OIL INDIA LIMITED
KG BASIN PROJECT
KAKINADA

AMENDMENT No. 2 Dated 18.09.2023
To TENDER No. CEG3796P24

1.0 This amendment is issued to amend /correct the following clauses of bidding document:

Sl. No.	CLAUSE No.	Page No.	ORIGINAL CLAUSE	AMENDED CLAUSE
			FORWARDING LETTER	
1	Subject	Page 2 of 436	IFB No. CEG3796P24 for Hiring of Bundle Services for supporting Drilling Operations in Offshore Andaman Blocks AN-OSHP-2018/1 & ANOSHP-2018/2 for a period of 14 (Fourteen) months, extendable by another 07 (Seven) months at the same rates, terms and conditions.	IFB No. CEG3796P24 for Hiring of Bundle Services for supporting Drilling Operations in Offshore Andaman Blocks AN-OSHP-2018/1 & ANOSHP-2018/2 for a period of 14 (Fourteen) months, extendable by another 07 (Seven) months at the same rates, terms and conditions - conditions - Three firm wells + One Optional well
2	Clause no. j) **Mobilization Time**	Page 2 of 436	1) 90 days (Cementing Services, Supply of Casing Accessories, Casing and Tubing Running Services, Drilling Tools Rental Services, Directional Services, Mud Engineering Services, Supply of Drilling Bits on Consignment Basis, Mud Logging Services, Fishing & Milling Tools Rental Services, Wireline Logging Services and Tubular for Well Testing on rental) from the date of issuance of the Mobilization Notice by OIL. 4) 90 days for Well Testing Services from the date of issuance of the Mobilization Notice by OIL.	1) 120 days (Cementing Services, Supply of Casing Accessories, Casing and Tubing Running Services, Drilling Tools Rental Services, Directional Services, Mud Engineering Services, Supply of Drilling Bits on Consignment Basis, Mud Logging Services, Fishing & Milling Tools Rental Services, Wireline Logging Services and Tubular for Well Testing on rental) from the date of issuance of the Mobilization Notice by OIL. 4) 150 days for Well Testing Services from the date of issuance of the Mobilization Notice by OIL.
3	Clause no. p) **Duration of the Contract**	Page 3 of 436	14 (Fourteen) months, extendable by 07 (Seven) months	The duration of the contract shall be for a period of 425 days from the date of commencement of the contract or the completion of 03 (three) Wells whichever is earlier, with provision for an extension of up to 210 days subject to paragraph 2.5 of Special Terms & Conditions (SCC) of the contract.
			Part-1 **INSTRUCTION TO BIDDERS**	
4	Clause No. 21.0 **Conversion to single currency**	Page 20 of 436	While evaluating the bids, the closing rate (B. C. Selling Rate) of exchange declared by State Bank of	For conversion of foreign currency into Indian currency, B.C. selling (Market) rate declared by State

			India on the day prior to price bid opening will be taken into account for conversion of foreign currency into Indian Rupees. Where the time lag between the opening of the price bids and final decision exceeds three months, the rate of exchange declared by State Bank of India on the date prior to the date of final decision will be adopted for conversion	Bank of India, one day prior to the date of price bid opening shall be considered.
Part-2 BID EVALUATION CRITERIA (BEC)				
5	1.2 Scope of Work / Technical rejection criteria: Bundled Services (Group-I):	Page 25 & 26 of 436	c) LWD/MWD, Mud Motor and Directional Drilling Services along with Crew for deep-water wells. LWD/MWD data to be integrated with Rig's communication system for real Time Data transmission from Rig to Operator's onshore base offices. d) Wireline Logging Services along with Crew for deep-water well. Wireline data to be integrated with Rig's communication system for Real-Time Data transmission from Rig to Operator's onshore base. e) Mud Logging Unit Services along with the crew for deep-water well. Mud Logging Data to be integrated with Rig's communication system for real Time Data transmission from Rig to Operator's onshore base.	c) LWD/MWD, Mud Motor and Directional Drilling Services along with Crew for deep-water wells. d) Wireline Logging Services along with Crew for deep-water well. e) Mud Logging Unit Services along with the crew for deep-water well.
6	A. Technical Evaluation Criteria Clause: 2.1 Eligibility and Experience of the Bidder Sub Clause: a	Page 26 of 436	The bidder should be an Offshore Oilfield Services Provider and must have in-house capability to provide at least any 4 out of the 5 services namely (1) Cementing Services, (2) Directional Drilling Services, (3) Mud Engineering Services (4) Wire line Logging Services and (5) Well Testing Services. The bidder should have minimum experience for these services as indicated below:	The bidder should be an Offshore Oilfield Services Provider and must have in-house capability to provide at least any 3 out of the 5 services namely (1) Cementing Services, (2) Directional Drilling Services, (3) Mud Engineering Services (4) Wire line Logging Services and (5) Well Testing Services. The bidder should have minimum experience for these services as indicated below:

7	A. Technical Evaluation Criteria Clause: 2.1 Eligibility and Experience of the Bidder Sub Clause: a.3 Mud Engineering Services: Sub Clause: 3.3	Page 27 of 436	The Bidder must have requisite Lab facilities in India as well as Regional / Global back up capable of designing and troubleshooting quoted mud systems in terms of detailed shale analysis, X-ray diffraction analysis, particle size analyser, return permeability analysis etc. to provide technical back up services to OIL in solving well / borehole related problems.	Deleted
8	A. Technical Evaluation Criteria Clause: 2.1 Eligibility and Experience of the Bidder Sub Clause: a.3 Mud Engineering Services: Sub Clause: 3.4	Page 27 of 436	The Bidder should submit a laboratory test report (issued by ONGC, IDT-Dehradun or any other laboratory of international repute) of the formulations conforming to OIL's recommended parameters as per scope of work along with the technical bid. Bids not accompanied by a valid test report shall be rejected. Test report as above received after date opening of tender will not be accepted.	The Bidder should submit a laboratory test report (issued by ONGC, IDT-Dehradun or Bidder's own laboratory) of the formulations conforming to OIL's recommended parameters as per scope of work along with the technical bid. Bids not accompanied by a valid test report shall be rejected. Test report as above received after date opening of tender will not be accepted.
9	A. Technical Evaluation Criteria Clause: 4.0 Service crew: Sub Clause: (iii)	Page 32 of 436	Training to the Crew personnel: All the crew members including catering personnel should have undergone Personal Survival Training (PST), Fire Prevention & Fire Fighting (FPFF) Training/Basic Fire Fighting Training (BFF), Personnel Safety and Social responsibility (PSSR) and Elementary First Aid (EFA) from DGS approved agencies, and OPITO approved Helicopter Underwater Escape Training (HUET). Or All the crew members including catering personnel should have undergone OPITO approved BOSIET – Basic Offshore Safety Induction and Emergency Training (with EBS), which should cover at least PST, FPFF/BFF, PSSR, EFA, HUET. No personnel are allowed to go on offshore rigs/marine vessels without undergoing the above training.	Training to the Crew personnel: All the crew members ~~including catering personnel~~ should have undergone Personal Survival Training (PST), Fire Prevention & Fire Fighting (FPFF) Training/Basic Fire Fighting Training (BFF), Personnel Safety and Social responsibility (PSSR) and Elementary First Aid (EFA) from DGS approved agencies, and OPITO approved Helicopter Underwater Escape Training (HUET). Or All the crew members ~~including catering personnel~~ should have undergone OPITO approved BOSIET – Basic Offshore Safety Induction and Emergency Training (with EBS), which should cover at least PST, FPFF/BFF, PSSR, EFA, HUET. No personnel are allowed to go on offshore rigs/marine vessels without undergoing the above training.

<table>
<tr>
<td>10</td>
<td>A. Technical Evaluation Criteria

6.0
Mobilization Period:</td>
<td>Page 33 & 34 of 436</td>
<td>Bidders are required to confirm that, they shall mobilize and deploy the Services along with the crew so as to commence operations at the designated offered location within the period as mentioned below (inclusive of inspection) from the date of issuance of the Mobilization Notice by Company. Bids with offer quoting more than the period mentioned below will be out rightly rejected.
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<tr><th>Particulars</th><th>Mobilization Time</th></tr>
<tr><td>Group – I Services (Exclusive of Subsea well heads with Services & Conductor pipes and Liner Hanger Equipment & Liner Running Services)</td><td>Within 90 days of Mobilization notice issued by Company</td></tr>
<tr><td>Group – I Services (Tubular for Well Testing)</td><td>Within 120 days of Mobilization notice issued by Company</td></tr>
<tr><td>Subsea well heads with Services and Conductor pipes under Group – I Services</td><td>Within 210 days of Mobilization notice issued by Company</td></tr>
<tr><td>Liner Hanger Equipment & Liner Running Services under Group – I Services</td><td>Within 150 days of Mobilization notice issued by the Company</td></tr>
<tr><td>Well Testing Services under Group – II Services</td><td>Within 90 days of Mobilization notice issued by the Company</td></tr>
<tr><td colspan="2">Project Coordinator, Rig Site Coordinator and Rig Site Logistics Coordinator</td></tr>
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</td>
<td>Bidders are required to confirm that, they shall mobilize and deploy the Services along with the crew so as to commence operations at the designated offered location within the period as mentioned below (~~inclusive of inspection~~) from the date of issuance of the Mobilization Notice by Company. Bids with offer quoting more than the period mentioned below will be out rightly rejected.
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<tr><td>Project Coordinator, Rig Site Coordinator and Rig Site Logistics Coordinator</td><td>Within 30 days of Mobilization notice issued by Company</td></tr>
<tr><td colspan="2">Interim De-mobilization and Re-mobilization</td></tr>
<tr><td>Liner Hanger Running Services under Group – I Services</td><td>Within 30 days of Re-Mobilization notice issued by the Company</td></tr>
</table>
Note:

