 80 miles/hr (128 Km/hr) as per Clause6.2.3 of API 4F with full pipe/ setback with all guy ropes properly placed as per standard API pattern.

(xv) External Mast guying shall be provided as per API 4F standard for specified wind velocity and full pipe/ setback. One set of crown & racking board wind guide line complete with wire lines along with thimbles clips, come longs& boomers shall be provided. Also to include internal load lines from crown to carrier

(xvi) Mast shall be painted as per the painting schedule indicated.

(xvii) Raising, lowering, locking & telescoping controls at operators position near base section of mast with clear view during operation.

(xviii) Escape device: DGMS approved Topman Emergency Escape device & Escape line is to be provided. This device is used to allow a worker to easily get to a safe distance on ground away from the work platform (monkey board) on the rig in emergency situation needing evacuation. It shall include wire line, mast anchor & ground anchor. There should be safe & sufficient clear passage at Monkey board for Top Man to the escape device.

(xix) The mast should be designed to ensure lowering and raising of mast with substructure in workover position at its full design height. During this process the substructure shall not obstruct the mast. Substructure shall also not interfere during removing of carrier from site with mast lowered onto it, in travel position.

(xx) The mast shall be provided with a nameplate having full information as required to be provided as per API 4F.

(xxi) Mast accessories: cable racks for guy lines storage on mast side.

(xxii) Spinning line roller guides located in mast for hydraulic catwork system.

(xxiii) One set of 2 counter weights for use with manual tongs installed on lower mast section must include weight buckets, guides, sheaves & wireline from buckets.

(xxiv) One additional sheave to be provided for rigging up Power tong.

(xxv) Diving board to be provided with foldable extension & handrail & toe board.

(xxvi) Hydraulic Cat works-

Hydraulic make up (spinning) cylinder with stroke multiplier, giving minimum 15 ft stroke providing minimum 10000 lbs (4444kg) line pull. Hydraulic break out cylinder to develop a minimum line pull of 20000 lbs with 4 ft stroke. Hydraulic Cat works is to be complete with all fittings, hydraulic controls, turn-back sheaves, wirelines, hoses, rollers, piping to rig hydraulic system & installed on mast. Control for makeup & breakout to be located at Drillers console.

(2) Crown block integral with the mast, monogrammed to API 4F.

(i) Static load capacity - minimum 125 MT (136 ton)
(ii) 5 sheaves with crown block & 1 cat line sheave as per API 8A/8C.
(iii) Integral design shall have 8 numbers of lines to block strung up.
iv) Wire line size 1.1/8" - 500M long 6x19 construction, RH, regular, IWRC as per API 9A
(iv) The sheave bearings shall have provision of lubrication from grease jerks provided at a convenient point.

(3) Sub structure API 4F with API monogram

(i) Sub structure shall be collapsible, pin type, telescoping / parallelogram / swing type.
Bracings on sub structure shall not obstruct handling, placement & removal of 7 1/16" - 3 stack BOP of Hydril / Cameron / Shaffer make.

(ii) (a) Shall provide working floor area(approximately 16'x16') with detachable railings on all sides and with provision to accommodate 17-1/2" rotary table.

(b) The side railings shall have the toe boards welded (plate of 0.15 meter height all around ,at the bottom)

(iii) Collapsible substructure shall have minimum clear working height of 13 ft below rotary beam in workover mode, (However, height should be sufficient enough to accommodate the BOP stack along with riser nipple, considering 2 ft well head height) and the overall height of maximum 9 ft in collapsed condition for transportation.

(iv) Substructure shall be rated for minimum 185 MT (203.9 ton) rotary load, minimum 90 MT (99.2 ton) set back load & minimum 275 MT (303.1 ton) simultaneous load.

(v) Structure floor and folding wings shall be plated with chequered floor plate. Set back area shall be covered with 3" thick wood.

(vi) Base area of substructure shall be plated with 10mm steel plate for improved floatation.

(vii) Suitable hydraulically operated mechanized system for easy and safe installation of Hydril/Shaffer/Cameron BOP of 7-1/16". The system should be easy to maintain and it should be so designed that it can be transported separately as well as can be retracted within the substructure and doesn't interfere in day to day rig operations. There should be safe provision of horizontal and vertical movements of the BOP during mounting and dismounting without much labour.

The substructure to be so designed that while placing against the well head no beam / member to foul with the standard well head. The base of the substructure should have minimum clear area of 2.85 M (length, along the outfit centre line) X 2.25 M (Wide; perpendicular to the outfit centre line).

(viii) Substructure shall be provided with nameplate containing all information required as per API 4F.

(ix) One ladder from sub structure floor to ground off drillers side & one ladder from substructure floor to carrier floor to be provided.

(x) Every open-sided floor or platform 1.8 meters or more above adjacent floor or ground level where any person is allowed to work or pass, be guarded by a standard railing.

(xi) On every derrick or portable mast, where a person has to work, a platform at least 0.60meters wide shall be provided on at least one side of the crown block. The platform shall be equipped on its outer edges with a two-rail railing at least one meter high and toe board of 0.15 meter high.

(xii) Pins / locks required for fitting / removing during unfolding / folding of sub structure should be at safe man height level and easily accessible.

(xiii) An Emergency escape slope from derrick floor to ground level shall be provided for escape of rig floor crew in emergency.

(4) V-door pipe slide:

V-door pipe slide of steel frame, metal plated with minimum 10mm thickness. Pipe -guide from catwalk level to substructure floor level. Slide unpins for transport. The pipe slide including a set of stair with railings from sub structure floor level to ground level and its slope should be such that pipes for 'running in' in singles for latching in elevator can be handled easily to achieve this it is suggested that the distance between centre of Rotary Table to V - Door should be around 3.25 meters, but safety of operating personnel also to be ensured. Provision to be kept for placement of V-door pipe slide both along the outfit (parallel to outfit) and also to be placed perpendicular to the outfit on off-driller side. The placement will be decided during the use of outfit depending on the availability and orientation of the well site plinth area.

One additional V-door Slide to be provided for pulling in and lowering of tools and smaller equipments to the ground from derrick floor. The V- door Slide to be placed on off-driller side of the floor.

(5) Catwalk/pipe racks:
One approx. 4' wide x approx. 3' 6" high x approx. 40' long **in two pieces** catwalk plated with minimum 10mm thickness steel plates along-with hinged pipe racks on each side. One sloping ramp at far end of cat walk with stairs to ground.

Pipe racks are to be placed parallel to the outfit. This will be required to reduce the overall plinth area requirement for the outfit placement.

SECTION B3

(1) Carrier ramps :
Carrier / Rig Ramp as per design – in two pieces, with tyre guides, load beams, jack supports, turnbuckles, mud boat decking of chequered plate, tie up arrangement with sub structure.

(2) Carrier

(i) The carrier shall be robustly built to take the full load with the mast under difficult travelling condition through hilly terrain, cross country, slushy and loose earth roads in the fields. Carrier shall be self propelled, right hand drive (when viewed from the rear)

(ii) The carrier shall be provided with adequate Nos. of Front and Rear axles to take the full load of the unit during stationary and travelling conditions. Individual Load on each axle (all front and rear) shall be within **85%** of Maximum Loading Capacity of the respective axle. i.e. Total Weight (Laden Weight) of the unit with all items including mast shall be within **85%(Eighty Five percent)** of Maximum Permissible Gross Vehicle Weight (i.e. Total Axle Capacity) of the unit.

(iii) Adequate Nos. of heavy duty drive axles and multi-speed transmission to move the unit in difficult road condition. Individual axle loading shall not exceed 12 MT. All drive axles shall have Inter Axle Lock and Differential Lock facilities. Axles shall be any of Rockwell, Fabco, Dana, Clarke, Meritor, Sisu make.

(iv) All steering front axles.

(v) Heavy duty suspension system both in the front and rear. Walking beam type in the rear axles of Hendrickson OR Neway make.

(vi) Right Hand drive hydraulically assisted steering system. Steering wheel shall be on the right hand side of the carrier when viewed from the rear. Turning radius shall be as minimum as possible for negotiating sharp turning in narrow field roads and shall not be more than 20 meters for the carrier fitted with mast. Suitable shifter to engage & disengage the steering pump from the engine to avoid idle running of the pump during rig operation may be provided. It shall be bidder's endeavour to supply the steering box of make Spicer, ZF, Sheppard, Rane, TRW; steering pump of VICKERS, PARKER or REXROTH make.

(vii) Brake system-

(a) Service Brake – Pneumatic Multiple Circuit Foot-operated Power Brake acting on all wheels.
(b) Emergency/Parking Brakes - Automatically engaged Emergency Brake acting on all rear wheels in the event of low air pressure. All Emergency/Parking Brake Servos shall have manual release mechanism (Screw Type) to release the brake manually in case of low / no air pressure for maintenance and towing the unit whenever necessary.
(c) Manual Hand Operated Parking Brake acting on all wheels. All brake valves shall be of Bendix or Wabco or Rexroth make.
(d) Brake actuator shall be of S - cam type.

(viii) Wheels and tyres- The tyres with tubes should be from reputed International manufacturers and specifications should be such that the tyres are easily available in India. Two nos. Front wheels and two nos. Rear wheels shall be provided with each carrier as spare wheels (rims with tyres & tubes). Suitable carrier provision to be provided to carry one front wheel and one rear wheel along with the unit.

(ix) Driver's Cabin

(a) Two man cabin with two rear view mirrors and adjustable seat with shock absorber shall be provided.

(b)Carrier controls for selection of transmission speed, brake and on road application shall be provided inside the carrier cabin.
(c)The cabin shall be equipped with standard instrument panel with indicators, gauges, lighting.

(x) 2(Two) Nos. Stopper Block for rear wheels to be supplied along with the carrier.

(xi) Casing spool space for cut and slip provision to be provided between hydraulic tank and driver cabin. However, manufacturer may locate it in any other convenient location looking into availability of space. Sufficient space should be allowed for maintenance of equipment.

(xii) Carrier shall be equipped with individual control levers installed in the hydraulic valve bank.

(xiii) Two Nos Diesel tank each of 125 gallon (473 litres) capacity made of Aluminium/ stainless with filling cap, lock & key, drain plug etc. Digital fuel tank indicator with guard mounted at the top of the tank and in the control panel.

(xiv) Two standard toolboxes shall be provided on carrier.

(xv) Walkways and stairs- Folding walk ways along side of the unit on & off operator's side extending from rear of unit to engine area including stairway with hand rails from walk way to ground on both sides. Checker plate decking throughout. Suitable locking arrangement shall be provided for the walkways and railings to keep in folded positions to prevent accident during travelling.

(xvi) Detachable Stairs should be provided on both sides of the engine for quick access.

(xvii) Heavy-duty clevis pin type Towing Hooks both at front and rear capable of pulling/ towing the unit from bogged down situation from front as well as rear. (Pin size minimum 25 cm in length and 5.0 cm in diameter).

(xviii) Travelling height: maximum 14' 6" from ground to upper most point on mast in travelling condition.

(xix) Dead line anchor suitably mounted on the Carrier Frame for designed line size with API 8C monogram as applicable. The dead line anchor to be of suitable construction and ensure positive reliable transmission of the deadline load signal to the sensor.

(xx) Transmission shifter with locking arrangement for travelling / operations mode to be provided at convenient operating positions. This is to prevent accidental engagement of travelling transmission in Workover mode.

(xxi) Standard tools for engine, transmission, rotary system hydraulic system, pneumatic system and drawworks shall be provided. (List to be provided along with the technical bid).

(xxii) Ground clearance not less than 25 cm for enabling to move the outfit through uneven culvert and undulating & underfoot conditioned roads in our fields.

(xxiii) Total weight of the carrier with the mast shall not exceed 60 MT as our roads and bridges are rated for 60 MT only.

(xxiv) Overall dimensions of the carrier and rig components shall be as per road transportation regulation of India.

(xxv) Drive testing with full load at all speed/gears for to a maximum of two hours period to be carried out during pre dispatch inspection.

(xxvi) Bidder is to quote for the spares as per list provided vide Annexure-IV cost of which will be considered for bid evaluation purpose.

SECTION C3

(1) Engine on carrier:

(i) 01(one) No. Caterpillar C-18 ACERT fuel efficient electronic diesel engine, turbocharged, after cooled, Inline 6(Six) cylinder, capable of developing minimum 575-600 HP (net) @ 2100 RPM at flywheel end [operating speed range 1800-2200 RPM] under standard atmospheric temperature of 2°C-50°C, altitude not exceeding 150 Mtrs above mean sea level, relative humidity 95% at 35° C.
(ii) The engine should be suitable for continuous duty & capable of developing 10% in excess of its rated output at its rated speed for a period of 1hr in any period of 12 hrs continuous running without undue heating or any other mechanical trouble.
(iii) The engine should be unidirectional i.e. rotation is anti-clockwise when viewed from flywheel end and should conform to BS: 5514 or equivalent or latest.
(iv) Engine shall confirm to minimum EURO-III / BHARAT STAGE-III / TIER-III or equivalent emission norms.

(v) Engine Fault Diagnostic Tools [both software as well as hardware-CAT ET & Laptop] with accessories & also display on the engine panel shall be supplied along with each unit. Bidder shall categorically confirm in the bid that the offered software & hardware is for the particular engine of the truck.

(vi) All the accessories & fittings of engine viz. Radiator, Coolers, Silencer cum Spark Arrestor, Air Compressor, Engine Harness Wirings & accessories etc., must be of OEM supplied with proof of documents. Bidder must confirm in their offer to provide documentary evidence from OEM regarding supply of the above mentioned items at the time of inspection.

(vii) The engine should be equipped with:

a) Heavy duty Air Cleaner with pre-cleaner & Vacuum Indicator.
b) Spark Arrestor cum Silencer covered with heat resistant material & capable of max exhaust back pressure: 75mmHg. Exhaust is diverted to off-operator side with 85dB muffler and spark arrestors.
c) Heavy duty Radiator for Industrial use with Fan, Fan arrangement & low water level indication with alarm. The radiator must be having capacity of at least 20% in excess of total heat rejection of the engine.
d) Pneumatically operated Inlet Air shut off device & Fuel shut off device should be provided with the engine for emergency shut off & designed in such a way that it can be operated from engine as well as Driller's console. Proper drawing of Interconnection between the driller's console & the Air-shut off device to be provided along with the offer.
e) Instrument Panel should have Oil & Fuel pressure gauge, Oil, Water & Exhaust temperature gauge, Electronic Tachometer with R/Hrs meter, Emergency air shut off switch etc. There should be sufficient space for maintenance and repair of the Instrument Panel.

f) Suitable Safety Shut Off system with Alarm for Low lube oil pressure, High water temperature, Engine over speed etc. Bidder must mention the Safety Shut Off system offered for the engine & provide detail information with literature.
g) Air compressor with minimum capacity of 30 CFM (850LPM), @2100 rpm @ 120psi for meeting complete air requirement of the rig package as per rig design with air tank of suitable capacity. It should be suitable for all air control valves, clutches of rig system, rotary slips etc. Air dryer without heating system, mounted before the air receiver with pipe connection, filter-regulator-lubricator & gauges is to be provided.