1) Separate Mobilization notice will be issued for each of the mobilization timelines as mentioned above.
2) Separate Interim De-mobilization and Re-mobilization notice will be issued for Liner Hanger Running Services.
3) The succeeding day of the issue of the Mobilization / Re-mobilization Notice shall be counted as Day 1 for the purposes of the Mobilization / Re-mobilization period.
4) Supply of all Consumables shall be in staggered manner as per OIL's well requirement.
</td>
<td>
<table>
<tr><td>Project Coordinator, Rig Site Coordinator and Rig Site Logistics Coordinator</td><td>Within 30 days of Mobilization notice issued by Company</td></tr>
<tr><td colspan="2">Interim De-mobilization and Re-mobilization</td></tr>
<tr><td>Liner Hanger Running Services under Group – I Services</td><td>Within 45 days of Re-Mobilization notice issued by the Company</td></tr>
<tr><td>9-5/8" / 9-1/2" SDMM, Basic MWD tool and MWD collars with 7-5/8" Reg connections under Group – 1 Services.</td><td>Within 45 days of Re-Mobilization notice issued by the Company</td></tr>
</table>
Note:

1) Separate Mobilization notice will be issued for each of the mobilization timelines as mentioned above.
2) Separate Interim De-mobilization and Re-mobilization notice will be issued for Liner Hanger Running Services and 9-5/8" / 9-1/2" directional drilling services.
3) The succeeding day of the issue of the Mobilization / Re-mobilization Notice shall be counted as Day 1 for the purposes of the Mobilization / Re-mobilization period.
4) Supply of all Consumables shall be in staggered manner as per OIL's well requirement.
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</tr>
<tr>
<td>11</td>
<td>A. Technical Evaluation Criteria

6.0
Vintage:</td>
<td>Page 34 & 35 of 436</td>
<td>
Vintage clauses for individual services shall be as follows.
<table>
<tr><th>Service Details</th><th>Vintage Clause</th></tr>
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				years old as on the original bid closing date. - Bidder to submit relevant documents in support of this vintage clause.		years old as on the original bid closing date. - Bidder to submit relevant documents in support of this vintage clause.
			Mud Engineering Service	- Lab equipment as applicable shall not be of more than 07 (Seven) years old as on the original bid closing date. - Bidder to submit relevant documents in support of this vintage clause.	Mud Engineering Service	- Lab equipment as applicable shall not be of more than 10 (Ten) years old as on the original bid closing date. - Bidder to submit relevant documents in support of this vintage clause.
			Directional Drilling Service	- Downhole Tools should either be new or recently refurbished. In case of refurbished tools, the refurbishment should not be more than 06(six) months old as on the original bid closing date.	Directional Drilling Service	- Downhole Tools should either be new or recently refurbished. In case of refurbished tools, the refurbishment should not be more than 06(six) months old as on the original bid closing date.
			Wire line Logging service	- All downhole tools including surface unit must have a vintage of not more than 10 (ten) years from the date of manufacturing as on the original Bid closing date. - Bidder to submit relevant documents in support of this vintage clause.	Wire line Logging service	- All downhole tools including surface logging unit must be provided as per requirements mentioned in Scope of Work for Wireline Logging & Perforation services.
			Mud Logging Unit service	- The Mud Logging Unit	Mud Logging Unit service	- The Mud Logging Unit should not be

				should not be more than 05 (five) years old and must be latest ISO/DNV certified as on the original bid closing date. - Bidder to submit relevant documents in support of this vintage clause.		more than 10 (ten) years old and must be latest ISO/DNV certified as on the original bid closing date. - Bidder to submit relevant documents in support of this vintage clause.
12	B. Financial Evaluation Criteria Clause: 2 Net Worth	Page 35 of 436	Net worth of the bidder must be Positive for the preceding financial / accounting year.		Net Worth of the bidder must be positive for the financial / accounting year preceding the original bid closing date.	
13	B. Financial Evaluation Criteria Clause: 3.ii)	Page 35 of 436	Net worth of the member having more than 26% stake in the JV (supporting company) should be positive for the accounting year preceding the bid closing date as per BEC Clause B.2 above.		Net worth of the member having more than 26% stake in the JV (supporting company) should be positive for the financial/accounting year preceding the original bid closing date as per BEC Clause B.2 above.	
14	B. Financial Evaluation Criteria Clause: 4.ii)	Page 36 of 436	Net worth of the parent / ultimate parent / holding company (supporting company) shall be positive for the accounting year preceding the bid closing date as per BEC Clause B.2 above.		Net worth of the parent / ultimate parent / holding company (supporting company) shall be positive for the financial/accounting year preceding the original bid closing date as per BEC Clause B.2 above.	
15	B. Financial Evaluation Criteria New Clause: 4.1	Page 36 of 436	In case the Bidder is a Consortium, then any one of the Consortium members individually shall have to meet the financial turn-over criteria as per BEC Clause B.1 above. Similarly, other Consortium members individually shall have minimum Annual financial turn-over of **INR 156.50 Cr. or USD 19.08 Million (1 USD = INR 82.00)** in any of preceding 03 (Three) financial / accounting years from the original bid closing date. Net worth of all Consortium members must be Positive for the preceding financial / accounting year from the original bid closing date as per BEC Clause B.2 above.			
16	D. Price Evaluation Criteria Clause 6.0 Priced Bid Evaluation Sub Clause: 6.6	Page 40 of 436	Total Mobilization charges quoted by the bidder shall not exceed 1% of the total quoted value. However, mobilization charges if quoted in excess of 1% of the total quoted value, the excess amount shall be paid at the end of the contract.		Total Mobilization charges quoted by the bidder shall not exceed 5% of the total quoted value. However, mobilization charges if quoted in excess of 5% of the total quoted value, the excess amount shall be paid at the end of the contract.	
17	D. Price Evaluation Criteria	Page 41 of 436	Suspension Rate (SR) of the Bundle Service Package shall be 60% of the respective Individual Service Day		Suspension Rate (SR) of the Bundle Service Package shall be 75% of the respective Individual Service Day	

	Clause 6.0 Priced Bid Evaluation Sub Clause: 6.9		Rate. (This rate will not be considered for price evaluation).	Rate. (This rate will not be considered for price evaluation).
18	D. Price Evaluation Criteria Clause 6.0 Priced Bid Evaluation Sub Clause: 6.10	Page 41 of 436	Force Majeure Day Rate of the Bundle Service Package shall be 60% of the Individual respective Service Day Rate. (This rate will not be considered for price evaluation).	Force Majeure Day Rate of the Bundle Service Package shall be 75% of the Individual respective Service Day Rate. (This rate will not be considered for price evaluation).
19	D. Price Evaluation Criteria Clause 6.0 Priced Bid Evaluation Sub Clause: 6.11	Page 41 of 436	New Clause	OIL will prefer to deal with registered bidder under GST. Therefore, bidders are requested to get themselves registered under GST, if not registered yet. However, in case any unregistered bidder is submitting their bid, their prices will be loaded with applicable GST while evaluation of bid.
20	D. Price Evaluation Criteria Clause 12.0 VERIFICATION AND CERTIFICATION OF DOCUMENTS BY INDEPENDENT THIRD-PARTY INSPECTION AGENCIES: Sub Clause: 12.3	Page 45 of 436	As mentioned above, Bidder(s) have to submit the verified documents along with the Technical Bids. Bid submitted with un-verified supporting documents shall not be considered. However, in case a bidder submits its bid along with all relevant supporting documents as per BEC without getting all/some of them verified by the designated Independent Inspection agency, such bid can be provisionally considered provided it is accompanied by an **Undertaking** by the Bidder on their official letterhead to submit the duly verified copies/verification certificate within 07 (Seven) days of bid opening. Company will neither send any reminder nor seek any clarification in this regard from such bidders, and **the bid will be rejected outright if the bidder fails to submit the verified copies/verification certificate within 07 (Seven) days of bid opening at its own risk and responsibility.**	As mentioned above, Bidder(s) have to submit the verified documents along with the Technical Bids. Bid submitted with un-verified supporting documents shall not be considered. However, in case a bidder submits its bid along with all relevant supporting documents as per BEC without getting all/some of them verified by the designated Independent Inspection agency, such bid can be provisionally considered provided it is accompanied by an **Undertaking** by the Bidder on their official letterhead to submit the duly verified copies/verification certificate within 07 (Seven) days of bid opening. Company will neither send any reminder nor seek any clarification in this regard from such bidders, and **the bid will be rejected outright if the bidder fails to submit the verified copies/verification certificate within 07 (Seven) days of bid opening at its own risk and responsibility. If a bidder does not submit the undertaking towards submission of third-party certification within 07 (seven) days from date of Bid Closing date, but certified document(s) reaches OIL within the cut-off-date of above 07**

				(seven) days, then such bids shall be considered.
Sl. No.	**CLAUSE No.**	**Page No.**	**ORIGINAL CLAUSE**	**AMENDED CLAUSE**
Part-3 SECTION – II TERMS OF REFERENCE / TECHNICAL SPECIFICATIONS / SCOPE OF WORK				
21	Part 3 Section-II Scope of Work Clause No: 6.0 LOGISTICAL SUPPORT / SUPPLY BASES:	Page 86 of 436	Company shall operate from third party operated shore bases at Port Blair, Andaman and Nicobar Islands and Kakinada, Andhra Pradesh, or Port Blair, Andaman, and Nicobar Islands and Karaikal, Tamil Nadu, from which all well materials such as casing, bits, mud chemicals, liquid mud, cement, potable water and fuel shall be transported by Company hired vessels. The secondary supply bases at either Kakinada or Karaikal will be used solely for the supply of casing, tubing, liner hanging tools & equipment and wellheads. Port Blair is well connected by air and sea from all parts of India. Kakinada and Karaikal are well connected by road, train, air, and sea from all parts of India.	Company shall operate from third party operated shore bases at Port Blair, Andaman and Nicobar Islands and Kakinada, Andhra Pradesh, or Port Blair, Andaman, and Nicobar Islands and Karaikal, Tamil Nadu, from which all well materials such as casing, bits, mud chemicals, liquid mud, cement, potable water and fuel shall be transported by Company hired vessels. The secondary supply bases at either Kakinada or Karaikal will be used solely for the supply of casing, tubing, liner hanging tools & equipment and wellheads. Port Blair is well connected by air and sea from all parts of India. Kakinada and Karaikal are well connected by road, train, air, and sea from all parts of India. It will be the Company's responsibility to transport Radioactive Sources and Explosives from Company's Shore Base at Kakinada / Karaikal to the Drilling Unit in containers provided by the Contractor. The Contractor must be responsible for provisions of suitable containers for proper storage and safe transportation of Radioactive sources and explosives at Shore base, Marine Vessels and Drilling Unit as per the statutory requirement. Company will also support the Contractors to tranship their wireline logging, directional drilling, mud logging and Well Testing tools from Drilling Unit to Company's Shore Base at Kakinada / Karaikal and vice-versa for maintenance. However, it will be subjected to availability of the vessels. During the time of

<table>
<tr><td></td><td></td><td></td><td>Helicopter services will be operated from Port Blair, Andaman and Nicobar Islands.</td><td>transhipment and maintenance, the bidder should be responsible to ensure continuity of the operations by keeping spare tools at Port Blair, as required.

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<tr><td>22</td><td>Part 3 Section-II
Scope of Work

Clause No: 9.0</td><td></td><td><table>
<tr><td>Cementing services</td><td>Exhibit 1</td></tr>
<tr><td>Casing Accessories</td><td>Exhibit 2</td></tr>
<tr><td>Casing & Tubing Running services</td><td>Exhibit 3</td></tr>
<tr><td>Drilling tools</td><td>Exhibit 4</td></tr>
<tr><td>Directional services /MWD/ LWD</td><td>Exhibit 5</td></tr>
<tr><td>Drilling fluids</td><td>Exhibit 6</td></tr>
<tr><td>Drill bits</td><td>Exhibit 7</td></tr>
<tr><td>Liner hanger services</td><td>Exhibit 8</td></tr>
<tr><td>Mud logging services</td><td>Exhibit 9</td></tr>
<tr><td>Subsea wellheads and conductor pipe</td><td>Exhibit 10</td></tr>
<tr><td>Well-testing services, surface and downhole (Optional)</td><td>Exhibit 11</td></tr>
<tr><td>Fishing tools and services</td><td>Exhibit 12</td></tr>
<tr><td>Wireline logging services</td><td>Exhibit 13</td></tr>
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Scope of Work

Clause No: 9.0
DELIVERY (for all items included in this tender):</td><td>Page 98 of 436</td><td><table>
<tr><td></td><td></td></tr>
<tr><td>For Bidder / Contractor:</td><td>At Shore Base, Port Blair, and Kakinada or Karaikal on FOR / CIF / CRF Destination basis.</td></tr>
<tr><td>Delivery Schedule</td><td>Successful bidder to clearly specify the delivery schedule from the date of firm award of contract.</td></tr>
</table></td><td><table>
<tr><td></td><td></td></tr>
<tr><td>For Bidder / Contractor:</td><td>At Shore Base, Port Blair, and Kakinada or Karaikal on DDP – Port Blair and Kakinada / Karaikal basis as applicable.</td></tr>
<tr><td>Delivery Schedule</td><td>Successful bidder to clearly specify the delivery schedule from the date of issue of mobilization notice.</td></tr>
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24	Part 3 Section-II Scope of Work Exhibit 1 CEMENTING SERVICES	Page 99 to 110 of 436		Refer to amended Exhibit-1 – Cementing Services vide Annexure-I.
25	Part 3 Section-II Scope of Work Exhibit 2 CASING ACCESSORIES Part B: Equipment Requirements D - STOP COLLARS FOR CENTRALIZERS Serial No: 1	Page 114 of 436	Stop Collar, hinged c/w nails – Size: 36" (Quantities: 80 Nos)	Stop Collar, hinged c/w nails – Size: 30" (Quantities: 80 Nos)
26	Part 3 Section-II Scope of Work Exhibit 4 DRILLING TOOLS Clause No: 3.D Serial No: 1	Page 124 of 436	26" NB Stabiliser - spiral welded blade (Quantity: 02 Nos)	26" NB Stabiliser - spiral integral blade (Quantity: 02 Nos)
27	Part 3 Section-II Scope of Work Exhibit 4 DRILLING TOOLS Clause No: 3.D Serial No: 1	Page 124 of 436	26" String Stabiliser - spiral welded blade (Quantity: 02 Nos)	26" String Stabiliser - spiral integral blade (Quantity: 02 Nos)
28	Part 3 Section-II Scope of Work Exhibit 5 DIRECTIONAL SERVICES / MWD/ LWD	Page 128 to 141 of 436		Refer to amended Exhibit-5 – Directional Services MWD / LWD vide Annexure-II.
29	Part 3 Section-II Scope of Work Exhibit 6 MUD ENGINEERING SERVICES	Page 142 to 170 of 436		Refer to amended Exhibit-6 – Mud Engineering Services vide Annexure-III.
30	Part 3 Section-II Scope of Work Exhibit 7 DRILL BITS	Page 171 to 174 of 436		Refer to amended Exhibit-7 – Drill Bits vide Annexure-IV.
31	Part 3 Section-II Scope of Work Exhibit 8 LINER HANGER SERVICES Clause No: 2.0 EQUIPMENT DESCRIPTION:	Page 175 of 436	Liner hangers should be of the non-rotational/rotational set variety, c/w Integral type weight set mechanical packer.	Liner hangers should be of the non-rotational/rotational set variety, c/w Integral or non-integral type weight set mechanical packer.

	Sub Clause: b)			
32	Part 3 Section-II Scope of Work Exhibit 8 LINER HANGER SERVICES Clause No: 2.0 EQUIPMENT DESCRIPTION: Sub Clause: e)	Page 175 of 436	Float collars (Single/double valve) with BTC connection	Float collars (~~Single/~~double valve) with BTC connection
33	Part 3 Section-II Scope of Work Exhibit 8 LINER HANGER SERVICES Clause No: 3.3 Technical Proposal: Sub Clause: j)	Page 178 of 436	Company shall place order for complete set of consumables as detailed in Table-A Equipment Details, to be delivered at Company's OCTG Yard at Kakinada / Karaikal, India on FOR/CIF/CRF destination basis. Unused liner hanger system consumables, as per quantities mentioned in the price proforma, shall be returned to Contractor at conclusion of drilling campaign. Contractor must submit buy-back charges (minimum 30% of the quoted rate) for the unused consumables.	Company shall place order for complete set of consumables as detailed in Table-A Equipment Details, to be delivered at Company's OCTG Yard at Kakinada / Karaikal, India on DDP – Kakinada / Karaikal basis. Unused liner hanger system consumables, as per quantities mentioned in the price proforma, shall be returned to Contractor at conclusion of drilling campaign. Contractor must submit buy-back charges (minimum 30% of the quoted rate) for the unused consumables.
34	Part 3 Section-II Scope of Work Exhibit 8 LINER HANGER SERVICES Table-A EQUIPMENT DETAILS – CONSUMABLE BASIS Serial No: 1	Page 178 of 436	7" x 29 lb/ft, N-80 Non-Rotating/Rotating Liner hanger system (Solid Body Design) c/w Mechanical (rotating) set hanger, ± 4m PBR extension and integral weight set liner top packer with BTC connections	7" x 29 lb/ft, N-80 Non-Rotating/Rotating Liner hanger system (Solid Body Design) c/w Mechanical (rotating) set hanger, ± +/-4m (10 feet to 15 feet) PBR extension and integral or non-integral weight set liner top packer with BTC connections
35	Part 3 Section-II Scope of Work Exhibit 9 MUD LOGGING SERVICES Clause No: 4.3 Gas Data Acquisition and Interpretation: Sub Clause: (ii)	Page 181 of 436	IsoTube samples to be collected at all the significant gas show in consultation with Company representative.	IsoTube **/ Geotube** samples to be collected at all the significant gas show in consultation with Company representative.
36	Part 3 Section-II Scope of Work Exhibit 9 MUD LOGGING SERVICES Clause No: 4.5 Mudlogging Equipment: Serial No: E12	Page 184 of 436	IsoTubes Sampling Manifold with sufficient IsoTubes	IsoTubes **/ Geotubes** Sampling Manifold with sufficient IsoTubes **/ Geotubes**

37	Part 3 Section-II Scope of Work Exhibit 9 MUD LOGGING SERVICES Clause No: 4.5 Mudlogging Equipment: Serial No: E18	Page 184 of 436	Wax Bath including wax for core sealing	Deleted
38	Part 3 Section-II Scope of Work Exhibit 9 MUD LOGGING SERVICES Clause No: 4.5 Mudlogging Equipment: Serial No: F1	Page 185 of 436	Colour printers for Real Time data	Colour printers for Continuous Log printing
39	Part 3 Section-II Scope of Work Exhibit 9 MUD LOGGING SERVICES Clause No: 4.8 GEOLOGICAL SURVEILLANCE Sub Clause: 3.8.1 Sample Collection & Packaging:	Page 188 of 436	Serial No: 5 IsoTubes	Serial No: 5 IsoTubes **/ Geotubes** Note: In serial no: 5, IsoTubes should be read as IsoTubes / Geotubes
40	Part 3 Section-II Scope of Work Exhibit 9 MUD LOGGING SERVICES Clause No: 4.11 Early Kick Detection	Page 193 of 436	Early Kick Detection (Optional Service)	Early Kick Detection
41	Part 3 Section-II Scope of Work Exhibit 9 MUD LOGGING SERVICES Clause No: 4.0 REPORTING: Sub Clause: 4.3 Final Well Report: Serial No: 3.8	Page 197 of 436	IsoTube sampling details	IsoTube / Geotube sampling details
42	Part 3 Section-II Scope of Work Exhibit 9 MUD LOGGING SERVICES Clause No: 5.0 PERSONNEL	Page 199 of 436	Wherever it is mentioned as – "At least 1-year previous experience on floating drilling rigs in water depths greater than 300m."	Should read as – "At least 1-year previous experience on floating drilling rigs."