Suitable capacity air receiver/s mounted on the carrier, size & capacity should be mentioned along with the offer.
Air receiver/s and lines shall be tested as per relevant API standard for any leakage. Test certificate to be provided along with the supply.
All air lines from compressor to tank / tank to supply end must be made out of solid line / hydraulic hose of SAE standard in place of PTFE tube. The bidder must confirm the same in the offer.

h) The critical wiring should be in separate rodent proof conduit with proper marking from other wiring for following:-

1) Engine shutdown signals.

2) Engine Throttle signal from derrick & Cabin.
3) Wiring which activates the special modes of engine like PTO enable, engine de-rate, idle RPM mode etc.
4) Interfacing wiring between engine, transmission and safety system.

Note: Engine Harness wirings must be of OEM supplied.

i) Engine starting system should have independent pneumatic & electric starter with interlock for use of one starter at a time.

2 (two) Nos. maintenance free Heavy duty battery suitable for hazardous area (Please refer extract of hazardous area and relevant regulations enclosed at Attachment-I), complete with cable & connection to be provided in a steel box with wood panelled inside the box. Each engine should have 24 volt battery charging flameproof alternator.

j) General

1) Vibration Dampener and guard.
2) Lifting eyes
3) Fumes disposal
4) Crankcase breather
5) Heavy duty servicing hour meter
6) Maintenance tools
7) Standard painting of the engine
8) Engine crank case design should be of shallow pan type.

k) Sound Barriers

The bidder should provide suitable Sound Barrier to reduce the noise of the engine.
The Sound Barrier should be sliding / easy removable type for ease of engine maintenance.
Details about the Sound Barrier with drawing, dimension, material, reduction of engine noise outside the sound barrier etc must be provided along with the offer.

l) Operating Site Condition

The engine should be suitable for operation at the following site condition:

a) Engine site temperature	-	50°C(Max)
b) Engine site temperature	-	2°C (Min)
c) Maximum relative humidity at 21°C	-	100%
d) Maximum relative humidity at 35°C	-	95%
e) Maximum relative humidity at 45°C	-	70%
f) Altitude above sea level	-	150 m.
g) Average annual rainfall	-	343 cms.

m) Tool Kit for Engine & Transmission

01 (one) set of standard tools for each Workover outfit of Snap-on make in heavy duty 3/5 tray metal box with handles & locking arrangement for carrying out normal maintenance of engine as per Annexure –IB (Item No. 1 to 33) to be supplied.

Special tools should be supplied along with the consignment for carrying out engine major overhauling jobs as per enclosed Annexure-IB(Item No. 34 to 39). These tools must be supplied in proper tool box. Specific description, part nos., make, etc. and unit price of each item shall clearly be indicated in the bid.

Cost of the above tools as per Annexure –IB to be considered for evaluation purpose.

Any other tools necessary for maintenance to be mentioned in the offer.

viii) Spare Parts for CATERPILLAR Engine

Bidder should quote unit price for following spare parts. Item wise price of each spare part with part no should also be provided.

Bidder must mention in their offer the total quantity of each of the following spare part required for running of each engine for 2000hrs.

1. Fuel Filter
2. Lube Oil Filter
3) Air Filter
4) Electric Starter
5) Pneumatic Starter
6) Charging Alternator
7) Fuel Injector
8) Radiator & Alternator Power Transmission Belt Set
9) Lube Oil (ltr.)
10) Coolant (ltr.)
11) Air Compressor Repair Kit
12) Turbocharger Repair Kit

The unit cost of above spare parts will be considered for bid evaluation. However OIL reserves the right to decide the item & quantity of spare parts for procurement along with the main equipment.

ix) **Documentation & Bid Submission**

Bidder's response should clearly be defined. Bidder shall furnish specific details / specifications of all major components, system with make & model etc wherever applicable. Generalized response like- 'As per Tender Specifications/Technical Leaflet', 'Noted', 'Accepted' or in any similar fashion is not encouraged.
It shall be bidder's endeavour to offer the following items as per make & models indicated against each item. However other suitable makes & models are acceptable in case of operational and or design requirements supplemented with proper justification.

1) Steering Pump: Victor, Parker, Rexroth
2) Hydraulic Pump: Parker
3) Air Starter: IR
4) Air Dryer: Wabco Single Chamber Air dryer, without heater.

x) **SPECIAL NOTES:**

a) THE ENGINE WITH TRANSMISSION MUST BE MOUNTED ON A SINGLE, STRONG, SUITABLE SKID & SHOULD BE ANCHORED FIRMLY WITH THE MAIN CHASSIS OF THE WORKOVER OUTFIT.

b) ANNEXURE-IA: TECHNICAL CHECK LIST ATTACHED WITH TENDER.

BIDDERS MUST FILL UP THE SAME & RETURN WITH OFFER FOR TECHNICAL SCRUTINY.

c) ANNEXURE-IB: DETAILS OF MAINTENANCE TOOLS WITH QUANTITY ATTACHED WITH TENDER AS PER 1 (vii) (m) ABOVE.

BIDDERS MUST INCLUDE IN THEIR SCOPE OF SUPPLY & OFFER FOR THE SAME.

d) PARTS LIST, INSTRUCTION & SERVICE MANUAL

01(one) set of technical details of the engine, Allison transmission and dimensional drawing of all major components, is to be provided along with the offer.
The bidder shall furnish technical data sheets and dimensional drawing along with the quotation.

xi) **Test Certificate**

The complete sets have to be load tested at manufacturers work & test certificate have to be provided along with the delivery of material. Our engineer will visit to witness the load test.
The nature of after sales services, which can be provided by the successful bidder during initial commissioning as also in subsequent operation, should be clearly indicated.
Supplier must categorically confirm regarding compliance with the inspection / test procedure and other terms & conditions detailed above are very essential. Offers will be liable for rejection in the absence of such confirmation.

xii) **Deviation**

Deviation in respect of any specification as detailed above should be highlighted with technical calculation / catalogue / literature etc.

xiii) **Guarantee / Warranty**

The complete package / unit shall be under guarantee / warranty by the supplier for a minimum period of 1 (one) year from the date of successful Commissioning of the complete unit at site.
OIL reserves the right to inspect, test & if necessary reject any part / parts after delivery at site (including incomplete manuals, catalogues, etc.) in case of any fault on the part of the supplier.
It shall in no way be waived by the reason that the unit / item was previously inspected & passed by OIL as per Inspection Clause detailed elsewhere in the tender.
To keep the unit fully operational, in case of failure of any item during the warranty period, it is the supplier's responsibility to arrange replacement / repairing at site at their own cost including custom duty, freight, etc. within a period of maximum 3 (three) weeks from the date of notification of such failure.

(2) Transmission with integral torque convertor With Carrier Engine.

(i) Suitable capacity Allison transmission [Electronic – 5000 Series or Above] to cater maximum output torque of the engine with retarder brake, lock up clutch and drop box for transmitting power for rig operation and carrier drive, having minimum five forward & one reverse speeds, with dual controls i.e. from driver's cabin and driller console along with indicator and with safety interlock facility. Model of Allison transmission must be mentioned in the offer with technical brochure.
Bidder must confirm in their bid to provide O&M manual & parts book [Soft & hard copy in English language] along with the supply of Allison Transmission.

(ii) Rig manufacturer should ensure proper matching between rig engine & transmission to meet adequate power requirement for operating the rig / carrier. Programmed self diagnostic kit (both software as well as hardware) shall be supplied along with the unit. If additional software is required to maintain the electronics transmission system, same should be supplied with licence.
Bidder shall categorically confirm in the bid that the offered software is for the particular transmission of the rig. Moreover suitable weather protection for electronic system is to be provided.

(iii) Power take off (PTO) from transmission system with pneumatic clutch and controls for hydraulic pump.

(iv)Transmission wiring should be in separate rodent proof conduit with proper marking from other wiring. All cables must be terminated properly. If any cable is not used in the harness it should be removed from the harness. Suitable connectors with sufficient cable length are to be provided where flexibility is required as per instrument manufacturer design, so that the cables are not in stress.

(v) All the accessories, fittings / connections & harness wiring of Allison Transmission must be of OEM supplied with proof of documents. Bidder must confirm in their offer to provide documentary evidence from OEM regarding supply of the above mentioned items at the time of inspection.

(vi) Drillers console gear selector should have removable connector at both ends.

Note: - All the electrical / electronic circuit diagrams for operation of the Transmissions have to be furnished along with the offer for scrutiny

ANY ITEM/POINTS NOT INCLUDED BUT NECESSARY FOR EFFICIENT CONTROL AND OPERATION OF THE SYSTEM SHOULD BE STATED BY THE BIDDER

(vii) **SPARE PARTS FOR ALLISON TRANSMISSION**

Bidder should quote unit price for following spare parts. Item wise price of each spare part with part no should also be provided.

Bidder must mention in their offer the total quantity of each of the following spare part require for running of each transmission for 2000hrs.

(i) Filter, Transmission Oil
(ii) Suction & Delivery Hose
(iii) Complete PTO
(iv) Transmission Oil (ltr.)

The unit cost of above spare parts will be considered for bid evaluation. However OIL reserves the right to decide the item & quantity of spare parts for procurement along with the main equipment.

(3) Power Transmission to Drawworks & Carrier

Suitable power transmission system, as per rig design shall be provided for transmitting power to draw works and rotary table in workover mode and to carrier in road-mode with dual control from cabin and driller's console along with safety interlocks and indicators.

(4) Hydraulic system

(i) Complete with hydraulic pump [make: Parker], hydraulic oil reservoir, suitable hydraulic lines, filters, hoses, pressure gauges, connections and valves, regulator etc. for the operations of / like mast raising / lowering, extending, levelling jacks, hydraulic cat works, hydraulic winches, hydraulic power tong drive, etc.

(ii) Capacity of the pump as per rig design, minimum 2000 PSI nominal working pressure. It shall be bidder's endeavour to supply the Hydraulic distributor, valve manifold, Hydraulic valves of VICKERS, COMMERCIAL HYDRAULICS, BENDIX, EATON, PARKER or REXROTH make only.

(iii) Hydraulic pump shall be driven from PTO of the Allison transmission with pneumatic clutch and controls. Total Interface drawing of Engine, Transmission & Hydraulic pump shall be supplied.

(iv) Protection for hydraulic pipe with guide pipes & support at intermittent locations to avoid damages to the hydraulic pipe.

(v) Tank, reservoir capacity as per design with filler cap, breather, oil level gauge filter, safety by-pass relief valve to prevent accidentally exceeding max rated working pressure, pressure & temperature gauges.

(vi) Hydraulic Test Certificates from reputed Certifying agencies to be made available for all hoses installed as per applicable SAE / DIN standards.

(vii) Bidder should quote unit price for following spare parts. Item wise price of each spare part with part no should also be provided.

1. Hydraulic pump [with make & model], complete
2. Hose, suction complete, Hydraulic pump
3. Hose, delivery complete, Hydraulic pump

The unit cost of above spare parts will be considered for bid evaluation. However OIL reserves the right to decide the item & quantity of spare parts for procurement along with the main equipment.

SECTION D3

(1) Drawworks (Main winch) on the Carrier

(i) Main drum suitable for hook load capacity of minimum 125 MT (136 ton) in accordance with API 7K as applicable.

(ii) Single drum dynamically balanced draw works should have Axially mounted, water cooled with Disc Brake as auxiliary brake, suitable for minimum 125 MT (136 ton), on the Brake Drum / shaft to carryout Retarding as well as Braking, also having provision of parking. The Band Type Brakes should also be provided as main Brakes. The Disc Brake and Band Brake should be complete with adjustment system & cooling system for working in 55 degree Celsius ambient temperature and at continuous full load. The electrical motor operated cooling system should either be mounted on the carrier or provided as a separate portable unit connected with the suitable hoses etc. The equipments should be mounted in such a way that safety during operation is ensured and there should be enough space for maintenance of the equipment. The Disc Brake is to be of National or Eaton Make. The control of the Disc Brake shall be provided at a convenient place in the hands of the Rig Operator, through a pneumatic Valve and the movement of Valve lever shall determine the braking Torque applied. Complete Rig operation should be possible independently with the help of Band Brakes as well as with the combination of Disc Brakes & Assist Brake.

(iii) Rated input horsepower suitable for rated hook load capacity, designed to provide empty block speed of 7 feet/sec & block speed at 125 MT hook load, 1st gear operation is 0.9 feet/sec, 8 lines strung up.

(iv) Main drum dimensions as per design with Lebus grooving for wire rope as per design to be provided for proper wire line spooling. However, the casing line size should be 1 1/8” (1.125 inch).

(v) The Draw works and its brakes shall have suitable water cooling system. Manifold, valves, reservoir, pump, exchanger should be included as per design.

(vi) Assist brake with chain drive in oil bath case, high speed positive air actuated drive clutch with control valve at operator’s position, with manifold and water flow control valve and pedal control at operator’s position to be provided as per design.

(vii) Drawworks should have sufficient range of forward speeds and one reverse speed.

(viii) Main drum driven by high capacity air balloon type airflex or equivalent make pneumatically operated clutches mounted outboard for easy accessibility & maintenance.

(ix) All roller chains of cotter pin / riveted type, with API 7F monogramming

(x) Wire rope with API 9A monogramming

(xi) Draw-works to have centralized greasing system (optional).

(xii) Chain drive shall be fully enclosed oil bath type, having lubrication as per design.
Chain guards shall be designed to have inspection windows to carry out repair and replacement of chains easily.