43	Part 3 Section-II Scope of Work Exhibit 10 SUBSEA WELLHEADS AND CONDUCTOR PIPE Clause No: 1.0 SCOPE OF WORK	Page 204 of 436	Product Specification: PSL Level 3	Product Specification: PSL Level 3 for Wellhead High Pressure Housing and Casing Hanger, consistent with API 17D section 4.1b.
44	Part 3 Section-II Scope of Work Exhibit 10 SUBSEA WELLHEADS AND CONDUCTOR PIPE Clause No: 1.0 SCOPE OF WORK	Page 204 of 436	Material Class Rating: DD	Material Class Rating: DD material class for Wellhead High Pressure Housing, Casing Hanger and Annulus Seal.
45	Part 3 Section-II Scope of Work Exhibit 10 SUBSEA WELLHEADS AND CONDUCTOR PIPE Clause No: 1.0 SCOPE OF WORK Section 1: WELLHEAD EQUIPMENT Serial No: 1b	Page 205 of 436	Guideline less Re-entry Assembly: (GRA) A heavy structural base incorporating the following features • Minimum ID to pass the connector OD for 30" OD x 1" WT pipe • Fitted with landing profile to run and lock 30" low pressure wellhead housing • Fitted with quick connect hydrate prevention plate • Upward facing guidance funnel, sized to accommodate wellhead • Mounting bracket for slope indicators at two places diagonally opposite to each other • Slope Indicators, 0 – 5 deg • 4 lifting eye pads installed • Acoustic basket • Lock ring for 30" low pressure wellhead housing • Suitable to fit flowline etc. assembly for subsea completion	DELETED
46	Part 3 Section-II Scope of Work Exhibit 10 SUBSEA WELLHEADS AND CONDUCTOR PIPE Clause No: 1.0 SCOPE OF WORK	Page 205 of 436	Note: (i) Company requires the flexibility to drill the wells with retrievable guide base or guideline-less re-entry assembly, and then to recover them after drilling to replace with a production guide base at the well completion stage in the success case.	DELETED

	Section 1: WELLHEAD EQUIPMENT		(ii) The decision to procure an RGB or GRA will be informed to the successful bidder.	
47	Part 3 Section-II Scope of Work Exhibit 10 SUBSEA WELLHEADS AND CONDUCTOR PIPE Clause No: 3.0 Staggered Order and Delivery Sub Clause: (i)	Page 208 of 436	Company will place firm order for two sets of Subsea Well Head to be delivered at Company's OCTG Yard at Kakinada / Karaikal, India on FOR/CIF/CRF destination basis (Exact Location will be informed to the successful bidder).	Company will place firm order for two sets of Subsea Well Head to be delivered at Company's OCTG Yard at Kakinada / Karaikal, India on DDP – Kakinada / Karaikal basis (Exact Location will be informed to the successful bidder).
48	Part 3 Section-II Scope of Work Exhibit 10 SUBSEA WELLHEADS AND CONDUCTOR PIPE Clause No: 3.0 Staggered Order and Delivery Sub Clause: (ii)	Page 208 & 209 of 436	Company will place order for two more set of Subsea Well Head on a buy back basis, to be delivered at Company's OCTG Yard at Kakinada / Karaikal, India on FOR/CIF/CRF destination basis. All unused Subsea Well Heads systems will be returned to Contractor at the conclusion of drilling campaign. Contractor must submit buy-back charges (minimum 30% of the quoted rate) for all unused set of Subsea Well Head.	Company will place order for two more set of Subsea Well Head on a buy back basis, to be delivered at Company's OCTG Yard at Kakinada / Karaikal, India on DDP – Kakinada / Karaikal basis. All unused Subsea Well Heads systems will be returned to Contractor at the conclusion of drilling campaign. Contractor must submit buy-back charges (minimum 30% of the quoted rate) for all unused set of Subsea Well Head.
49	Part 3 Section-II Scope of Work Exhibit 11 WELL TESTING SERVICES, SURFACE AND DOWNHOLE TOOLS			Refer to amended Exhibit-11 – WELL TESTING SERVICES, SURFACE AND DOWNHOLE TOOLS vide Annexure-V.
50	Part 3 Section-II Scope of Work Exhibit 12 FISHING TOOLS AND SERVICES TABLE-A LIST OF FISHING TOOLS	Page 249 of 436	A - Spear	A - 8¼" Spear with Bull Nose
51	Part 3 Section-II Scope of Work Exhibit 12 FISHING TOOLS AND SERVICES TABLE-A LIST OF FISHING TOOLS	Page 249 of 436	A5 - 5 3/4" Spear (for 7" Casing - 29 lbs/ft)	A5 - 5 3/4" Spear (for 7" Casing - 29 lbs/ft) with Bull Nose
52	Part 3 Section-II Scope of Work Exhibit 12 FISHING TOOLS AND SERVICES	Page 253 of 436	NEW	N.5 - 10 3/4" OD X 10FT Long Wash pipe Extension with 10 3/4" 51lbs/ft FJWP Conn C/W protector (Quantity: 01 No.)

	TABLE-A LIST OF FISHING TOOLS			
53	Part 3 Section-II Scope of Work Exhibit 12 FISHING TOOLS AND SERVICES TABLE-A LIST OF FISHING TOOLS	Page 253 of 436	NEW	N.6 - 10 3/4" OD X 15FT Long Wash pipe Extension with 10 3/4" 51lbs/ft FJWP Conn C/W protector (Quantity: 01 No.)
54	Part 3 Section-II Scope of Work Exhibit 12 FISHING TOOLS AND SERVICES TABLE-A LIST OF FISHING TOOLS	Page 254 of 436	S - Casing Patches - Internal Only (call out basis)	S - Casing Patches - External Only (call out basis)
55	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES SERVICE PROVIDER'S PERSONNEL	Page 256 of 436	The Bidder must confirm to submit Biodata of the Base Co-ordinator, Logging Engineer, specialists, Data processing personnel and the Crew personnel to OIL for its approval, prior to mobilization of personnel, in their Unpriced Techno-Commercial bid as per Annexure-C. It also applies to the additional personnel which the Contractor may decide to keep in the operational areas. The personnel should have fulfilled the requisite experience as on or before the original bid closing date. Company reserves the right to accept or reject the Contractor's proposed personnel. The contractor shall submit CVs of the personnel to the company within 30 days of issue of letter of award or 45 days prior to commencement of contract (whichever later) for-Company's approval. The Contractor shall not deploy its personnel unless cleared by the Company.	The Bidder must confirm to submit Biodata of the Base Co-ordinator, Logging Engineer, specialists, Data processing personnel and the Crew personnel to OIL for its approval, prior to mobilization of personnel, in their Unpriced Techno-Commercial bid as per Annexure-C. It also applies to the additional personnel which the Contractor may decide to keep in the operational areas. The personnel should have fulfilled the requisite experience as on or before the date of submission of Biodata. Company reserves the right to accept or reject the Contractor's proposed personnel. The contractor shall submit CVs of the personnel to the company within 30 days of issue of letter of award or 45 days prior to commencement of contract (whichever later) for-Company's approval. The Contractor shall not deploy its personnel unless cleared by the Company.
56	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES SERVICE PROVIDER'S PERSONNEL	Page 257 of 436	Experience of Contractors personnel: The personnel provided for carrying out wireline logging, perforation and other associated operations under the Contract must be qualified, competent and experienced as mentioned below. Period in this regard shall be reckoned from original bid closing date.	Experience of Contractors personnel: The personnel provided for carrying out wireline logging, perforation and other associated operations under the Contract must be qualified, competent and experienced as mentioned below. Period in this regard shall be reckoned from as on or before the date of submission of Biodata.

57	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES SERVICE PROVIDER'S PERSONNEL Logging Engineer:	Page 257 of 436	The Logging Engineers deployed should be an engineering graduate with least 3 (three) years of relevant experience of carrying out wireline logging and perforation and related services. Deployed logging engineers must be able to handle independent assignments and must have logged at least 10 wells including 3 deepwater wells in an independent capacity in earlier assignments on the bid closing date. Apart from requisite experience and Logging engineers should have valid well control and offshore safety course certifications.	The Logging Engineers deployed should be an engineering graduate with least 3 (three) years of relevant experience of carrying out wireline logging and perforation and related services. Deployed logging engineers must be able to handle independent assignments and must have logged at least 10 offshore wells including 1 (One) Deepwater well in an independent capacity in earlier assignments on the bid closing date. Apart from requisite experience and Logging engineers should have valid offshore safety course certifications.
58	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES SERVICE PROVIDER'S PERSONNEL Logging Operator:	Page 257 of 436	The Logging Engineers deployed should have at least 1 (One) years of relevant experience of carrying out wireline logging and perforation and related services. Deployed logging engineers must be able to handle independent assignments and must have logged at least 5 wells including 1 deepwater wells in an independent capacity in earlier assignments on the bid closing date. Apart from requisite experience and Logging operators should have valid offshore safety course certifications.	The Logging Operators deployed should have at least 1 (One) years of relevant experience of carrying out wireline logging and perforation and related services. Deployed logging operators must be able to handle independent assignments and must have logged at least 5 offshore wells in an independent capacity in earlier assignments on the bid closing date. Apart from requisite experience and Logging operators should have valid offshore safety course certifications.
59	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES TABLE–1: LIST OF REQUIRED WIRELINE SERVICES AND TOOL Serial No: 27	Page 259 of 436	A-29: Dump Bailer	A-19: Dump Bailer
60	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES TECHNICAL SPECIFICATIONS	Page 261 of 436	Contractor shall provide the latest version of Equipment, Logging Tools and Unit but not older than five (5) years. Contractor shall submit list of offered Unit, Equipment and Logging Tools, their documentary proof on the vintage with the year of manufacturing, history card and preventive maintenance to Company fifteen (30) days before mobilization for Company's physical inspection and verification before	Contractor shall submit list of offered Unit, Equipment and Logging Tools, their documentary proof on the vintage with the year of manufacturing, history card and preventive maintenance to Company fifteen (15) days before mobilization for Company's physical inspection and verification before the actual start of Work at Contractor's designated Operating Base.

	VINTAGE		the actual start of Work at Contractor's designated Operating Base.	**WIRELINE LOGGING TOOLS & EQUIPMENT** a) The wireline Logging unit must be State of the Art (latest version of Full Maxis 500, LOGIQ, ECLIPS or vendors latest acquisition system) capable of running all the tools and services under the Contract. Down-hole tools must be of current/latest technology. Down hole tools should have down-hole digitization, wherever applicable. b) Units/tools/equipment deployed / to be deployed should be replaced by their latest upgrade / new version at the same rates, terms and conditions of the Contract after approval of OIL to that effect subject to the condition that they meet or exceed the Contract specifications and performances. c) At the time of mobilization, the Contractor shall submit a list of offered Logging Unit and Downhole Logging Tools (excluding accessories) with documentary proof of the year of manufacturing. d) Refurbished tools or equipment shall not be deployed against the Contract. e) The Contractor has to provide fitness certificate for logging unit(s) at the time of mobilization and must be latest ISO/DNV certified as on the original bid closing date. During the period of Contract, the fitness certificate has to be renewed as per periodicity specified in the prevailing rules. f) All Tools, Equipment and Units required for the services should be of latest version as on the original bid closing date, as mentioned in Scope of Work. g) Monitoring and maintaining record of inventory for Equipment, materials, spares, consumables along with associated Contractor's Equipment (RA sources and explosives, spare parts) required for the Services and providing such reports with recommendations for future requirements as per drillingschedule to Company.

				h) Bidder to ensure that the offshore skid and auto section of LU-ON along with other accessories like hydraulic winch, hydraulic motor, power generator, Logging system and other related tools & equipment shall be maintained well to execute the contract smoothly over the contractual period. **Calibration Requirements:** 1. Contractor shall have all necessary calibration equipment, as per tool calibrationprocedure, at Contractor's facility near Company's operation base or well-site. 2. Contractor shall provide a calibration schedule for regular shop or well-site calibrations for all tools including tolerance limits. 3. Contractor shall provide the calibration report (before, after and master) along with the recorded log prints and soft copies. The master calibration report should not be more than one month old. 4. If for any particular Contractor's Equipment, calibration is not possible at the Contractor's operation base / well site then the place of calibration along with the details regarding the frequency of calibration, field verification etc. must be indicated. In such cases Contractor has to ensure that there is no delay caused to the Company's planned logging program at no extra cost to the Company. 5. The certificate / documentary evidence of calibration & tool inspection of the Contractor's Equipment will be required to be verified by Company's designated representative at rig site before it is deployed in the well for logging.
61	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES	Page 261 of 436	Contractor shall mobilize the following essential equipment & tools. The Equipment & tools specifications are defined in Table 1, 2 & 3 respectively. The open hole tools are required for 17-1/2", 12-1/4" and 8-1/2" hole sizes whereas cased hole tools are required for 13-3/8", 9-5/8" casing and 7" liner. Contractor is required to quote the	Contractor shall mobilize the following essential equipment & tools. The Equipment & tools specifications are defined in Table 1, 2 & 3 respectively. The open hole tools are required for 17-1/2", 12-1/4" and 8-1/2" hole sizes whereas cased hole tools are required for 13-3/8", 9-5/8" casing and 7" liner. Contractor is required to quote the

	WIRELINE LOGGING TOOLS & EQUIPMENT		price for all the Equipment and Tools defined in this section. The final tools list will be short listed from Table 3 as per operational requirements. Some of these tools may be required in phases and will be mobilized accordingly.	price for all the Equipment and Tools defined in this section. The final tools list will be short listed from Table 1 as per operational requirements. Some of these tools may be required in phases and will be mobilized accordingly.
62	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES Clause No: 5.2.1 WIRELINE LOGGING UNIT Service Code: TR-1 1.3	Page 262 of 436	The 7-conductor cable shall have minimum rated breaking strength of 24,000 lbs. The cable should be without splice at the time of deployment. The single conductor cable should be 5000 m long.	The 7-conductor cable shall have minimum rated breaking strength of 21,400 lbs. The cable should be without splice at the time of deployment. The single conductor cable should be 5000 m long.
63	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES Clause No: 5.2.1 WIRELINE LOGGING UNIT Service Code: TR-1 1.6	Page 262 of 436	Logging While Fishing Equipment (OPTIONAL)	Logging While Fishing Equipment
64	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES Clause No: 5.2.1 WIRELINE LOGGING UNIT Service Code: TR-1 1.7	Page 262 of 436	Down hole Telemetry Power Cartridge (DTPC)	Down hole Telemetry
65	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES Clause No: 5.2.1 WIRELINE LOGGING UNIT	Page 262 of 436	Multi-Arm Caliper combinable with any logging string (OPTIONAL)	Multi-Arm Caliper combinable with any logging string

	Service Code: TR-1 1.8			
66	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES Clause No: 5.2.1 WIRELINE LOGGING UNIT Service Code: TR-1 1.9	Page 262 of 436	"Online display of logs on a video screen for at least 25 m of log interval and scratch log on paper for depth control. Colour and black & white printers capable for printing of logs prints at scales specified by Company."	"Online display of logs on a video screen for at least 25 m of log interval and scratch log on paper for depth control. Black and white prints to be submitted as Rush prints in the field. Bidder to provide color prints as a part of the final packages"
67	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES Clause No: 5.2.2 STANDARD TOOLS/SERVICES TOOLS SPECIFICATIONS Service Code: TR-3	Page 262 of 436	PRESSURE CONTROL EQUIPMENT FOR THROUGH TUBING OPERATIONS: SPECIFICATIONS: Pressure Control Equipment including riser for Through Tubing Operations for multiconductor and mono conductor cable. Minimum pressure rating: 10kpsi. (Contractor to provide details of the BOP system along with the rig up diagrams) The height of PCE should be able to accommodate 6m TTP gun perforation to be carried out in one run.	PRESSURE CONTROL EQUIPMENT FOR THROUGH TUBING OPERATIONS: SPECIFICATIONS: Pressure Control Equipment including riser for Through Tubing Operations for ~~multiconductor and~~ mono conductor cable. Minimum pressure rating: 10kpsi. (Contractor to provide details of the BOP system along with the rig up diagrams) The height of PCE should be able to accommodate 6m TTP gun perforation to be carried out in one run.
68	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES Clause No: 5.2.2 STANDARD TOOLS/SERVICES TOOLS SPECIFICATIONS	Page 267 of 436	ADDED SPECIFICATIONS FOR A-10 PIPE CONVEYED WIRELINE LOGGING	Service Code: A-10 PIPE CONVEYED WIRELINE LOGGING OIL's Required Specifications Measurements Pipe conveyed wire line logging equipment (TLC/TPL or equivalent) with following minimum features: i) Tool protection in holes with large and medium radius of curvature. ii) Mud circulation through drill pipe. iii) Multiple wet connections without tripping tools. iv) Cable side entry sub must have 1000 psi (min) working pressure cable pack-off seal.
69	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING	Page 269 of 436	ADDED SPECIFICATIONS FOR A-19 DUMP BAILER	Service Code: A-19: DUMP BAILER i) Requirement: Cement Dump Bailer service for 4.1/2", 7" liner & 9.5/8" Casing ii) Tool diameter: Industry standard to carry out in casing/liner sizes 4.1/2", 7" & 9.5/8" Casing