(xiii) Automatic crown block saver safety shut off device to limit block travel, installed on drawworks, automatically disengages clutch & sets main drum brake when block comes too close to crown block. (or required travel is reached)

(xiv) Automatic floor saver safety shutoff device to limit block travel, installed on drawworks, automatically disengages clutch & sets main drum brake when block comes too close to rotary table. (or required travel is reached)

(xv) (a) Automatic Hook load limiting device: - Automatic Hook load limiting device installed to prevent overloading of mast, linked up to weight indicator. Limiting device receives signal from weight indicator and applies brake & disengages draw works clutch simultaneously when the set hook load is reached.

(b) Suitable Casing Rope travel guide should be provided to prevent overlapping of the Rope on the Draw Works Drum.

(xvi) Driller's console /Control panel (Suitable for Hazardous area classified as per Attachment –1 Driller console to be located at rear of carrier with provision for elevating it to the base of the mast for use with substructure at derrick floor level. Mechanical controls located adjacent to Driller console for draw works brakes, include a chain tie down for the handle. Suitable arrangement to be provided to protect from ingress of rain water.

a) CONTROLS: Driller console should have Air control for main drum clutch, assist brake, engine throttle, engine shutdown and emergency shutdown, Hydraulic winch &Catwork control, Transmission shifter, Rotary drive clutch, Hydraulic pump, Pneumatic slip, Mud pump controls (if Connected), cooling water and assist brake water controls.

(b) Driller console should have following GAUGES / INDICATORS - Air, hydraulic, Mud Pump & Stand Pipe pressure gauges, SPM Meter for mud pump, Hook load, Tong torque, Transmission shifter indicators.

(2) Rotary drive system on Carrier

(i) Rotary drive system as per rig design from transmission to Rotary table with air balloon type clutch. Clutch control and engine throttle shall be at driller's console.

(ii) Elevated drive to rotary table with suitable protective guards.

(iii) Lubrication/ grease header to be provided.

(iv) Lubrication system as per rig design shall be provided.

However, centralised lubrication system for the outfit is a desired option. Bidder to quote for the item as optional and inclusion of the same in the price comparison will at OIL's discretion.

(3) Hydraulic Power tong circuit.
(i) Hydraulic power tong circuit with pressure and return line pressure gauge, adjustable relief valve with hydraulic outlet up to rear bumper shall be provided.

(ii) Tong hydraulic circuit shall be integral with rig hydraulic circuit.

(iii) Hydraulic pressure gauge and remote pressure control of tong circuit shall be located at the driller's console.

(4) Hydraulic winch on Carrier – 2 Nos

One to be mounted at suitable position on derrick floor and other on the carrier at a suitable position between drawworks and engine.

(i) Hydraulic winch, suitably mounted with two grooved sheaves, under crown, and cable. Minimum capacity of 10,000 lbs at 2,000 PSI oil pressure, with fail safe brake. Includes remote air control valve in control box & piping from & to valves, filters, safety controls, pressure gauges & all necessary fittings.

It shall be bidder's endeavour to provide Pull Master / Braden makes only.

(ii) Additional control on sub structure towards pipe rack side shall be provided.

(iii) Safety guards shall be installed on the winch

(5) Auxiliary Air Compressor

(i) 01(one) complete set of skid mounted Electric Motor Driven Auxiliary Rotary Screw Air Compressor package must be supplied along with the Workover Rig Package. The detail technical description of Air Compressor is as follows [compressor should be suitable for running, powered by a 30KVA diesel generator]:

a) Capacity: Min35 CFM
b) Pressure rating: 120-130PSI
c) Compressor Power rating: 7.0-7.5KW
d Sound Level: 65-69 dB(A) measured at a distance of 1mtr.
e) Air dryer: Non heater type
f) Make: IR / SULLAIR

g) Standard scope of supply:

- ❖ Screw Air Compressor with Lubrication system
- ❖ Cold Box / Hot Box design - electronic system for increased life of the components.
- ❖ Controls & Instrumentation- auto start/stop, blow down & load/unload solenoid, air pr gauge, total hr counter, fault warning etc.

h) The package shall include 01 (one) air receiver of 500 Ltrs capacity with necessary pipe connections. Connection should be made between the air tanks of air compressor & carrier. Compressor with motor must be mounted in a separate acoustic enclosure with proper ventilation.

The complete Air Compressor package [1no compressor with air vessel] must be mounted on a rugged oil field type rugged skidded hut for easy & secured transportation. Bidder must provide necessary drawing of skid and the schematic view of package along with the offer for technical scrutiny.

i) The bidder along with the offer must provide brochure of offered air compressor.
j) Air receiver and lines shall be tested as per relevant API standard for any leakage. **Test certificate to be provided along with the supply.**

(ii) System for filling air in tyres with required hose and adopters shall be provided. The system shall be hooked with air system with one extra out let tapping with valve.

(iii) Electrical Scope of supply for above mentioned Screw Compressor includes the following:

a) The suitable size of Cable used for connecting the motor from Power Distribution Panel shall be EPR (Ethylene Propylene Rubber) insulated, and HOFR (Heat Resistant, Oil Resistant and Fire Retardant), CSP (Chloro Sulphonated Polyethylene) sheathed screened 4 Core Copper conductor Cables and DGMS approved. Motor must be flame proof with DGMS certification.

b) Electrical Scope of supply includes the following:
Control panel to start / stop and protect the motor and compressor, with the following minimum facilities:

I. One adequately sized manually operated three-phase isolation switch to switch on/off all incoming power to the panel. Incoming power to the panel / motor will be connected to this switch.

II. Auto Start / Stop – Motor start / stop are to be controlled by the microprocessor – This is the default motor control scheme, MCCB and contactor based, with start/stop command from the Microprocessor controller.

III. Indication lamps: Input power available / Motor Running / Motor Stop / MotorTripped

IV. Emergency Stop Switch – A push button to instantly stop the motor. This should be “push to operate - turn to reset” type mushroom headed button.

V. Protection – Motor should be protected against the following:

a. Reverse rotation. Normal rotation as per the compressor direction of rotation
b. Overload
c. Single Phasing
d. Earth Leakage

c) Microprocessor based controller (This shall be ambient cooled and should not require any special means of cooling).
d) Temperature sensors input
e) Solenoid valves control (Blow down SV, Load/Unload SV)
f) Pressure Transducer sensor input
g) Package Air Pressure gauge
h) Total running hours counter
i) High discharge Air temperature indication lamp
j) Fluid Filter change indication lamp
k) Air / Fluid separator Element change indication lamp
l) Air intake filter change indication lamp
m) Display of all important parameters via indication lamps / on a screen

The control panel to be easily accessible, and IP 23 rated. All cables / sensor wires to beof bottom entry. All indication lights, meters and displays shall be located on the front.

The control cable connections in the panel should be done with copper conductors only.

For all other matters not specified above, the panel design and manufacture should be as per IS 8623.

Special Notes (Electrical):

a) Earthing studs – All electrical current carrying / consuming equipment or item should be provided with a minimum of two earthing studs.
b) Bidder should supply the electrical schematic drawing, clearly marking the motor starting system, the protection system, and the indications / safety devices employed.
c) All electrical schematics / wiring diagrams shall be approved by OIL before manufacture.
d) Power connections to the compressor from the external power source will be terminated on the isolator / MCCB of the control panel.
e) Only 01 (one) spare motor having specification, make & model exactly same with the above offered Screw Air Compressor must be supplied along with the Workover Rig package. The bidder should confirm the same in their offer.

(6) Rotary table API 7K monogrammed.

Rotary table, 17-1/2", with distance from center of table to center line of sprocket of 44".

(i) Dead load capacity minimum 160 MT (176 Ton).

(ii) Rotary table top to be flush with derrick floor.

(iii) Square drive split master bushing to be supplied with rotary table. It shall be supplied loose and API 7K monogrammed.

(iv) Rotary table shall be complete with hub for torque shaft drive or sprocket for chain drive or any other drive accessory required as per rig design to get drive from rig power transmission.

(v) Square drive Kelly bush for 3" Kelly, API 7K monogrammed. It shall be supplied packed separately as loose item.

(vi) Bit breaker adapter plate and lifting sling for split master bushing should be supplied loose & duly packed.

(vii) Manual locking system for Rotary Table to be provided.

(7) Unitized Hook block as per API 8A/8C with API monogram.

(i) Dead load capacity: Minimum 100MT (110 ton)

(ii) 4 No of sheaves, size and groove as per design, shall include hydraulic snubbing action, articulated connection and hook safety positioner / lock.

(8) Rotary hose

Rotary hose 3" x 55', 5000 PSI working pressure, however union shall be covered under the scope of stand pipe & swivel gooseneck for connecting to the rotary hose. Rotary hose shall be as per API 7K & monogrammed.

(9) Wire ropes

One roll casing line of standard length, API 9A monogrammed, on metallic spool with smooth drive for rotation with a provision for fixing stand on carrier for shifting of casing line.

One spare roll casing line of standard length, API 9A monogrammed shall also be provided.

(10) Stand pipe manifold

(i) Stand pipe 3" x 5000 PSI working pressure including gooseneck and hammer union mounted on mast (male and female portion of hammer unions are to be suitably provided, where ever it is specified along with pipe/goose neck/reducer etc so as to complete the stand pipe for connection with mud pump discharge on one side and swivel on the other side). Stand pipe and manifold shall consist of :-
(ii) Two (2) 2-1/16" 10,000 psi working pressure gate valves API 6A monogrammed.
(iii) Two (2) 2-1/16" 5,000 psi working pressure gate valves along with companion blind flange, API 6A monogrammed-to be supplied loose.
(iv) Three (3) 2" hammer unions, Fig 1502.
(v) One (1) 2" Line pipe threaded box connection for pressure gauge.
(vi) One (1) 2" Line pipe threaded box connection for pressure transducers.
(vii) One 3" fig 602 x 2" fig 1502 hammer union changeover.
(viii) API monogrammed 3" X 5000 PSI high pressure hammer union Fig 602, two (2) numbers to be supplied loose.
(ix) API monogrammed 2" X 10000 PSI high pressure hammer union Fig 1502, two (2) numbers to be supplied loose.
(x) API 6A monogrammed 2 1/16" X 10,000 PSI working pressure gate valve two (2) numbers to be supplied loose.
(xi) Two (2) 2" x 12' long, 10,000 PSI working pressure vibrator hose at pump discharge for connecting to high pressure line with 2" hammer union Fig 1502 end connection at both ends.
(xii) One (1), 2" x 12' long x 5000 PSI working pressure vibrator hose for connecting to standpipe manifold..

Kill line kit for field installation consisting of
(xiii) 2", 10,000 PSI pipe with hammer unions Fig 1502 10 ft long, 8 nos. ; 6 ft long, 4 nos. and 4 ft long, 4 nos.
(xiv) Four (4), 2" 10,000 psi working pressure, corner pipe 90 degree swivel joints and with hammer unions Fig 1502.
(xv) (a) 3", 10000 psi Fig 1502, 10ft-10 Nos (With hammer unions), (b) Swivel style 10 -10 Nos.,
(c)Swivel style 50– 10 Nos.
(xvi) 2", 1502 Plug valve-4 Nos, Check valve-4 Nos. (One end male and other female)
(xvii) 3", 1502 Plug valve-4 Nos, Check valve-4 Nos. (One end male and other female)

(11) Hydraulic tubing tong

(i) One set of Light weight hydraulic tubing tong of minimum torque rating 8000 ftlbs, as per API 7K & Monogrammed, replaceable jaws type for 27/8", 3½" tubings, complete with accessories like torque gauge assembly rating 8000 Ft. lbs., spring hanger assembly, Hydraulic Hoses with Quick couplings, Hydraulic Lift Cylinder Assembly for tong height adjustment and all other necessary items for its installation and operation.

(ii) Initially the tubing tong is to be supplied with jaws for 27/8"tubing, jaw sets for 3½" tubings to be supplied loose. Hydraulic tongs to be run from rig hydraulic system only. 10 sets of spare inserts for 2-7/8" tubing & 4 sets for 31/2 "tubing to be provided loose.

(12) WORKING TOOLS LIST PER RIG. Minimum listed below and additional specific tools eg for wheel repairs/ replacement, air filling, cardon shaft / cross repair, chain replacement, bearing replacement pullers, torque wrench, mud pump tools/ pullers for fluid end parts repair/ replacement, compensator charging tool kit etc. as per rig requirement, Heavy-duty Grease gun, 2(two) Nos. 50MT capacity Hydraulic Jacks with handles are to be supplied. Bidder to specify in the tech. bid.

(i) One set of ½" drive sockets set minimum 17 sockets, ratchet, hinge handle speed handle, and 3 extensions.
(ii) Open end wrench set combination size 5/16" to 1¼".
(iii) Adjustable wrench set of 4 suitable sizes
(iv) Heavy duty pipe wrench set of 36" & 48" size.
(v) 3/4" punch
(vi) Cold chisel
(vii) 10" pliers
(viii) Set of 2 Phillips screw driver suitable sizes
(ix) Allen wrench 7 piece set
(x) 2 lb hammer & 5 lb hammer - 1 each
(xi) Hack saw 10" with set of 10 blades
(xii) Tool box 24 x 9½ x 9½ w/tray Heavy-duty Grease gun, 2(two) Nos.
(xiii) Hydraulic Jacks 50MT capacity with handles are to be provided.
(xiv) Heavy duty aluminium alloy pipe wrench of size 18" & 24" – 2 Nos each.
(xv) One Heavy duty Chain tong 36" to be provided.
(xvi) Slogging wrench open end as well as ring type, 2 nos each of 36mm, 41mm, 46mm, 50mm, 55mm, 60mm & 75mm sizes may be provided.

(13) Rig instrumentation MARTIN DECKER make, suitable for Hazardous area classified as per Attachment-I

(i) Deadline weight indicator with sensator/ load cell on driller console/control panel, indicating load on hook for the designed capacity of the rig.

(ii) Mud pump pressure indicator, complete, on drillers console/control panel. 0-6000 PSI).

(iii) Pressure gauge mounted on stand pipe of 0-5000 PSI. Gauge should be in the clear view from the Driller's Console.

(iv) Suitable electronic recorder for recording hook load. The recorder display shall be mounted in weight indicator panel. The off-site printing of the recorded hook-load will be desired option. The storing space of the data in the recorder to be sufficient to store such cumulative data for operation of a week.

(v) Ton km indicator shall be provided near weight indicator box.

(vi) SPM indicator for mud pump discharge at driller's console & at local mud pump control panel.