	& PERFORATION SERVICES Clause No: 5.2.2 STANDARD TOOLS/SERVICES TOOLS SPECIFICATIONS			iii) Temperature rating: 300° F Minimum. iv) Pressure rating: 15000 psi minimum
70	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES DATA PROCESSING & INTERPRETATION: Basic Log Interpretation:	Page 273 of 436	The service provider will be required to carry out detailed processing & Interpretation (probabilistic method viz. ULTRA or ELAN Plus or equivalent) for the Service Codes P-Basic and PS-1(I) cost of which is to be included in the "operating cost per standard job" on standard log data (Gamma ray - Resistivity - porosity - density - sonic log and/or other available data) for quantitative analysis of lithology/ mineralogy, effective & total porosity, permeability, fluid saturation (movable/residual) & fluid type from log data and submit the provisional result within 10 hours from the time the survey is completed / after handing over the recorded data to Contractor. Final Report for Basic Log interpretation is to be submitted within 72 hrs (soft copy acceptable). Hardcopies and data (in suitable media) of final processed product to be submitted within 7 days. Processed / interpreted data must be submitted by Contractor representative stationed at Contractor operating Base.	The service provider will be required to carry out detailed processing & Interpretation (probabilistic method viz. ULTRA or ELAN Plus or equivalent) for the Service Codes P-Basic and PS-1(I) cost of which is to be included in the "operating cost per standard job" on standard log data (Gamma ray - Resistivity - porosity - density - sonic log and/or other available data) for quantitative analysis of lithology/ mineralogy, effective & total porosity, permeability, fluid saturation (movable/residual) & fluid type from log data and submit the provisional result within 48 hours from the time the survey is completed/ after handing over the recorded data to Contractor. Final Report for Basic Log interpretation is to be submitted within 72 hrs (soft copy acceptable). Hardcopies and data (in suitable media) of final processed product to be submitted within 7 days. Processed / interpreted data must be submitted by Contractor representative stationed at Contractor operating Base.
71	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES OTHER REQUIREMENTS FOR WIRELINE LOGGING SERVICES: Data Acquisition:	Page 278 of 436	"Environmental correction charts for different tools must be provided."	"Environmental correction charts for different tools (Wherever Applicable) must be provided."

72	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES OTHER REQUIREMENTS FOR WIRELINE LOGGING SERVICES: Logging Conditions, Tools & Equipment:	Page 279 of 436	"Facilities for logging of deviated wells with deviation up to 45 degrees. Therefore, the logging unit must have all required accessories like flex-sub/ knuckle joints and hole finders etc."	"Facilities for logging of long open or cased hole sections of vertical, deviated, and horizontal wells. Therefore, the logging unit must have all required accessories like flex-sub/ knuckle joints and hole finders etc."
73	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES DELIVERABLES:	Page 282 of 436	"Paper prints of each log suite to be submitted in 1:600 & 1:240 scale, three sets in each scale." "Paper prints of each log suite in 1:600 & 1:240 scale, three sets in each scale showing acquisition / calibration information & header information." "Three copies of well site quick-look interpretation on 1:200 & 1:500 scale wherever applicable."	"Paper prints of each log suite to be submitted in 1:500 & 1:200 scale, three sets in each scale." "Printed logs need to be delivered in 1:500 and 1:200 scales. Three sets of Paper prints (Colored) of each log suite to be submitted in each scale." "Three copies of well site quick-look interpretation on 1:500 & 1:200 scale, wherever applicable."
74	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES ANNEXURE-A STANDARD TOOLS/SERVICES Serial No: 3	Page 283 of 436	The 7-conductor cable shall have minimum rated breaking strength of 24,000 lbs. The cable should be without splice at the time of deployment.	The 7-conductor cable shall have minimum rated breaking strength of 21,400 lbs. The cable should be without splice at the time of deployment.
75	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES ANNEXURE-A STANDARD TOOLS/SERVICES	Page 291 of 436	ADDED SPECIFICATIONS FOR A-10 PIPE CONVEYED WIRELINE LOGGING	Service Code: A-10 PIPE CONVEYED WIRELINE LOGGING OIL's Required Specifications Measurements Pipe conveyed wire line logging equipment (TLC/TPL or equivalent) with following minimum features: i) Tool protection in holes with large and medium radius of curvature. ii) Mud circulation through drill pipe. iii) Multiple wet connections without tripping tools.

				iv) Cable side entry sub must have 1000 psi (min) working pressure cable pack-off seal.
76	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES ANNEXURE-A STANDARD TOOLS/SERVICES	Page 295 of 436	ADDED SPECIFICATIONS FOR A-19 DUMP BAILER	Service Code: A-19: DUMP BAILER i) Requirement: Cement Dump Bailer service for 4.1/2", 7" liner & 9.5/8" Casing ii) Tool diameter: Industry standard to carry out in casing/liner sizes 4.1/2", 7" & 9.5/8" Casing iii) Temperature rating: 300° F Minimum. iv) Pressure rating: 15000 psi minimum
77	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES ANNEXURE-B CHECKLIST FOR SCOPE OF WORK/TERMS OF REFERENCE Clause No: 2 HIRING OF ADDITIONAL TOOLS:	Page 303 of 436	Additional requirement, if any, of any of the tools mentioned in Table-1 of SOW section may need to be mobilized by the Contractor at the same rate, terms & conditions during the Contract period. In such case, Company shall advise the Contractor to mobilize the same within a mobilization period of 90 (ninety) days.	Additional requirement, if any, of any of the tools mentioned in Table-1 of SOW section may need to be mobilized by the Contractor upon mutual agreement at the same rate, terms & conditions during the Contract period. In such case, Company shall advise the Contractor to mobilize the same within a mobilization period of 90 (ninety) days.
78	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES ANNEXURE-B CHECKLIST FOR SCOPE OF WORK/TERMS OF REFERENCE Clause No: 3.0 TABLE–1: LIST OF REQUIRED WIRELINE SERVICES Serial No: 27	Page 304 of 436	A-29: Dump Bailer	A-19: Dump Bailer
79	Part 3 Section-II Scope of Work Exhibit 13	Page 312 of 436	"The contractor may keep a common spare cable drum good for immediate replacement during cable splicing requirements (as	"The contractor must keep a common spare cable drum, at Contractor's storing facilities in Port Blair, good for immediate

	SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES ANNEXURE-B CHECKLIST FOR SCOPE OF WORK/TERMS OF REFERENCE Clause No: 5.1 ESSENTIAL CAPABILITIES REQUIRED FOR LOGGING UNITS: Sub Clause: h		mentioned in clause 9.0 of SOR) and for logging in deeper wells up to 5000m. In such an arrangement by Contractor, if the spare cable drum (containing longer cable for wells up to 5000m) is found to be unavailable at any point of time then penalty charge of 2% of monthly contract value shall be recovered every month until spare drum is provided. Additionally, for every month of delay, penalty shall be increased by 2% limited to a maximum of 6% (i.e., if delay is more than one month, penalty applicable shall be increased in steps of 2% every month, e.g., for 1st month – 2% penalty, 2nd month - 4% penalty, from 3rd month onwards- 6% penalty). However, for fished cable the above penalty shall be applicable only after the 1-month period allowed for cable splicing/replacement as mentioned in clause SOR 9.0.	replacement during cable splicing requirements (as mentioned in clause 13.5 of SOR) and for logging in deeper wells up to 5000m. In such an arrangement by Contractor, if the spare cable drum (containing longer cable for wells up to 5000m) is found to be unavailable at any point of time then penalty charge of 2% of monthly contract value of 'Wireline Logging Services' shall be recovered every month until spare drum is provided. Additionally, for every month of delay, penalty shall be increased by 2% limited to a maximum of 6% (i.e., if delay is more than one month, penalty applicable shall be increased in steps of 2% every month, e.g., for 1st month – 2% penalty, 2nd month - 4% penalty, from 3rd month onwards- 6% penalty). However, for fished cable the above penalty shall be applicable only after the 1-month period allowed for cable splicing/replacement as mentioned in clause SOR 13.5.
80	Part 3 Section-II Scope of Work Exhibit 13 SCOPE OF WORK FOR WIRELINE LOGGING & PERFORATION SERVICES ANNEXURE-B CHECKLIST FOR SCOPE OF WORK/TERMS OF REFERENCE Clause No: 6.5 OTHER ESSENTIAL EQUIPMENT & CONDITIONS TO BE FULFILLED: Sub Clause: a)	Page 315 of 436	Environmental correction charts for different tools must be provided.	Environmental correction charts for different tools (Wherever Applicable) must be provided.
81	Part 3 Section-II Scope of Work Exhibit 14 PROJECT COORDINATOR AND RIG-SITE CO-ORDINATORS	Page 319 of 436	The Project Coordinator must be an Engineering Graduate having minimum fifteen (15) years of Oil & Gas field experience and must have a minimum of seven (07) years of experience working as a Project Coordinator to support Drilling/E&P Companies with at least four (04)	The Project Coordinator must be an Engineering Graduate having minimum ten (10) years of Oil & Gas field experience and must have a minimum of seven (07) years of experience working as a Project Coordinator to support Drilling/E&P Companies with at least three (03)

<table>
<tr><td></td><td>Clause No: 1
SCOPE OF WORK FOR PROJECT COORDINATOR

Sub Clause: 2.0
EXPERIENCE</td><td></td><td>years in offshore operations out of which minimum two (02) years on a floater rig operation. He must have also worked as a Project Manager/Project Coordinator for an E&P Operator for handling Bundle Services comprising of Cementing Services, Directional Drilling Services, Mud Engineering Services, Wireline Logging Services, and Well Testing Services at least for a period of 2 years in offshore rig operations.</td><td>years in offshore operations out of which minimum two (02) years on a floater rig operation. He must have also worked as a Project Manager/Project Coordinator for an E&P Operator for handling Bundle Services comprising of Cementing Services, Directional Drilling Services, Mud Engineering Services, Wireline Logging Services, and Well Testing Services at least for a period of 2 years in offshore rig operations.</td></tr>
<tr><td>82</td><td>Part 3 Section-II
Scope of Work

Exhibit 14
PROJECT COORDINATOR AND RIG-SITE CO-ORDINATORS

Clause No: 2.
SCOPE OF WORK FOR RIG SITE COORDINATOR (DAY)