(vii) All instrumentation tubings /pipings to be of stainless steel. However, suitable hoses are to be provided where flexibility is required as per instrument manufacturer design / as per mobile rig design.

(ix) Tong torque sensing system should be installed. Torque indicator for tong to be provided on drillers console.

x) In case of electronic sensor, same should have valid DGMS approval as per statutory regulations under Mines act as given in Attachment-I). Bidder needs to confirm to supply DGMS approved sensor at the time of submission of Bid. Successful bidder needs to produce the same before commissioning of the Rig.

Note: Calibration certificate for weight indicator, Mud pump Pressure indictor & pressure gauge mounted on stand pipe to be provided at the time of supply.

SECTION E3

Electrical

(1) Lighting system suitable for Hazardous area classified as per Attachment-I

(A) DGMS approved, Hazardous area flame proof lighting system for mast and carrier illumination as per rig design and as per API recommended practices 500 B and 505 B and has to meet Oil Mines regulations, 1984 as per Attachment-1. Requires 230V**,** phase to phase, 50Hz AC power supply from rig gen-sets to electrical power supply of the rig which shall be converted to 110V AC for derrick and carrier illumination. The lighting shall be provided with minimum 2 independent circuits along-with suitable flame proof & weather proof well glass fittings, FLP junction boxes, FLP double compression glands and FLP plug socket for each light fittings suitable for screw type CFL / LED lamps shall be provided for derrick and carrier illumination. One no of red aviation light fitting with LED lamp (flickering type) shall be provided at crown block. These lamps are to be supplied separately packed & to be fitted during commissioning. The flexible Cable used for connecting the light fittings shall be EPR (Ethylene Propylene Rubber) insulated, and HOFR (Heat Resistant, Oil Resistant and Fire Retardant), CSP (Chloro Sulphonated Polyethylene) sheathed screened 3 Core Copper conductor Cables.

The fittings/system shall be suitable for hazardous area application as per classification of hazardous area in Oil Mines under Regulation 74 of the Oil Mines Regulations, 1984.(Extract of hazardous area and relevant regulations enclosed at Attachment-I)

(C) Lightening Arrester cum Safety conductor from top of the Rig Mast to the earth to be provided taking into account the flexibility required during Mast lowering &Raising during Rig moves.

(D) Suitable provision must be provided on either side of Rig Trailer, Mast & Structure, Brine Tanks, Catwalk, Pipe Racks and Control panels for earthing.

(2) MOTORS – Details of motors required are given in the two Annexure – "Annexure Electrical Scope", and "Annexure – Motor Specifications"(Annexure -IIA & IIB). All motors to be FLP enclosure, and DGMS approved. Copies of such approvals shall have to be provided to Oil India along with supply and categorical confirmation is required in the bid, failing which offer shall not be accepted.

(3) DRAWINGS: Bidder shall prepare and submit the following drawings along with the bid:

IV) A single line diagram (SLD) clearly indicating the following:
   b. All generators, along with respective rating (kVA / kW), voltage, frequency
   c. All equipment driven by electrical motors, as well as the respective loads in kW / kVA as appropriate.
   d. All transformers utilized in the rig, along with the kVA rating of each
   e. All lighting circuits

V) A geographical layout diagram drawn to scale, showing the position of all electrical equipment deployed in the rig.

VI) A schematic drawing of the Generator and Power distribution panel (PDP).

(4)SPECIAL REQUIREMENTS

The following minimum special requirements shall be fulfilled in the electrical system of the Rig:

(a) **Related to CEA** (Measures relating to safety and electric Supply) Regulations, 2010:

I) Regulation 37 (iii) (a) – The design shall provide a clear working space of at least one metre in front of all control panels and switch-boards.

II) Regulation 100 - Bidder shall design, install and commission an “Earth fault current limiting system”, employing a restricted neutral system of power supply, to limit system earth fault current to 750 milliamperes. A suitable monitoring system for this system is also to be installed.

III) Regulation 102 (ii) - All lighting at hazardous areas shall be through 230 V (Phase to phase), with the neutral or mid-point connected to earth.

IV) Regulation 102 (ii) (b) (iv) – All remote control starters for motors and other devices located in hazardous areas shall be designed with intrinsically safe circuits (Ex-i type)

(b) **Related to DGMS / OISD / Statutory inspection bodies**:

I) Electrical Equipment used in hazardous areas should have DGMS approval. If DGMS approval is not available, the layout has to ensure that such unapproved equipment is placed outside the hazardous areas.

II) **Cables** used in hazardous areas – All cables used to supply power to hazardous areas should be approved for use in such areas by DGMS. All such cables should have copper conductors, four cores, and shielded. The cables shall be EPR insulated and HOFR/CSP sheathed.

III) **Cable Glands:** All cable glands shall be of FLP, double compression type, suitable for the type of equipment it is fitted on.

IV) **Plug Sockets –** All plug sockets for use in non-hazardous areas shall be similar to BCH make type DS plug sockets. For hazardous areas, Appleton make Explosion proof plug sockets shall be used.

(c) Related to OMR 1984

I) Rule 67 (3) – No naked light or open flame or spark shall be permitted within 30 metres of any well or any place where petroleum is stored – The generator, PDP and bunk houses shall be placed outside this distance. Cable lengths and cable trays shall be calculated accordingly.

(5)OTHER REQUIREMENTS

(a) Supply of electrical items shall include the following :

I) Cables – All cables required in the system shall be in the scope of supplier. Cable Terminations shall also be within the supply scope.

II) Earthing electrodes – minimum length of 1.5 m, GI pipes with at least 3” diameter, with perforations along the length. Quantity to be as per geographical layout.

III) Push-button Stations (PBS), equipped with intrinsically safe circuits, to start and stop motors. Each motor shall have its own, dedicated PBS.

IV) Cable Trays – Short height cable trays to protect cables coming out from Power distribution panel to the different usage points. The exact requirement of cable trays to be decided after studying the geographical layout of equipment of the rig.

V) Lights – A complete lighting system, with lighting supply transformer (415/230VAC, 3 phase) of adequate kVA rating, FLP light fittings (DGMS approved) with CFL / MV lamps of adequate rating for hazardous areas, and area light fittings (including 10 foot high pedestals) with lamps and control gear for non hazardous areas. A dual fitting, red colour aviation warning lamp (LED type, constant glow) shall also be provided along with the above system for fitting on the mast as and when required. The lighting system should provide illumination in the following areas:

Mast and working area, Mud and fluid preparation / storage area, Bunk houses, Generator and PDP houses,

SECTION F3

(1)

A. INSPECTION / Testing of equipment at manufacturing stage:

Inspection shall be carried by any one of the OIL's approved **third party inspection** agencies viz. Lloyds/ BV/DNV/RITES/IRS as pe requirements of various codes and standard mentioned in the supply order.

All equipment of rig shall be tested as per standard test procedure of Rig manufacturer and equipment manufacturers and as per relevant API codes.

Testing of mast shall be carried out as per API 4F. Testing of rig and systems after final assembly of all rig modules, including carrier, substructure, mast, mud pump, Gensets etc. after hooking up of the pneumatic & hydraulic lines between modules. Disassembly of rig package after testing packing.
Test certificates of equipment manufacturer for equipments & certificate of testing of rig after final assembly shall be submitted duly approved by TPI. Broad Scope of Third Party Inspection for Rig and Equipments shall be as under:-

(i) Inspection of rig (s) and equipments shall be carried out as per standard test procedures of rig / equipment manufacturing and as per relevant codes, components, as per requirement of API Q1 and relevant API Code.

(ii) Review/approval of QA plan and manufacturing program indicating various stages of inspection on receipt from manufacturer.

(iii) Upon approval of QA plan, manufacturer shall intimate readiness for inspection in stages to inspecting agency giving sufficient advance notice for deputing their inspectors.

(iv) Carry out all necessary NDT, Visual, Dimensional, Functional checks/ tests as per
QA approved plan including chemical and physical checks for raw material.

(v) Review/verification of material test certificate, QC documentations, material traceability records etc. by inspecting agency on receipt from manufacturer.

(vi) Visual inspection of various assemblies and sub-assemblies as per the specifications given in purchase order.

(vii) Inspection for proper workmanship of various welding jobs and mountings.

(viii) Witness final testing/ performance testing of equipment by inspecting agency as per approved QA plan**.**

(ix) To witness load test of mast to rated hook load capacity for 100 MT for 100 MT
Rig at manufacturer premises for each rig and the load test certificate at specified load is to be submitted with the rig. During the test all assemblies, sub-assemblies are to be monitored for proper functioning.

(x) Inspection shall also be carried out for all items of each individual rig package and the inspection certificate is to be issued.

(xi) Issue TPI certificate.

Note : Bidders will quote Third Party Inspection charges separately in the priced bid only .

B. PRE-DESPATCH INSPECTION & TRAINING

On satisfactory clearance of TPI (Third Party Inspection), pre-despatch inspection call to be given to OIL. Complete rig along with engine package should be offered for inspection & functional testing to OIL by the supplier at manufacturer's premises at least 75 days prior to dispatch. The rig will be offered in fully assembled condition with all accessories fitted and ready for function testing.

A multidisciplinary team comprising of 7-8 engineers of OIL will visit to the supplier's premises / manufacturing plant for inspection of complete rig package & functional testing of equipments prior to despatch.

To & Fro travelling expenses from Duliajan, Assam, India with boarding, lodging & food expenses of OIL's engineers will be to OIL's account. Cost related to inspection to be borne by the Supplier.

The Inspection cum Acceptance process would include but not limited to the following minimum steps/tasks –

a) Physical verification / inspection of all the items / fittings / accessories including Parts Catalogue, Maintenance & Service Manuals, Schematics, all tools under complete tool kit as well as other tools, all spares as per the Spare Parts List for engine etc.

b) Any modification requirement arising out of design aspect consideration (on the part of the supplier) shall be in the scope of the supplier at no extra cost to OIL.

c) The minutes of inspection process would be prepared at the end of the inspection and jointly signed by both the parties.

d) Supplier shall confirm in writing compliance of all the points raised in the minutes of inspection as well as any other subsequent additions/changes, following deliberation with the inspector after arrival at Duliajan.

e) Any other testing / joint inspection indicated elsewhere in this tender.

The supplier should arrange comprehensive training programme **immediately after the pre-dispatch inspection** for the multidisciplinary team of OIL engineers at their manufacturing plant / works for a period of 1 (one) week on Maintenance, Troubleshooting & Working Principle of equipments, systems, items etc of the unit amongst other relevant subjects. The training on Engine, transmission and other major items is to be arranged by the supplier but imparted by respective OEM's.

Similarly, a separate hand on training on maintenance at supplier's manufacturing plant / works should be arranged for a multidisciplinary team of 4-5 technicians from OIL following the training of the engineers [Bidder should indicate separate training module with duration for engineer & technician in technical bid. To & Fro travelling expenses from Duliajan, Assam, India with boarding, lodging & food expenses during training will be on OIL's account. Cost related to imparting of training will be borne by the Supplier and will be indicated separately for engineers and technicians].

A broad guideline of training module for engineer is as follows:

For Transport Engineer:

I. Power assisted steering system including hydraulic pump and gearbox.
II.Pneumatic system for brake & gear shifter (of the carrier) including different valves.
III.Axle, brake & suspension systems.

For Equipment Maintenance Engineer:

I.The operation, maintenance, trouble shooting & rectification related to Engine, Allison transmission, Generating Set [if any], Screw Air Compressor etc.
II.Hydraulic system
III.Pneumatic system
IV.Draw-works, Rotary Table, Rotary Swivel & other major rig equipment maintenance

For Electrical Engineer:

I. Generating sets
II.Power Control
III.Power distribution

For Instrumentation Engineer:

I. Training on instrumentation & control system of IC engines
II. Driller's Console & Electronic sensors for monitoring drilling parameters
III. Allison Transmission system

For Drilling Engineer :

I. Draw-works (with maintenance procedures)
II. Hydraulic system
III. Mast & controls
IV. Raising & lowering of Mast, Assembling & disassembling of Mast & Sub-structure, Assembling & disassembling of Mast from carrier and packaging & un-packaging of Mast & Sub-structure for transportation purpose.

(2) MANUALS & CATALOGUES

The successful bidder shall also provide documented training modules as well as video & CD presentation of their equipment for operation & maintenance.

5 sets (hard copies) of Operation & maintenance, repair/ overhaul manuals, part books, P&ID,s / Drawings of all rig equipments, sub-assemblies, components, instrumentation, hydraulic, air, electric, lighting, power flow systems, mast, substructure, rig carrier and its components like **steering system with pumps**, **carrier transmission system with prop shafts**, **gear shifter valves front axles**, **drive axles, differentials, suspension system, brakes system with shifters, valves & diaphragms**, **wheel rims, tyres, wheel studs,** power flow and other systems, valves, manifolds, hydraulic pumps, mud pump, generator, drillers console, crown-o-matic / flooromatic devices, air compressors, hydraulic catwork, BOP handling system, monkey board, hydraulic winch, pneumatic control valves, hydraulic control valves, tubing tongs, pneumatic slips, clutches, rotary drive system, PTO, rotary table, swivel, pumps and motors, engines, transmissions, generators, light fittings, glands, tanks, bunk houses, hoses, couplings etc **in English** for each rig shall be supplied.

The bidder in addition to above shall also supply do's and don't for critical operations like carrier roading, carrier placing, mast raising & extending, engine and pumps start-up and shut down, tripping etc along with operation procedure from starting engine up-to doing various jobs as above.
Besides above sets of hard copies of all above manuals & drawings etc., the same are to be loaded on 2 sets of CD's per rig, and to be provided.
Welding procedure for mast, substructure shall be provided.

(3) Commissioning, on site performance demonstration / testing:

All the THREE Rigs along with equipments to be Installed & Commissioned by the supplier within 45 days of notice intimation at Location (designated site) on completing total assembling and installation of the rigs (with its all ordered equipments) in presence of authorized representatives of OIL at that location.

The performance demonstration / testing of total rig system which shall be conducted at OIL's designated well site after complete assembling of all components. The performance demonstration / testing shall be conducted for 72 hrs continuously establishing trouble free operation of the rig and to be duly certified by the authorized representatives of OIL.

For the purpose of performance demonstration of systems running occasionally, the functional testing for two to three days shall be demonstrated to assure that all equipment / components of the assembled rig are functioning satisfactorily.

Bidder to indicate cost of commissioning in their offer.

SECTION G3

(1) Painting schedule: suitable for corrosive and saline environment

Blast cleaning of all accessible surfaces to SA 2.5 standard. At least (3 coats) polyurethane paint after applying primer. Under Coating with Anti Corrosive Treatment for cement & rust.

The colour shade should be as under.
MAST – WHITE
Draw Works – Orange
Carrier Chassis - Orange
Substructure - Black
Brine Tanks – Grey
Bunkhouses: - White
Crown, Travelling Blocks, Swivel, Racking Board & Rotary Table – Red
All working floors & walkways shall be painted with anti skid paint suitable for corrosive coastal field atmosphere.

NOTE

9) **Approximate external transportation dimensions are 9m length, 2.5m width and 2.8m height** (with skid beam).

2) Spare Parts

a) Bidder shall confirm in offer that supply of spares for the offered model is guaranteed for minimum of 10 years after supply.
b) Two years running spares for various major components of the unit including the carrier to be quoted by the bidder.
c) Bidder shall also quote instrumentation & electronic spares for two years of operation.

(b) and (c) above will not be considered for bid evaluation purpose.

3) Name Plate:

The name plate with the following details should be engraved/embossed on the equipment body as per clause 11.5 of API 16D :

a) Manufacturers name or mark
b) API monogram including API license number
c) Model name and number
d) Date of Manufacture
e) Weight of the equipment/component
f) Any other important/safety information

4) Documentation:

The vendor should provide the Operation, Maintenance/repair manual illustrating/indicating all parts by exploded part/assembly view – 3 sets as per clause 12.4of API 16 D along with performance test and material test reports with certificates etc.

5) Wherever API 4E, 4F, 6A, 7, 7F, 7K, 8A, 8C, 9A, 16A, 16C etc. are mentioned, it is to be read with their corresponding API Q1 certificate and the items/equipments shall be API monogrammed.

6) Any item / equipment / accessory not included but necessary for efficient Control and operation of the system shall be provided and indicated by the bidder in the bid.

7)Sample copy of Sale letter (Form 21) and Pollution Compliance Certificate (Form 22A) are attached for registration of the carrier as per Indian regulations.

8) Supplier shall provide separately cost of the carrier for facilitating registration of the vehicle with Indian registering authority.

Notwithstanding any clause mentioned elsewhere in the tender , the invoice for CARRIER WITH ENGINE & TRANSMISSION shall be submitted separately ,i.e. the same (invoice) shall include the cost of the chassis frame and all assemblies/components that are required for road movement of the unit only and the driver's cabin.

9) The motors, starters and the cable glands should be suitable for use in hazardous areas and duly certified by CMRI and approved by DGMS for Zone I and Gas group IIA & IIB of Oil Mines. The bidder shall submit copies of CMRI certificates & DGMS approvals for all the flameproof electric motors, starters and cable glands along with the supply.

10) GENERAL NOTES (In addition to notes mentioned elsewhere in this tender.)

a. The offered Mobile Rig shall be brand new, unused, of recent manufacture, and free from any manufacturing defect. This shall be categorically stated by the bidders in their quotations.

b. Any deviation(s) from the tender specification should be clearly highlighted specifying justification in support of deviation.

c. Offers shall be complete in all respects and all the items/equipment as specified in the tender must be included in the package. Offers deemed to be incomplete shall be liable for outright rejection. (Bidders may quote additional items / equipment or accessories not covered in this enquiry, if felt necessary for the completeness and efficient operation of the rig package).

d. The Bidder shall categorically confirm that the compatibility of all equipment offered has been thoroughly scrutinized and verified for smooth and trouble-free operation of the entire package to avoid unwarranted hitches during commissioning.

e. Quotations shall be accompanied by detailed technical specifications, manufacturer's printed specification sheets, literature, drawings, layout drawings & catalogues as indicated.

f. Bidders should specifically note the document submission schedule indicated elsewhere (i.e. in sections) including special documents requiring statutory clearances.

g. All equipment to be supplied with the Rig Package shall be in full conformance to and monogrammed per the respective API Specification as mentioned in the tender viz. API Spec 4F, API Spec 5L, API Spec 7, API Spec 7-1, API Spec 7F, API Spec 7K, API Spec 8C, API Spec 9A, API RP 500 & API RP 13E, etc.

h. Bidders shall confirm categorically that Installation & Commissioning of the Rig Package with all accessories would be carried out by their competent personnel at OIL's designated drill site, in Duliajan, ASSAM, INDIA.

i. Bidders, quoting for any bought out items should undertake & comply with Guarantee/Warranty clause indicated elsewhere in this tender.

j. Bidder is to confirm to provide the cost of the rig package broken down to major components like Carrier , Mast , Engine , Drawworks , Transmission etc. within 30 days of placement of order. The indicative list of major items is attached as Annexure – V.

Bidder should confirm in their technical bid that they will provide services on call out basis after the normal warranty & guarantee (as stated elsewhere in this tender) for a period not less than 3 years. The charges for such call out services should be indicated in the commercial bid but will not be considered in evaluation of the tenders.

SECTION H3

TECHNICAL CHECK LIST FOR ENGINE ANNEXURE-IA

Part ITECHNICAL

The following check list must be completed and returned with the offer. Please ensure that all these points are covered in your offer. These will ensure that your offer is properly evaluated. Please indicate details or Yes / No. as applicable to the following question, in the right hand column.

Sl. No.	PARAMETERS/REQUIREMENTS	BIDDER'S OFFER (To indicate details or yes/no, as applicable)	REMARKS, IF ANY
1	Whether quoted as OEM / Authorized dealer of OEM? Whether documentary evidences submitted?		
2	Whether separately highlighted deviation from the technical specification?		
3	Whether a detailed specification of Engine as per NIT specifications with manufacturer's technical literature / catalogue enclosed?		
4	Whether the offered engine is compatible to be fitted with offered Allison transmission as per NIT specifications?		
5	Whether test certificate of the engine will be submitted?		
6	Whether CMRI (India) certificate or equivalent certificate and DGMS (India) or equivalent certificate from competent authority from the country of origin for Electrical motor & Charging system of the Engine will be provided?		
7	Make & Model of Engine		
8	Make & Model of Air Compressor [Primary & Auxiliary both]		
9	Make & Model of Steering pump		
10	Make & Model of Air Shut off Device		
11	Have you met all BEC / BRC clauses?		

Part IIDOCUMENTATIONS

Sl. No.	DESCRIPTIONS	DOCUMENT ENCLOSED Yes or No	REMARKS, IF ANY
1	Whether Maintenance & Operators Manual, Engine built up records, Parts list of engine in soft as well as hard copy provided?		
2	Whether documents of Lubrication, fuel, hydraulic & electrical system of the engine provided?		
3	Whether documents of Performance rating curves of the engine provided?		
4	Whether documents of Specific fuel consumption of the engine provided?		
5	Whether documents of Emission norms of the engine provided?		
6	Whether documents of Heat load calculation of the engine provided		
7	Whether sketch / drawing for steering pump drive provided?		
8	Whether drawing of dimensional layout diagram with foot print of the engine offered?		

Offer Ref .....dated: .....
OIL's Tender No. .....
Signature _____
Name _____

Designation _____
Date _____

LIST OF TOOLS **Annexure- IB**

Sr. No.	Description of Item	Qty
1.	Open Jaw Double Ended Spanner set in Metric & Inch-12P/C per each set.	01 Set
2.	Double Ended Ring Spanner [deep offset hexagon ring] set in Metric & Inch-12P/C per each set.	01 Set
3.	Heavy duty Double Hexagon Standard Socket compatible for ½" Sq. Drive in Metric & Inch -8mm to 36mm [1/4" to 1 3/8"] per each set.	01 Set
4.	Reversible [quick release] Ratchet compatible for ½" Sq. Drive- overall length 250mm-01per set.	01 Set
5.	Sliding T-Bar compatible for ½" Sq. Drive-01per set.	01 Set
6.	Extension Bar compatible for ½" Sq. Drive- overall length 75mm-01per set.	01 Set
7.	Extension Bar compatible for ½" Sq. Drive- overall length 125mm-01per set.	01 Set
8.	Extension Bar compatible for ½" Sq. Drive- overall length 250mm-01per set.	01 Set
9.	Universal Joint compatible for ½" Sq. Drive- overall length 78mm-01per set.	01 Set
10.	L- Handle compatible for ½" Sq. Drive- overall length 250mm-01per set.	01 Set
11.	Adapter ¾" F X ½" M; 01per set.	01 Set
12.	Adapter ½" F X ¾" M; 01per set.	01 Set
13.	Universal Socket Wrench ½"; 01per set; [universal joint ½"].	01 Set
14.	Screw Driver Standard Blade, Cushion grip- 8mm X 250mm- 01per set.	01 Set
15.	Screw Driver 9 Tips with handle, Cushion grip- 01per set.	01 Set
16.	Adjustable Spanner- 200mm [8"]- 01per set.	01 Set
17.	Adjustable Spanner- 300mm [8"]- 01per set.	01 Set
18.	Allen Key Set-Long- Metric & Inch- 1.5mm to 12mm [12nos] & 1/16" to ½" [12nos] - 01per set.	01 Set
19.	Combination Pliers- 200mm [8"]- 01per set.	01 Set
20.	Long Nose Plier- 150mm-01per set.	01 Set
21.	Circlip Plier-Straight Tip [internal Circlip puller]-Length 175mm [7"]- 01per set.	01 Set
22.	Circlip Plier-Bent Tip [external Circlip puller]-Length 175mm [7"]- 01per set.	01 Set
23.	Center Punch-Forged tool Steel hardened & tampered – 6mm X 100mm [1/4" X 4"]- 01 per set.	01 Set
24.	Ball Pen Hammer- Head length 355mm [14"]- 16 OZ- 01 per set.	01 Set
25.	Soft Face [Polymer] Hammer- Head Ø25mm- 01 per set.	01 Set
26.	Feeler Gauge- 25 Blades-300mm Long in Metric & Inch- 01 each per set; Make: Freeman.	01 Set
27.	Measuring Tape- 5Mtrs metallic-Auto retractable- 01 per set; Make: Freeman.	01 Set
28.	Tin snips- Drop forged carbon steel, hardened & tempered-Size 300mm [12"]- 01 each per set.	01 Set
29.	Thread Gauge- BSW, Metric, UNC, UNF-01 each per set.	01 Set
30.	Caliper- Inside & Outside- 150mm [6"]- 01 each per set.	01 Set
31.	Screw Extractor Set-Hexagonal Head- 3mm to 18mm [1/8" to ¾"]; - 01 per set.	01 Set
32.	Spirit Level-ABS Plastic-3vials [horizontal, plumb & 45º] - 01 per set.	01 Set
33.	Cold Chisel-Forged Chrome-Vanadium steel, hardened, quenched & tempered-12mm X 150mm & 25mm X 150mm – 01each per set.	01 Set
34.	Liner Puller	01 Set
35.	Piston Insert tool	01 Set
36.	Piston ring expander	01 Set
37.	Injector puller	01 Set
38.	Timing adjustment tool	01 Set
39.	Bearing puller for fan shaft	01 Set

Note: A . Item 1 to 33 - All the tools should be Snap On make except otherwise specified and must be supplied in a heavy duty 3/5 tray metal box with handles & locking arrangement.
B. Item 34 to 39 - These tools must be supplied in proper tool box. Specific description, part nos., make, etc. shall clearly be indicated in the bid.

F. Annexure – IIA Motor Specifications

Motor specifications (for Flameproof motors)

Motor:		Squirrel cage Induction Motor, horizontal foot mounted with bi-directional cooling fan at NDE
Rated voltage:		415 V, 3 phase, Delta connected, all six terminals available at Connection box
HP/KW	:	As applicable
Frequency	:	50 Hz
Speed	:	1500 RPM (synchronous), **unless otherwise noted**.
Insulation class:		Class F, temperature rise limited to class B
Protection	:	IP 55 Minimum
Frame size	:	As applicable
Standards:		IS 2148/IEC 60079 (latest amendment / issue) and IS 325 (latest amendment / issue)
Connection	:	i) Delta for mud/ water agitators/ pill chamber motors ii) 100 HP motors for Desander, Desilter, Mud loading (mud mixers), superchargers and multi-stage pumps shall be provided with 6 (six) nos. of terminal studs inside the terminal box for star/delta starting
Rating	:	Continuously rated (S1)
Painting	:	Epoxy DA grey
Terminal box:		Suitable for use in oil and gas mines (NOT FOR UNDER GROUND COAL MINES) fitted with double compression FLP cable glands. Glands shall be supplied with the motor.
Earthing:		1 (one) no. inside terminal box and 2 (two) nos. on the body of the Motor
DGMS Approval:		A metal plate embossed with CMRI certificate no., DGMS approval no. and DGMS logo shall be riveted on the motor body.
Guarantee:		The motors would be guaranteed (Besides manufacturer's standard guarantee) for a period of one year from the date of commissioning. Any repair/ replacement during the guarantee period will be done free of cost by the supplier including to and fro transportation from OIL site.
Make :		M/s Bharat Bijlee/Crompton Greaves/Kirloskar/Marathon/LHP/ Siemens

[For mud agitators, frame sizes of the motors are MJ 130 for M/s Bharat Bijlee, India or E 132 M for M/S Crompton Greaves, India.

For 100 HP motors, the frame sizes are Type MJ 3284-4 of M/s Bharat Bijlee make or E 280M for M/s Crompton Greaves, India.]

ALL MOTORS, PBS'S AND CABLE GLANDS SHALL BE APPROVED BY DGMS (INDIA) FOR OPERATION IN HAZARDOUS AREA ZONE 1 AND ZONE 2, GAS GROUPS II A AND IIB OF OIL MINES.

A metal plate embossed with CMRI certificate No., DGMS approval No. and DGMS logo shall be riveted on the motor body/ PBS body at a conspicuous place.