Sub Clause: 2.0
EXPERIENCE</td><td>Page 320 of 436</td><td>The Rig Site Coordinator must be an engineering graduate or a Diploma in engineering having minimum 10 years of Oil & Gas field experience. He must possess a valid IWCF (Supervisory level) certificate at all times. He must have a minimum of five (05) years of experience as Project Coordinator / Rig Site Coordinator to support Drilling/E&P Companies with at least three (03) years in offshore rigs, out of which two (02) years should be on a floater rig.</td><td>The Rig Site Coordinator must be an engineering graduate or a Diploma in engineering having minimum 07 years of Oil & Gas field experience. He must possess a valid IWCF (Supervisory level) certificate at all times. He must have a minimum of five (05) years of experience as Project Coordinator / Rig Site Coordinator to support Drilling/E&P Companies with at least three (03) years in offshore rigs, out of which two (02) years should be on a floater rig.</td></tr>
<tr><td>Sl. No.</td><td>CLAUSE No.</td><td>Page No.</td><td>ORIGINAL CLAUSE</td><td>AMENDED CLAUSE</td></tr>
<tr><td colspan="5">PART-3
SECTION-III
SPECIAL TERMS & CONDITIONS OF THE CONTRACT (SCC)</td></tr>
<tr><td>83</td><td>Part 3 Section-III
SCC

Clause No: 2.2
DATE OF COMMENCEMENT OF THE CONTRACT:</td><td>Page 323 & 324 of 436</td><td>The Contract shall commence when all of the services under Group – I (Exclusive of Liner Hanger Equipment & Liner Running Services) are mobilized as per the mobilization schedule and are ready in all respects to commence operations as per the respective Scope of work and duly certified by the Company Representative; herein referred to as “Commencement Date”.</td><td>The Contract shall commence when all of the services under Group – I (Exclusive of Liner Hanger Equipment & Liner Running Services and Tubular for Well Testing) are mobilized as per the mobilization schedule, mentioned in clause 2.3, and are ready in all respects to commence operations as per the respective Scope of work and duly certified by the Company Representative; herein referred to as “Commencement Date”.</td></tr>
<tr><td>84</td><td>Part 3 Section-III
SCC

Clause No: 2.3
MOBILISATION TIME AND DEMOBILIZATION:</td><td>Page 324 & 325 of 436</td><td><table><tr><th>Name of the Services</th><th>Designated Location</th><th>Mobilization Period.</th></tr><tr><td>Cementing</td><td>At Contract</td><td>Within 90 days of</td></tr></table></td><td><table><tr><th>Name of the Services</th><th>Designated Location</th><th>Mobilization Period.</th></tr><tr><td>Cementing</td><td>At Contract</td><td>Within 120 days</td></tr></table></td></tr>
</table>

				equipment & services (inclusive of consumables)	or's Base in Port Blair / Drilling Unit	Mobilization notice issued by Company		equipment & services (inclusive of consumables)	or's Base in Port Blair / ~~Drilling Unit~~	of Mobilization notice issued by Company
				Mud Engineering services (inclusive of consumables)	At Contractor's Base in Port Blair / Drilling Unit	Within 90 days of Mobilization notice issued by Company		Mud Engineering services (inclusive of consumables)	At Contractor's Base in Port Blair / ~~Drilling Unit~~	Within 120 days of Mobilization notice issued by Company
				Directional Drilling services – Mud Motor /MWD/ LWD	At Contractor's Base in Port Blair / Drilling Unit	Within 90 days of Mobilization notice issued by Company		Directional Drilling services – Mud Motor /MWD/ LWD	At Contractor's Base in Port Blair / ~~Drilling Unit~~	Within 120 days of Mobilization notice issued by Company
				Wire line logging services	At Contractor's Base in Port Blair / Drilling Unit	Within 90 days of Mobilization notice issued by Company		Wire line logging services	At Contractor's Base in Port Blair / ~~Drilling Unit~~	Within 120 days of Mobilization notice issued by Company
				Mud logging services	At Contractor's Base in Port Blair / Drilling Unit	Within 90 days of Mobilization notice issued by Company		Mud logging services	At Contractor's Base in Port Blair / ~~Drilling Unit~~	Within 120 days of Mobilization notice issued by Company
				Subsea well heads with Services and Conductor pipes	At OCTG Yard for Equipment and crew at Port Blair / Drilling Unit	Within 210 days of Mobilization notice issued by Company		Subsea well heads with Services and Conductor pipes	At OIL's OCTG Yard for Equipment and crew at OIL's Heli Base in Port Blair / ~~Drilling Unit~~	Within 210 days of Mobilization notice issued by Company

				Casing & Tubing Running services	At Contractor's Base in Port Blair / ~~Drilling Unit~~	Within 90 days of Mobilization notice issued by Company		Casing & Tubing Running services	At Contractor's Base in Port Blair / ~~Drilling Unit~~	Within 120 days of Mobilization notice issued by Company
				Fishing tools and services	At Contractor's Base in Port Blair / Drilling Unit	Within 90 days of Mobilization notice issued by Company		Fishing tools and services	At Contractor's Base in Port Blair / ~~Drilling Unit~~	Within 120 days of Mobilization notice issued by Company
				Liner Hanger Equipment & Liner Running Services	At OCTG Yard for Equipment and crew at Port Blair / Drilling Unit	Within 150 days of Mobilization notice issued by Company		Liner Hanger Equipment & Liner Running Services	At OIL's OCTG Yard for Equipment and crew at OIL's Heli Base in Port Blair / ~~Drilling Unit~~	Within 150 days of Mobilization notice issued by Company
				Drill bits	At Company's Shore Base in Port Blair / Drilling Unit	Within 90 days of Mobilization notice issued by Company		Drill bits	At Company's Shore Base in Port Blair / ~~Drilling Unit~~	Within 120 days of Mobilization notice issued by Company
				Drilling tools	At Contractor's Base in Port Blair / Drilling Unit	Within 90 days of Mobilization notice issued by Company		Drilling tools	At Contractor's Base in Port Blair / ~~Drilling Unit~~	Within 120 days of Mobilization notice issued by Company
				Tubular for Well Testing	At OCTG Yard / Drilling Unit	Within 120 days of Mobilization notice issued by Company		Tubular for Well Testing	At OIL's OCTG Yard / ~~Drilling Unit~~	Within 120 days of Mobilization notice issued by Company

			Well testing services, surface and down hole.	At Contractor's Base in Port Blair / Drilling Unit	Within 90 days of Mobilization notice issued by the Company
			Project Coordinator	At base (Kakinada / Port Blair)	Within 30 days of Mobilization notice issued by Company
			Rig Site Coordinator (Day Tour)	At the Drilling Unit	Within 30 days of Mobilization notice issued by Company
			Rig Site Logistics Coordinator (Night Tour)	At the Drilling Unit	Within 30 days of Mobilization notice issued by Company
			Well testing services, surface and down hole.	At Contractor's Base in Port Blair ~~/ Drilling Unit~~	Within 150 days of Mobilization notice issued by the Company
			Project Coordinator	At base (Kakinada / Port Blair)	Within 30 days of Mobilization notice issued by Company
			Rig Site Coordinator (Day Tour)	At OIL's Heli base in Port Blair	Within 30 days of Mobilization notice issued by Company
			Rig Site Logistics Coordinator (Night Tour)	At OIL's Heli base in Port Blair	Within 30 days of Mobilization notice issued by Company

85	Part 3 Section-III SCC Clause No: 2.3 MOBILISATION TIME AND DEMOBILIZATION: Note: Sub Clause: (ii)	Page 325 of 436	The succeeding day of issue of mobilization notice shall be counted as day 01 for the purposes of Mobilization period. For the purposes of LD, the mobilisation would be deemed complete from the date and time equipment is complete in on-hire survey by Company.	The succeeding day of issue of mobilization notice shall be counted as day 01 for the purposes of Mobilization period. For the purposes of LD, the mobilisation would be deemed complete from the date and time the equipment, tools, consumables etc. are mobilized in the designated location.
86	Part 3 Section-III SCC Clause No: 2.3 MOBILISATION TIME AND DEMOBILIZATION: Note: Sub Clause: (iii)	Page 325 of 436	For the initial mobilization of tools & equipment, on receipt of intimation from contractor, Company will inspect and certify within 10 working days. For successive remobilization, contractor must intimate Company about arrival of the tools & equipment and Company will inspect the tools & equipment for each re-mobilization within 07 working days of receipt of intimation from the contractor. Date of mobilization / re-mobilization will be considered from the date of successful inspection carried out by Company representative.	For the initial mobilization of tools & equipment, on receipt of intimation from contractor, Company will inspect and certify within 10 working days. For successive remobilization, contractor must intimate Company about arrival of the tools & equipment and Company will inspect the tools & equipment for each re-mobilization within 05 working days of receipt of intimation from the contractor. Date of mobilization / re-mobilization will be considered from the date of successful inspection carried out by Company representative.