THE FOLLOWING ADDITIONAL POINTS REGARDING THE ELECTRICALS ARE TO BE NOTED AND COMPLIED WITH BY THE BIDDER:

1. All motors including PBS shall be supplied by the bidder.
2. Fully removable type canopy for all motors (covering motor and terminal box) shall be provided. PBS's are also to be provided with canopies. Canopy material should be minimum 1/8" (3 mm) thick good quality MS, painted DA grey.
3. Double earthing of all motors and PBS shall be in the scope of the supplier in accordance to Indian Electricity Rules, 1956 with latest amendments as applicable.
4. Tank to tank earth loops shall be in the scope of supplier.
5. GI earth strap joints shall be done with GI nuts, bolts and flat/spring washers (2 nos. minimum at each joint).
6. All motors and PBS are to be provided with suitably sized FLP double compression cable glands, approved by DGMS (India). The unused cable entry holes are to be plugged by FLP stopping plugs. Cable glands shall be suitable for entry of suitable capacity EPR insulated, CSP sheathed, screened, multi-strand Copper cables in use at present by OIL.
7. Galvanization of the earthing straps, fasteners and washers shall be as per IS: 2629- 1985, IS: 5358 and IS:1573 respectively (with latest amendments as applicable).
8. Mud agitators, water agitators and pill chamber motors (i.e. motors mounted on tanks) shall be longitudinally aligned (along the length of the tank) and nearer to the centre of the tank as far as possible to avoid collision with tree branches during transportation.
9. Cables for agitator motors are to be routed above the tank grating (flooring) with channels for protection against mechanical damage. Channels shall be permanently fixed to the flooring. Clamps can be provided on the channels to secure the cables.
10. PBS's for desander and desilter motors shall be provided near the mud attendant's cabin. PBS's for all other motors shall be local to the motor.
11. All sides of the tanks (excluding the sides with cable trays for the suction, intermediate and shaker tanks) shall be provided with suitable hangers/ hooks for supporting of cables, width 300 mm and placed 1000 mm apart.
12. All cable trays (if forming part of supply) are to be arranged in such a manner that operation of valves, gates etc. for super chargers, desanders, desilters, mud mixer lines are not hindered.
13. Gaps / holes (approx. 4" diameter) in the cable trays (if forming part of supply) or between the cable tray and tank side shall be provided near the location of PBS's which are mounted close to the front side of the tanks (facing the cellar side) for ease of entry/exit of plug connectors for PBSs.
14. Lighting posts for mud tank lighting shall be of such height that when suspended, a well-glass type light fitting is at a height of 2.5 m from the tank floor grating. Lighting posts shall be provided with sturdy double mounting hooks for suspension of 2 (two) light fittings.
15. AC motors terminal box should preferably be on right hand side, looking from the shaft (driving) end of the motor. So all fabrication job should be made accordingly.

Annexure –IIC ELECTRICAL – Statutory / DGMS guidelines

(This annexure is for information and guidance of bidders for taking note against the specific equipment.)

DEMARCATION OF HAZARDOUS AREAS

A. Drilling and Work-over Operations :

(1) Well-head area :

i. When the derrick is not enclosed and the substructure is open to ventilation, the area in all directions from the base of rotary table extending up to 3.0 m shall be Zone 2 hazardous area. Any cellars, trenches and pits below the ground level shall be Zone 1 hazardous area; the area lying up to 3.0 m in horizontal direction from the edge of any cellars, trenches or pits and 0.5 m vertically above the cellars, trenches or pits shall be Zone 2 hazardous area.

ii. When the derrick floor and substructure are enclosed, the enclosed substructure below the derrick floor, including cellars, pits or sumps below the ground level, shall be Zone 1 hazardous area; the enclosed area above the derrick floor shall be Zone 2 hazardous area.

(2)Mud Tank and Channel :

The free space above the level of mud in tank and channel shall be Zone 1 hazardous area; the area in a radius of 3.0 m in all directions from the edge of mud tank and channel shall be Zone 2 hazardous area.

(3) Shale Shaker:

(a) The area within a radius of 1.5 m in all directions from the shale shaker to open air shall be Zone 1 hazardous area. The area beyond 1.5 m and up to 3 m in all directions from the shale shaker shall be Zone 2 hazardous area.

(b) When the shale shaker is located in an enclosure, the enclosed area shall be Zone 1 hazardous area to the extent of the enclosure. The area outside the shale shaker and up to 1.5 m in all directions from the shale shaker shall be Zone 2 hazardous area.

(4) Degasser :

The area within a radius of 1.5 m from the open end of the vent extending in all directions shall be Zone 1; the area beyond 1.5 m and up to 3 m in all directions from the open end of vent shall be Zone 2 hazardous area.

(5) Desander and Desilter :

The area within a radius of 1.5 m in all directions from the desander and desilter located in open air shall be Zone 2 hazardous area.

(6) Pump or Gas Compressors :

(a) Where a pump handling a flammable liquid or a gas compressor is located in open air or under well ventilated shed without walls, the area lying up to 3m in all directions from the pump or compressor shall be Zone 2 hazardous area.

(b)Where a pump or compressor is located in an adequately ventilated building, the entire interior of such building including an area within 1.5 m of the vent shall be Zone 2 hazardous area.

(c) Pits, sumps, trenches below the ground level shall be Zone 1 hazardous area and the area lying up to 3.0 m in horizontal direction from the edge of any trench or pit and 0.5 m vertically above the pits, sumps or trenches shall be Zone 2 hazardous area.

(7) Storage Tanks :

(a) In case of floating roof tank, the space above the floating roof and inside the enclosure up to top level of the enclosure wall shall be Zone 1 hazardous area; the area beyond Zone 1 hazardous area and up to a radius of 4.5 m in all directions from tank shell and shell top shall be Zone 2 hazardous area. In case of a dyke, Zone 2 hazardous area shall extend vertically up to the height of the dyke and horizontally up to the physical boundary of the dyke.

(b) In case of fixed roof tank, the area inside the tank and within a radius of 1.5 m from all openings including breather valve, dip hatch, thief latch and safety valve shall be Zone 1 hazardous area; the area beyond Zone 1 hazardous area and up to a radius of 3 m in all directions from shell and roof of the tank shall be Zone 2 hazardous area. In case of a dyke, the sump in the dyke shall be Zone 1 hazardous area and an area extending vertically up to a height of the dyke and horizontally up to the physical boundary of the dyke shall be Zone 2 hazardous area.

B.Use of flexible cables in drilling rigs and in other similar equipments in Oil Mines (Extract)

(a) The flexible cables used to connect 3 phase electrical equipments shall be EPR (Ethylene Propylene Rubber [IE-2]) insulated and HOFR (heat resisting, oil resisting & flame retardant) Elastomeric CSP (Chloro-Sulphonated Polyethylene) sheathed, either individually or collectively copper screened, 4 core copper conductor cables with fourth core having 50% conductivity of the largest conductor and the combined screen having 50% conductivity of the largest conductor.

(b) The flexible cables used to connect light fittings shall be EPR insulated and HOFR elastomeric CSP sheathed unscreened 3 core copper conductor cables.

Termination of flexible cables with electrical equipments installed in hazardous area shall be through appropriate size of double compression glands and with electrical equipments installed in non-hazardous areas shall be through a readily detachable plug and socket assembly.

C. DGMS Approvals

DGMS approved shall be taken to mean a valid approval from DGMS (India) for the particular equipment being offered. Invalid approvals, approvals pertaining to other equipment, outdated approvals, approvals put up for field trial or renewal, or approvals not particularly for oilfield hazardous areas Zones 1 & 2 and Gas Groups 2A & 2B, shall be taken as not DGMS approved.

Annexure – III MAKE OF RIG ACCESSORIES

Make of rig major rig accessories for supply with rig package should be as per the following options. Bidder should confirm the make of these items in technical bid accordingly.

Sl. No.	Equipment / Accessories	Make / Name of Vendor	API Specification
1.	Mast & Sub-Structure	Any API licensed vendor	4F
2.	Disc Brake	1. Eaton Corporation 2. National Oilwell Varco	-
3.	Draw-works & Rotary Chains	1. Diamond Chain Company 2. Regina CateneCalibrateS.p.A. 3. Rexnord Kette GMBH	7F
4.	Rotary Table	1. American Block Company 2. Bharat Heavy Electricals Ltd 3. DrillmecS.p.A. 4. Hackers Industries 5. National Oilwell Varco	7K
5.	Rotary Swivel	1. American Block Company 2. Bharat Heavy Electricals Ltd 3. National Oilwell Varco 4. Soilmec / Drillmec	8C
6.	Travelling Block & Hook	1. American Block Company 2. Bharat Heavy Electricals Ltd 3. DrillmecS.p.A. 4. National Oilwell Varco	8C
7.	Elevator Links	1. Blohm& Voss GmbH 2. National Oilwell Varco	8C
8.	Dead Line Anchor	1. Dreco Energy Services 2. National Oilwell Varco	8C
9.	Casing / Drilling Line	1. Bridon American Corp. 2. Usha Martin Limited. 3. Wire Rope Corporation of America Inc.	9A
10.	Rotary Hose	1. Dunlop Argentina 2. Phoenix Beattle	7K
11.	Drilling Instruments & Gauges	1. Martin Decker 2. Can Global 3. Wagner 4. Oteco	-
12.	Pneumatic Winch	1. Ingersoll Rand International	-
13.	Hydraulic Cathead	1. National Oilwell Varco	-
14.	Engine	1. Caterpillar	-
15.	Carrier Axles	1. Rockwell 2. Fabco, 3. Dana, 4. Clarke, 5. Meritor, 6. Sisu	
16.	Heavy duty suspension system	1. Hendrickson 2. Neway	
17.	Steering Box	1. Spicer 2. ZF 3. Sheppard 4. Rane 5. TRW	

18.	Steering Pump	1. VICKERS 2. PARKER 3. REXROTH	
19.	Carrier brake valves	1. Bendix 2. Wabco 3. Rexroth	
20.	Pneumatic balloon type Clutches	1. Airflex of Equivalent	
21.	TOOL KIT FOR ENGINE & TRANSMISSION	1. Snap on	
22.	Hydraulic distributor, valve manifold, Hydraulic valves	1. VICKERS, 2. COMMERCIAL HYDRAULICS, 3. BENDIX, 4. EATON, 5. PARKER 6. REXROTH	
23.	Hydraulic winch	1. Pull Master 2. Braden	
24.	Auxiliary Air Compressor	1. IR 2. SULLAIR	
25.	Rig instrumentation	1. MARTIN DECKER	
26.	Electrical Plug Sockets	1. BCH make type DS or equivalent. 2. Appleton for Explosion proof sockets	
27.	Motor- Flameproof	1. M/s Bharat Bijlee 2. Crompton Greaves 3. Kirloskar 4. Marathon 5. LHP 6. Siemens	
28.	Hydraulic Pump	1. PARKER	

(Note: The equipment confirming to API specifications must have the API monogram die stamped on the body)

Annexure – IV SPARE PARTS LIST FOR CARRIER (FOR EACH UNIT)

A. FRONT AXLE-

1. Wheel stud with nut(s)	1 full set for 2 wheel
2. Axle Stud with nut	1 full set for 2 wheel
3. Wheel hub oil seal	1 full set for 4 wheels
4. Wheel hub bearing	1 full set for 2 wheels
5. Differential oil seal (if any)	1 full set for all differentials

B. REAR AXLE-

1. Wheel stud with nut(s)	1 full set for 4 wheel
2. Axle Stud with nut	1 full set for 4 wheel
3. Wheel hub oil seal	1 full set for 4 wheels
4. Wheel hub bearing	1 full set for 2 wheels
5. Differential oil seal	1 full set for all differentials
6. Differntial Filter Element(if any)	1 set

C. DRIVE LINE(PROPELLER SHAFT)

1. UJ Cross(Spider and Bearing)	1 set (for both Front & rear Propeller shaft)
2. UJ Cross (if any) for steering pump	1 set

D. STEERING-

1. Steering oil filter element	5 sets
2. Steering pump Repair kit	2 sets
3. Steering Box repair kit	2 sets
4. Steering Power cylinder Repair kit	2 full sets
5. Tie rod end	2 full sets
6. Steering pump	1 no
7. Steering power cylinder	1 no
8. Power cylinder hose	2 sets
9. Steering column UJ Cross	2 sets
10. Pressure relief valve	2 sets
11. Directional control valve	2 sets.

E. PNEUMATIC SHIFTER OF STEERING PUMP-

1. Shifter	1 no.
2. Shifter Repair kit	2 sets.
3. Actuator for shifter(if any)	1 no
4. Repair kit for Actuator(if any)	2 sets
5. Pneumatic Hoses for Shifter system	2 complete set

F. BRAKE & PNEUMATIC CIRCUIT-

1. Foot Brake Valve repair kit	4 sets
2. Front wheel Servo repair kit	8 sets(for 8 servo)
3. Rear Wheel Servo repair kit	8 sets(for 8 servo)
4. Air Dryer Filter Element	5 nos.
5. Repair Kit for all pneumatic valves	1 set each
6. Maxi brake (parking brake)	2 sets.

G. GEAR SHIFTER (THE ONE INSIDE THE DRIVER'S CABIN)

1. Gear shifter	1 no
2. Gear shifter repair kit	2 sets
3. Gear shifter Hoses	2 sets

H. SUSPENSION

1. U-BOLT	4 nos.
2. Front shock absorber	4 nos.
3. Rear shock absorber	4 nos
4. Leaf spring set(front)	2 sets
5. Walking beam(rear)	2 set

NOTE:-

1. All spares in specified quantity as applicable and indicated above shall be supplied along with the unit.

2. Specific description, part nos, make etc. and Unit Price of each and every item shall clearly be indicated in the bid. Total cost will be considered for bid evaluation purpose.

3. Bidder shall also quote separately for any additional spares with similar details as felt necessary but not covered in this list for future reference/procurement as indicated in the NIT.

Annexure – V - LIST OF MAJOR COMPONENTS OF RIG (FOR EACH UNIT)

	Major Components	Unit Cost
1	Mast & Sub-Structure	
2	Disc Brake *	
3	Draw-works & Rotary Chains	
4	Rotary Table	
5	Rotary Swivel	
6	Travelling Block & Hook	
7	Elevator Links	
8	Dead Line Anchor	
9	Casing / Drilling Line	
10	Rotary Hose	
11	Drilling Instruments & Gauges *	
12	Pneumatic Winch	
13	Hydraulic Cathead	
14	Engine	
15	Carrier Axles	
16	Heavy duty suspension system	
17	Steering Box	
18	Steering Pump	
19	Carrier brake valves	
20	Pneumatic balloon type Clutches	
21	TOOL KIT FOR ENGINE & TRANSMISSION	
22	Hydraulic distributor, valve manifold, Hydraulic valves	
23	Hydraulic winch	
24	Auxiliary Air Compressor	
25	Rig instrumentation *	
26	Electrical Plug Sockets *	
27	Motor- Flameproof *	
28	Hydraulic Pump	

Note : Items indicated with(*) may require DGMS certification to be used under the notified hazardous area of the well site. Any additional item of the rig package as per the specification of the tender requiring such DGMS certification has to be mentioned under the list indicated with price break up.

Attachment-I

THE MINES ACT,1952 ALONGWITH THE OIL MINES REGULATIONS,1984
CHAPTER VIII

A. Use of certain machinery and equipment-

(1) The chief Inspector may, from time to time,, by notification in the official Gazette, specify appliance, equipment, machinery or other material that are or may be used in a mine which shall be of such type, standard and make as approved by the Chief Inspector by a general order and where any such appliance, equipment, machinery or other material has been specified by the Chief Inspector ,no appliance, equipment, machinery or material other than that approved by the as aforesaid shall be used in any mine.

(2) Where in the opinion of the Chief Inspector or Regional Inspector any appliance, equipment, machinery or other material not notified under sub-regulation (i) is likely to endanger life or safety of any person employed in any mine, the Chief Inspector may by an order in the writing prohibit the use of such appliance, equipment, machinery or material in any mine.

B. Classification of hazardous area- After the coming into force of these regulations the areas in the mine shall be classified into different zones according to the degree of probability of the presence of hazardous atmosphere by the Chief Inspector or an Inspector assisted by such assistants and after such investigations as he may consider necessary.

C. Use of electrical equipment in hazardous area-

(1) No electrical appliance, equipment, or machinery including apparatus shall be used in zone “O” hazardous area.

(2) The Chief Inspector may from time to time by notification in the official Gazette specify appliances, equipment and machinery that are or may be used in zone 1 and zone 2 hazardous area which will be of such type, standard & make as approved by the Chief Inspector by a general or special order in writing. Where any such appliances, equipment, or machinery has been specified by the Chief Inspector, any appliances, equipment, or machinery other than that approved by the Chief Inspector as aforesaid shall not be used in such hazardous area.

Attachment-II

SAMPLECOPYOFFORM21&22

A. *Following is a **sample copy similar to FORM21 of Indian Motor Vehicle Act only**. The certificate to be issued by supplier shall contain following minimum information-*

SALECERTIFICATE

Certified that……..(brandname of the vehicle) has been delivered by us to……on……(date).

Name of the buyer ……
Address……

The details of the vehicles areas under-:

1.	Class of vehicle	……
2.	Maker's name & address	……
3.	Chassis No.	……
4.	Engine No.	……
5.	Horsepower or cubic capacity	……
6.	Fuel used	……
7.	Number of cylinders	……
8.	Month and year of manufacture	……
9.	Seating capacity(including driver)	……
10.	Maximum axle weight, number and description of tyres –	
	(a) Front axle	……
	(b) Rear axle/axles	……
	(c) Any other axle	……
11.	Colour (s)of the body	……
12.	Gross vehicle weight	……
13.	Make & Model of crane	……
14.	Maximum SWL	……

Date: …….. **Signature of the manufacturer / dealer**

B. *Following is a **sample copy similar to FORM22(A) of Indian Motor Vehicle Act only**. The certificate to be issued by supplier shall contain following minimum information.-*

CERTIFICATE OFCOMPLIANCEWITHPOLLUTION STANDARDS/SAFETY STANDARDSOFCOMPONENTSAND ROADWORTHINESS

Certified that……(brand name of the vehicle) bearing Chassis number …… and Engine number ……..complies with the……..(name of Emission Standard–EuroIII,etc.) Emission standard as well as other Safety &Road Worthiness Standards as per provisions of the…….. (name of Moto Vehicles Act of country of origin).

It is also certified that body of the above vehicle has been fabricated by us and the same complies with the provisions of the ……..(name of Motor Vehicles Act of country of origin).

Signature of Manufacturer

---------X---------

Payment clause for the Tender :

Payment shall be released as follows:

a) Rig package supplied with valid DGMS Approval of rig components :

i) 80 % value shall be released on supply against proof of despatch/shipment of the package and submission of valid DGMS certificate against each rig separately.

ii) Remaining 20 % along with installation & commissioning charges shall be paid after successful commissioning and acceptance by OIL at site.

OIL may consider making 100 % payment of the rig package value towards supply of the rig package against proof of dispatch/shipment provided bidders agree to pay interest @ 1% above prevailing Bank Rate (CC rate) of State Bank of India for 20 % of the rig package value and also submit Bank Guarantee for the equivalent amount plus interest valid till successful commissioning of rig package at site. This is in addition to the 10 % of the order value towards Performance Security as per the tender requirement.

b) Rig package supplied without DGMS approval of rig components, but with Field Trial Permissions only:

(aa) 50 % value shall be released on supply against proof of despatch/shipment of the package .

(bb) 30% value upon submission of DGMS approval only.

(cc) Balance 20 % along with installation & commissioning charges shall be paid after successful commissioning and acceptance by OIL at site.

Note : (I) In case DGMS approval is not available, the same shall be supplied with DGMS field trial permission certification. Details of obtaining DGMS field trial permission are available at the web site of DGMS. The field trial may be carried in any E&P Company operating in India or during the commissioning of the project for it is procured.

(II) The price of each electronics/electrical equipment/instrument wherever DGMS approval is required as per technical specifications shall be quoted separately.

(III) A system shall be considered as successfully commissioned only after obtaining valid DGMS approval for all the constituent/instruments of the system.

ANNEXURE- BB
(Tender No. SDG 1821P14/08)

BID REJECTION CRITERIA & BID EVALUATION CRITERIA

(I) BID REJECTION CRITERIA:

The bids shall conform generally to the specifications and terms as well as conditions laid out in the tender. Bids will be rejected in case the items offered do not conform to the required parameters stipulated in the technical specifications and to the respective international/national standards wherever stipulated. Notwithstanding the general conformity of the bids to the stipulated specifications and terms and conditions, the following requirements will have to be met by the bids, without which, the same shall be considered as non-responsive and stand rejected.

(A) TECHNICAL:

1. Mobile Rig Package shall be suitable for operating in OIL's fields in Assam where temperatures range between a minimum of 5 degrees Celsius & a maximum of 41 degrees Celsius with Maximum relative humidity of 100 % at 21 deg Celsius, 95 % at 35 deg Celsius & 70 % at 41 deg Celsius; Avg annual rainfall: 300 cm. Bidder to categorically confirm towards these conditions.

2. The Input Horse Power Rating of the Draw-works of Mobile Rig shall not be less than 550 HP.

3. The Carrier shall have One (1) Caterpillar, model C-18 engines capable of developing minimum 575-600 HP (net) @ 2100 RPM at flywheel end [operating speed range 1800-2200 RPM].

4. The Mast, Substructure and Crown Block Assemblies shall be manufactured & monogrammed per API Spec 4F, latest edition

5 (a) The Minimum Static Hook Load Capacity of the Mast shall be minimum 100 MT (110 ton, 220462 lb) for 100 MT rig with 8 line strung.

(b) The Minimum Static Hook Load Capacity of the Mast shall be minimum 125 MT (136 ton, 275577.8 lb) for 125 MT rig with 8 line strung.

6. The Minimum Wind Load Capacity of the Mast with full set back should be 128 Km/hr (80 miles) with guy lines.

7. a) Substructure shall be rated for minimum 160 MT (176 ton) rotary load, minimum 65 MT (71.5 ton) set back load & minimum 225 MT (247.5 ton) simultaneous load for 100 MT rig.

b) Substructure shall be rated for minimum 185 MT (203.9 ton) rotary load, minimum 90 MT (99.2 ton) set back load & minimum 275 MT (303.1 ton) simultaneous load for 125 MT rig.

8. The Substructure shall have a Minimum Clear Height under Rotary Beams of 13 feet.

9. The manufacturers shall have the experience of supplying at least 05 Nos. of 100 T or higher capacity Mobile Rig packages to reputed international drilling companies / service providers and submit a 'Track Record' of such supplies made during the last 5 years preceding the technical bid closing date.

Performance Certificates from end users towards at least three (3) rigs out of five mentioned above of same manufacturer to be provided by the bidder.

Manufacturer should certify to this effect and provide a list of Customers along with the following details together with documentary evidence:

(a) Customer's Name, Address & Contact Details.
(b) Supply Order No. & Date.
(c) Quantity Supplied.
(d) Invoice No. & Date.

Experience criteria as above shall not be applicable for manufacturers who has successfully supplied drilling or workover rigs to OIL in past.

10. Bids are invited from manufacturers of rig package or their duly authorized distributors/ dealers/ supply houses. The bidders, other than manufacturers, shall submit original certificate of authorization from the manufacturer for the offered rig package. However, the bidders quoting on behalf of the manufacturers must specifically submit undertaking in original from the rig manufacturer for offer & supply of rigs, warranty, back up guarantee, testing facilities, after sale services and uninterrupted supply of spares for at least 10 years. The authorized distributors / dealers/ supply houses should quote for the supply of rigs from the manufacturers who meet the experience & other criteria including BRC/BEC requirements mentioned in the bid document.

11. Manufacturer must be a valid licensee of API Spec. 4F for a period not less than 10 years continuously without any break preceding the bid (technical) opening date. Bids from bidders having API Spec 4F license (of Manufacturer) less than 10 years or having a break in between, preceding the bid opening date will not be considered (copies of API certificate for all the 10 years must be forwarded with technical bid).

12. All the items are to be procured from the same source . Bidder is to quote for all the items of the tender Bid for part items will be rejected.

(B) <u>COMMERCIAL</u> :

1.0 Bids are invited under Single Stage Two Bid System. Bidders shall quote accordingly under Single Stage Two Bid System. **Please note that no price details should be furnished in the Technical (i.e. Unpriced) bid.** The "Unpriced Bid" shall contain all techno-commercial details except the prices which shall be kept blank. The "Priced Bid" must contain the price schedule and the bidder's commercial terms and conditions. Bidder not complying with above submission procedure will be rejected.

2.0 Bid security of US $ 3,94,625.00 or Rs. 1,77,58,000.00 shall be furnished as a part of the TECHNICAL BID. Any bid not accompanied by a proper bid security in ORIGINAL will be rejected without any further consideration. For exemption for submission of Bid Security, please refer Clause No. 9.8 (Section A) of General Terms and Conditions for Global Tender. The Bid Security shall be valid till 21/01/2015 .

3.0 Bidders must confirm that Goods, materials or plant(s) to be supplied shall be new of recent make and of the best quality and workmanship and shall be guaranteed for a period of twelve months from the date of commissioning of the complete package at site against any defects arising from faulty

materials, workmanship or design. Defective goods/materials or parts rejected by OIL shall be replaced immediately by the supplier at the supplier's expenses at no extra cost to OIL.

4.0 Successful bidder will be required to furnish a Performance Bank Guarantee @10% of the order value. The Performance Bank Guarantee must be valid for one year from the date of successful commissioning of the complete package at site. Bidder must confirm the same in their Technical Bid. Offers not complying with this clause will be rejected.

5.0 The prices offered will have to be firm through delivery and not subject to variation on any account. A bid submitted with an adjustable price will be treated as non-responsive and rejected.

6.0 Validity of the bid shall be minimum 180 days. Bids with lesser validity will be rejected.

7.0 Bids received after the bid closing date and time will be rejected. Similarly, modifications to bids received after the bid closing date & time will not be considered.

8.0 Bidders shall quote directly and not through Agents in India. Offers made by Indian Agents on behalf of their foreign principals will be rejected. Similarly offers from unsolicited bidders will be rejected.

9.0 Bids containing incorrect statement will be rejected.

10.0 Offers received without Integrity Pact duly signed by the authorised signatory of the bidder will be rejected.

11.0 No offers should be sent by Telex, Cable, E-mail or Fax. Such offers will not be accepted.

12.0 Bidders are required to submit the summary of the prices in their commercial bids as per bid format (Summary), given below :

(i) <u>Commercial Bid Format (SUMMARY) for Foreign Bidders for each item</u> :

(A) Total material cost of Drilling Rig (other than Sl. No. B to F below)
(B) Cost of Spares for Carrier(refer Annexure IV of Section H)
(C) Cost of Spares for Engine & Transmission(refer Srl No. 1 , 2 & 4 of Section C)
(D) Cost of tool kit for Engine & Transmission(refer Annexure IB of Section H)
(E) Cost of Commissioning spares, if any
(F) Third party Inspection charge
(G) Grand Total Material Cost, (A + B + C + D + E+ F)
(H) Packing & FOB Charges
(I) Total FOB Port of Shipment value, (G + H) above
(J) Ocean Freight Charges upto Kolkata, India
(K) Insurance Charges
(L) Total CIF Kolkata value, (I + J + K)
(M) Pre-shipment Inspection charges, if any as per Srl No. 1B of Section F
(N) Training charges, if any as per Srl No. 1B of Section F
(O) Installation & Commissioning charges
(P) Total Value, (L + M + N + O) above
(Q) Total value in words :
(R) Gross Weight :
(S) Gross Volume :

(iii) <u>Commercial Bid Format (SUMMARY) for Indigenous Bidders for each item</u> :

(A) Total material cost of Drilling Rig (other than Sl. No. B to F below)
(B) Cost of Spares for Carrier(refer Annexure IV of Section H)
(C) Cost of Spares for Engine & Transmission(refer Srl No. 1 , 2 & 4 of Section C)
(D) Cost of tool kit for Engine & Transmission(refer Annexure IB of Section H)
(E) Cost of Commissioning spares, if any
(F) Third Party Inspection charge
(G) Grand Total Material Cost, (A + B + C + D + E + F)
(H) Packing and Forwarding Charges
(I) Total Ex-works value, (G + H) above
(J) Excise Duty including Cess, (Please indicate applicable rate of Duty & Cess)
(K) Sales Tax, (Please indicate applicable rate of Tax)
(L) Total FOR Despatching station price, (I + J + K) above
(M) Road Transportation charges to Duliajan
(N) Insurance Charges
(O) Total FOR Duliajan value, (L + M + N) above
(P) Pre-shipment Inspection charges, if any as per Srl No. 1B of Section F
(Q) Training charges, if any as per Srl No. 1B of Section F
(R) Installation & Commissioning charges
(S) Total Value, (O + P + Q + R) above
(T) Total value in words :
(U) Gross Weight :
(V) Gross Volume :

* Section C means - Section C1 , C2 , C3 for respective items . Similarly it will apply to all sections wherever applicable.

** Format for quoting attached.

<u>NOTES</u> :

1. The Commissioning Spares should be quoted separately indicating the unit price and quantity quoted.

2. The Rig packages covered under this tender will be used by OIL in the PEL/ML areas issued/renewed after 01/04/99, applicable Customs Duty for import of goods shall be ZERO. Indigenous bidders shall be eligible for Deemed Export and should quote Deemed Export prices. Excise Duty under Deemed Export exempted.

3. Installation/Commissioning charges must be quoted separately on lumpsum basis which shall be considered for evaluation of the offers. These charges should include amongst others to and fro fares, boarding/lodging, local transport at Duliajan and other expenses of supplier's commissioning personnel during their stay at Duliajan, Assam(India). All Income, Service, Corporate Taxes etc. towards the services provided under installation / commissioning shall be borne by the supplier and will be deducted at source at the time of releasing the payment. Bidder should also confirm about providing all these services in the Technical Bid.

4. Successful bidder shall offer the Rig Package for Pre-despatch/shipment Inspection by OIL's team of technical/commercial executives. Pre-despatch/Shipment Inspection and Training charges, if any, must be quoted separately on lumpsum basis which shall be considered for evaluation of the offers. The to and fro fares, boarding/lodging and other enroute expenses of OIL's personnel shall be borne by OIL.

Bidders must categorically indicate the Installation / Commissioning, Pre-despatch/Shipment Inspection and Training charges in their offers and must confirm about providing the same in their Technical bids.

(II) BID EVALUATION CRITERIA :

The bids conforming to the specifications, terms and conditions stipulated in the tender and considered to be responsive after subjecting to the Bid Rejection Criteria will be considered for further evaluation as per the Bid Evaluation Criteria given below:

A. COMMERCIAL :

1.0 The evaluation of bids will be done as per the Commercial Bid Format (SUMMARY) detailed vide Para 12.0 of BRC.

2.0 If there is any discrepancy between the unit price and the total price, the unit price will prevail and the total price shall be corrected. Similarly, if there is any discrepancy between words and figure, the amounts in words shall prevail and will be adopted for evaluation.

3.0 For conversion of foreign currency into Indian currency, B.C. selling (Market) rate declared by State Bank of India, one day prior to the date of price bid opening shall be considered. However, if the time lag between the opening of the bids and final decision exceed 3(three) months, then B.C. Selling(Market) rate of exchange declared by SBI on the date prior to the date of final decision shall be adopted for conversion and evaluation.

4.0 Offers not complying with the payment terms indicated in the enquiry shall be loaded with one percent above the prevailing Bank rate (CC rate) of State Bank of India for duration of commissioning time indicated in the tender plus transit time (3 months) for evaluation purpose.

5.0 All the items are to be procured from the same source . Bids will be evaluated accordingly.

6.0 To ascertain the inter-se-ranking, the comparison of the responsive bids will be made as under, subject to corrections / adjustments given herein.

6.1 **When only foreign bidders are involved :**

Comparison of bids will be done on the basis of " GRAND TOTAL VALUE" which is estimated as under :

(A) Total material cost of Drilling Rig (other than Sl. No. B to F below)
(B) Cost of Spares for Carrier(refer Annexure IV of Section H)
(C) Cost of Spares for Engine & Transmission(refer Srl No. 1 , 2 & 4 of Section C)
(D) Cost of tool kit for Engine & Transmission(refer Annexure IB of Section H)
(E) Cost of Commissioning spares, if any
(F) Third Party Inspection Charge
(G) Grand Total Material Cost, (A + B + C + D + E + F)
(H) Packing & FOB Charges
(I) Total FOB Port of Shipment value, (G + H) above
(J) Ocean Freight Charges upto Kolkata, India
(K) Insurance Charges @ 1% of Total FOB Value vide (I) above
(L) Banking Charges @ 0.5% of Total FOB Value vide (I) above in case of payment through Letter of Credit (If confirmed L/C at buyer's account is required, 1.5% of Total FOB Value will be loaded)
(M) Total CIF Kolkata Value, (I + J + K + L) above
(N) Pre-shipment Inspection charges, if any as per Srl No. 1B of Section F
(O) Training charges, if any as per Srl No. 1B of Section F
(P) Installation & Commissioning charges
(Q) Total Value, (M + N + O + P) above

NOTE : Banking charge in the country of the foreign bidder shall be borne by the bidder.

6.2 When only domestic bidders are involved or when more than one domestic bidders are in contention in case of mixed response :

Comparison of bids will be done on the basis of " GRAND TOTAL VALUE" which is estimated as under :

(A) Total material cost of Drilling Rig (other than Sl. No. B to F below)
(B) Cost of Spares for Carrier(refer Annexure IV of Section H)
(C) Cost of Spares for Engine & Transmission(refer Srl No. 1 , 2 & 4 of Section C)
(D) Cost of tool kit for Engine & Transmission(refer Annexure IB of Section H)
(E) Cost of Commissioning spares, if any
(F) Third Part Inspection charge
(G) Grand Total Material Cost, (A + B + C + D + E + F)
(H) Packing and Forwarding Charges
(I) Total Ex-works value, (G + H) above
(J) Excise Duty including Cess
(K) Sales Tax

(L) Total FOR Despatching station price, (I + J + K) above
(M) Road Transportation charges to Duliajan
(N) Insurance Charges @0.5% of Total FOR Despatching Station Value ( ) above
(O) Total FOR Duliajan value, (L + M + N) above
(P) Pre-shipment Inspection charges, if any as per Srl No. 1B of Section F
(Q) Training charges, if any as per Srl No. 1B of Section F
(R) Installation & Commissioning charges
(S) Total Value, (O + P + Q + R) above

NOTE: **Excise Duty in case of the indigenous bidder is EXEMPTED.**

*** Section C means - Section C1 , C2 , C3 for respective items . Similarly it will apply to all sections wherever applicable.

6.3 **When both foreign and domestic bidders are involved :**

The Grand Total Value of domestic bidder (inclusive of customs duty on imported raw material and components etc, and applicable terminal excise duty on the finished products and Sales Tax) excluding inland transportation to destination and Insurance charges worked out as per Para 6.2 above and Grand Total Value of the foreign bidder worked out as per Para 6.1 above excluding inland transportation to destination will be compared. No price preference will be allowed to indigenous bidders except that for capital goods, the domestic manufacturers would be accorded a price preference to offset CST to the extent of 4 % or actuals, whichever is less subject to 30 % local content norms as stipulated for World Bank Funded project to the satisfaction of OIL. When more than one domestic bidders fall within price preference range, inter-se-ranking will be done on Grand Total Value basis.

Note: If the Government of India revises these evaluation criteria the same as applicable on the bid closing date will be adopted for evaluation of the offers.

7.0 Other terms and conditions of the enquiry shall be as per General Terms and Conditions for Global Tender. However, if any of the Clauses of the Bid Rejection Criteria / Bid Evaluation Criteria (BEC / BRC) mentioned here contradict the Clauses in the General Terms & Conditions of Global Tender of the tender and/or elsewhere, those mentioned in this BEC / BRC shall prevail.

Commercial Bid Format (Summary) for Foreign Bidders:

		100 T Rig Package (Item No.1) Qty.=1 No.	125 T Rig Package with Mud System (Item No.2) Qty.=1No.	125 T Rig Packages (Item No.3) Qty.=3Nos.
A)	Total material cost of Drilling Rig (other than Sl. No. B to F below)			
B)	Cost of Spares for Carrier (refer Annexure IV of Section H)			
C)	Cost of Spares for Engine & Transmission (refer Srl. No. 1, 2 & 4 of Section C)			
D)	Cost of tool kit for Engine & Transmission (refer Annexure IB of Section H)			
E)	Cost of Commissioning Spares, if any			
F)	Third party Inspection charge			
G)	Grand Total Material Cost, (A+B+C+D+E+F)			
H)	Packing and FOB Charges			
I)	Total FOB Port of Shipment value, (G+H) above			
J)	Ocean Freight Charges upto Kolkata, India			
K)	Insurance Charges			
L)	Total CIF Kolkata value, (I+J+K)			
M)	Pre-shipment Inspection charges, if any as per Srl. No. 1B of Section F			
N)	Training charges, if any as per Srl. No. 1B of Section F			
O)	Installation & Commissioning charges			
P)	Total value, (L+M+N+O) above			
Q)	Total value in words:			
	Grand Total Value of all the items			

Commercial Bid Format (Summary) for Indigenous Bidders:

		100 T Rig Package (Item No.1) Qty.= 1 No.	125 T Rig Package with Mud System (Item No.2) Qty.=1 No.	125 T Rig Packages (Item No.3) Qty.=3 Nos.
A)	Total material cost of Drilling Rig (other than Sl. No. B to F below)			
B)	Cost of Spares for Carrier (refer Annexure IV of Section H)			
C)	Cost of Spares for Engine & Transmission (refer Srl. No. 1, 2 & 4 of Section C)			
D)	Cost of tool kit for Engine & Transmission (refer Annexure IB of Section H)			
E)	Cost of Commissioning Spares, if any			
F)	Third party Inspection charge			
G)	Grand Total Material Cost, (A+B+C+D+E+F)			
H)	Packing and Forwarding Charges			
I)	Total Ex-works value, (G+H) above			
J)	Excise Duty including Cess, (Please indicate applicable rate of Duty & Cess)			
K)	Sales Tax, (Please indicate applicable rate of Tax)			
L)	Total FOR Despatching station price (I+J+K) above			
M)	Road Transportation charges to Duliajan			
N)	Insurance Charges			
O)	Total FOR Duliajan value, (L+M+N) above			
P)	Pre-shipment Inspection charges, if any as per Srl. No. 1B of Section F			
Q)	Training charges, if any as per Srl. No. 1B of Section F			
R)	Installation & Commissioning charges			
S)	Total value, (O+P+Q+R) above			
T)	Total value in words:			
	Grand Total Value of all the items			

COMMERCIAL CHECK LIST

THE CHECK LIST MUST BE COMPLETED AND SUBMITED WITH YOUR OFFER. PLEASE ENSURE THAT ALL THESE POINTS ARE COVERED IN YOUR OFFER. THESE WILL ENSURE THAT YOUR OFFER IS PROPERLY EVALUATED. PLEASE SELECT "Yes" OR "No" OR INDICATE TO THE FOLLOWING QUESTIONS, IN THE RIGHT HAND COLUMN.

Sl No.	REQUIREMENT	COMPLIANCE
1.0	Whether bid submitted under Single Stage Two Bid System?	Yes / No
2.0	Whether quoted as manufacturer?	Yes / No
3.0	Whether ORIGINAL Bid Bond (not copy of Bid Bond) Sent separately? If Yes, provide details	
	(a) Amount :	
	(b) Name of issuing Bank :	
	(c) Validity of Bid Bond :	
3.1	Whether offered firm prices?	Yes / No
3.2	Whether quoted offer validity of Six months from the date of closing of tender?	Yes / No
3.3	Whether quoted a firm delivery period?	Yes / No
3.4	Whether agreed to the NIT Warranty clause?	Yes / No
3.5	Whether confirmed acceptance of tender Payment Terms ?	Yes / No
3.6	Whether confirmed to submit PBG as asked for in NIT?	Yes / No
3.61	Whether agreed to submit PBG within 30 days of placement of order?	Yes / No
3.70	Whether Price submitted as per Price Schedule (refer Para 13.0 of BRC)?	Yes / No
3.71	Whether confirmed that all spares & consumables will be supplied for a minimum period of 10 years after supply ?	Yes / No
3.72	Whether cost of two years running Spares quoted?	Yes / No
3.8	Whether quoted as per tender (without any deviations)?	Yes / No
3.81	Whether quoted any deviation?	Yes / No
3.82	Whether deviation separately highlighted?	Yes / No
3.9	Whether indicated the country of origin for the items quoted?	Yes / No
3.91	Whether technical literature / catalogue enclosed?	Yes / No
3.92	Whether weight & volume of items offered indicated?	Yes / No
4.0	For Foreign Bidders - Whether offered FOB / FCA port of despatch including sea / air worthy packing & forwarding?	Yes / No
4.1	For Foreign Bidders – Whether port of shipment indicated. To specify:	Yes / No
4.2	For Foreign Bidders only - Whether indicated ocean freight up to Kolkata port (Excluding marine insurance) ?	Yes / No
4.3	Whether Indian Agent applicable ?	Yes / No
	If YES, whether following details of Indian Agent provided?	
	(a) Name & address of the agent in India – To indicate	
	(b) Amount of agency commission – To indicate	
	(c) Whether agency commission included in quoted material value?	

5.0	For Indian Bidders – Whether indicated the place from where the goods will be dispatched. To specify :	Yes / No
5.1	For Indian Bidders – Whether road transportation charges up to Duliajan quoted?	Yes / No
5.2	For Indian Bidders only - Whether offered Ex-works price including packing/forwarding charges?	Yes / No
5.3	For Indian Bidders only - Whether indicated import content in the offer?	Yes / No
5.4	For Indian Bidders only - Whether offered Deemed Export prices?	Yes / No
5.5	For Indian Bidders only – Whether all applicable Taxes & Duties have been quoted?	Yes / No
6.0	Whether all BRC/BEC clauses accepted ?	Yes / No
7.0	Whether confirmed to offer the equipment for Pre-despatch/shipment Inspection & testing?	Yes / No
7.1	Whether Pre-despatch/shipment inspection & testing charges applicable?	Yes / No
7.2	If Pre-despatch/shipment inspection & testing charges applicable, whether quoted separately on lumpsum basis?	Yes / No
7.3.	Whether confirmed to carry out Installation & Commissioning of the equipment at Duliajan (Assam) ?	Yes / No
7.4	Whether Installation & Commissioning charge applicable?	Yes / No
7.5	If Installation/ Commissioning and Training charges applicable, whether separately quoted on lumpsum basis?	Yes / No
7.6	Whether to & fro air fares, boarding/lodging of the commissioning personnel at Duliajan , Assam(India) included in the quoted charges ?	Yes / No
7.7	Whether confirmed that all Service, Income, Corporate tax etc. applicable under Installation/ Commissioning are included in the prices quoted ?	Yes / No
8.0	Whether Integrity Pact with digital signature uploaded?	Yes / No
9.0	Whether prices of DGMS approved items quoted separately ?	Yes/No
10.0	Whether charges for call out services have been indicted ?	Yes/No

Offer reference	
Name of the Bidder	