87	Part 3 Section-III SCC Clause No: 2.3 MOBILISATION TIME AND DEMOBILIZATION: Note: Sub Clause: (iv)	Page 325 of 436	However, on-hire inspection of all services shall be done at base only. In case, any Service(s) which require mobilization at rig are not sent to rig after on-hire survey due to any reason not attributable to Contractor, then Individual Service Day Rate charges as applicable shall be payable after 7 days onwards from on-hire survey date e.g., in case on-hire survey is done on Day 1, then Individual Service Day Rate shall start from Day 8.	However, on-hire inspection of all services shall be done only at the designated locations where the services are to be mobilized. In case, any Service(s) which require mobilization at rig are not sent to rig after on-hire survey due to any reason not attributable to Contractor, then Individual Service Day Rate charges as applicable shall be payable after 7 days onwards from on-hire survey date e.g., in case on-hire survey is done on Day 1, then Individual Service Day Rate shall start from Day 8.
88	Part 3 Section-III SCC Clause No: 2.3 MOBILISATION TIME AND DEMOBILIZATION: Note: Sub Clause: (v)	Page 325 of 436	For supply of bits, an assorted of all consignment and 10% of total bits to be ready for use in Drilling Unit within 90 days from the date of 1st mobilization notice.	For supply of bits, an assorted of all consignment and 10% of total bits to be ready for use in Drilling Unit within 120 days from the date of 1st mobilization notice.
89	Part 3 Section-III SCC Clause No: 2.3 MOBILISATION TIME AND DEMOBILIZATION: Note: Sub Clause: (ix)	Page 326 of 436	Company reserves the right to exercise the option of accepting part mobilization of services / tools / units / sets etc, if the same can be utilized operationally. However, the mobilisation charges shall be paid only after completion of full services / tools / units / sets etc. In case, Company de-mobilizes such services / tools / units / sets etc after part mobilisation, mobilization charges shall be pro-rated on the basis of CIF value as per import invoice vis-à-vis the CIF Value as per CONTRACT. In the event, the Drilling Unit cannot perform its intended operations for reasons due to non-mobilisation of the outstanding equipment/ tools/ materials / services etc, then no rate whatsoever shall be payable to the Contractor except the cost of the well consumables till the time the rig resumes its normal intended operations after mobilisation of such equipment / tools / materials / services etc.	Company reserves the right to exercise the option of accepting part mobilization of services / tools / units / sets etc, if the same can be utilized operationally. However, the mobilisation charges shall be paid only after completion of full services / tools / units / sets etc. In case, Company de-mobilizes such services / tools / units / sets etc after part mobilisation, mobilization charges shall be pro-rated on the basis of CIF value as per import invoice vis-à-vis the CIF Value as per CONTRACT when the mobilization charges are quoted in lumpsum basis. However, for those items whose mobilization charges has been quoted, the mobilization charges will be payable as per the rates quoted in the price proforma. In the event, the Drilling Unit cannot perform its intended operations for reasons due to non-mobilisation of the outstanding equipment/ tools/ materials / services etc, then no rate whatsoever shall be payable to the Contractor except the cost of the well consumables till the time the rig

				resumes its normal intended operations after mobilisation of such equipment / tools / materials / services etc.
90	Part 3 Section-III SCC Clause No: 2.3 MOBILISATION TIME AND DEMOBILIZATION: Note: Sub Clause: (x)	Page 326 of 436	Mobilization charges are inclusive of transportation, sea / airfreight, loading / unloading, shipping, wharfage / demurrage and harbour fees, port or airport fees, packing and handling charges, permit, import clearance charges and all insurance adequate to cover the shipment from the place of origin until arrival at COMPANY'S base/site where equipment is ordered to be mobilized.	Mobilization charges are inclusive of transportation, sea / airfreight, loading / unloading, shipping, wharfage / demurrage and harbour fees, port or airport fees, packing and handling charges, permit, import clearance charges and all insurance adequate to cover the shipment from the place of origin until arrival at COMPANY'S Shore Base at Port Blair or COMPANY'S OCTG Yard at Kakinada/Karaikal (as applicable).
91	Part 3 Section-III SCC Clause No: 2.3 MOBILISATION TIME AND DEMOBILIZATION: Note: Sub Clause: (xi)	Page 326 of 436	Company shall have the option to ask for delayed mobilization of any unit / tools to be mobilized / remobilized as per Contract. A minimum notice period of 15 days before the schedule date of mobilization shall be applicable at the time of asking for such delay in mobilization. Mobilization can be delayed for a maximum of 45 days on each occasion.	Company shall have the option to ask for delayed mobilization of any unit / tools to be mobilized / remobilized as per Contract. A minimum notice period of 30 days before the schedule date of mobilization shall be applicable at the time of asking for such delay in mobilization. Mobilization can be delayed for a maximum of 45 days, ~~on each occasion~~ limited to twice in the duration of the Contract.
92	Part 3 Section-III SCC Clause No: 2.3 MOBILISATION TIME AND DEMOBILIZATION: Note: Sub Clause: (xii)	Page 326 of 436	De-mobilization charges shall become payable on clearance & re-export of all equipment from Indian Port / Custom authorities for re-export of equipment to Contractor's base. However, Company shall not pay de-mobilization charges of services/tools/units/sets etc. which are not re-exported on completion of Contract/termination and also if the Contractor deploys such services / tools / units / sets etc. against any other contract(s) for Company in India.	De-mobilization charges shall become payable on clearance & re-export of all equipment from Indian Port / Custom authorities for re-export of equipment to Contractor's base or Block Transfer or re-export to SEZ as permissible under applicable customs rules / regulations and provided Company is out of charge after Block Transfer or re-export to SEZ. However, Company shall not pay de-mobilization charges of services/tools/units/sets etc. which are not re-exported on completion of Contract/termination and also if the Contractor deploys such services / tools / units / sets etc. against any other contract(s) for Company in India.
93	Part 3 Section-III SCC Clause No: 2.3	Page 326 of 436	De-hiring of Services: De-hiring of services/tools/sets/items etc. shall be as follows unless specified	De-hiring of Services: De-hiring of services/tools/sets/items etc. shall be as follows unless specified

<table>
<tr><td></td><td>MOBILISATION TIME AND DEMOBILIZATION:

Note:
Sub Clause: (xiv)</td><td></td><td>otherwise in the scope of work of any service:

a. Regular services / tools / sets / items – On receipt of notice / offloaded from the Drilling Unit.

b. Call out / optional services / tools / sets / items – After completion of job and at the discretion of Company.</td><td>otherwise in the scope of work of any service:

a. Regular services / tools / sets / items – On receipt of notice / offloaded at Company's Shore Base.

b. Call out / optional services / tools / sets / items – After completion of job and upon offloading at Company's Shore Base.</td></tr>
<tr><td>94</td><td>Part 3 Section-III SCC

Clause No: 2.4 INTERIM DE-MOBILIZATION & RE-MOBILIZATION:

Sub Clause: (a)</td><td>Page 327 of 436</td><td>Interim De-Mobilization: Some of the services, intended to be hired, are normally for a short period of time and repeated in nature. After completion of a job at a particular well Contractor should de-mobilize such services on interim basis including tool, equipment & crew (as applicable) on receipt of Interim Demobilization notice from Company and no rental/day rates shall be applicable from the date of De-mobilization till the completion of Interim Remobilization as accepted and certified by the Company representative. The Interim Demobilization period will start once the tool, equipment & crew (as applicable) is offloaded from the Drilling Unit.</td><td>Interim De-Mobilization: Some of the services, intended to be hired, are normally for a short period of time and repeated in nature. After completion of a job at a particular well Contractor should de-mobilize such services on interim basis including tool, equipment & crew (as applicable) on receipt of Interim Demobilization notice from Company and no rates (ISDR/OCDR) shall be applicable once the tool, equipment is offloaded at the OIL's shore base where it was initially mobilized as per the Contract till the completion of Interim Remobilization as accepted and certified by the Company representative. The Interim Demobilization period will start once the tool, equipment is offloaded at the OIL's shore base where it was initially mobilized as per the Contract. No day rates will be payable to the crew once they are offloaded from the Drilling Unit.</td></tr>
<tr><td>95</td><td>Part 3 Section-III SCC

Clause No: 2.4 INTERIM DE-MOBILIZATION & RE-MOBILIZATION:

Sub Clause: (b)</td><td>Page 327 of 436</td><td>Interim Re-mobilization: The interim Re-mobilization of each individual service shall be as per the Schedule defined in Table below:

<table><tr><th>Name of the Service</th><th>Re-Mobilization Period.</th></tr><tr><td>Liner Hanger Running Services under Group – I Services</td><td>Within 30 days of Re-Mobilization notice issued by the Company</td></tr></table></td><td>Interim Re-mobilization: The interim Re-mobilization of each individual service shall be as per the Schedule defined in Table below:

<table><tr><th>Name of the Service</th><th>Re-Mobilization Period.</th></tr><tr><td>Liner Hanger Running Services under Group – I Services</td><td>Within 45 days of Re-Mobilization notice issued by the Company</td></tr><tr><td>9-5/8" / 9-1/2" SDMM,</td><td>Within 45 days of Re-</td></tr></table></td></tr>
</table>

				Basic MWD tool and MWD collars with 7-5/8" Reg connections under Group – 1 Services	Mobilization notice issued by the Company
96	Part 3 Section-III SCC Clause No: 2.4 INTERIM DE-MOBILIZATION & RE-MOBILIZATION: Note: Sub Clause: (i)	Page 327 of 436	On receipt of Re-mobilization notice from Company, Contractor should complete the re-mobilization of service package with tool, equipment & crew (as applicable) within the stipulated time period at the designated location/drilling unit in readiness to commence work as envisaged under the Contract as per SOW, duly accepted and certified by the Company's representative.	On receipt of Re-mobilization notice from Company, Contractor should complete the re-mobilization of service package with tool, equipment & crew (as applicable) within the stipulated time period at the designated location~~/drilling unit~~ in readiness to commence work as envisaged under the Contract as per SOW, duly accepted and certified by the Company's representative.	
97	Part 3 Section-III SCC Clause No: 2.4 INTERIM DE-MOBILIZATION & RE-MOBILIZATION: Note: Sub Clause: (iv)	Page 327 of 436	For first and successive re-mobilization, contractor must intimate Company about arrival of the tools & equipment and Company will inspect the tools & equipment for each re-mobilization within 07 working days of receipt of intimation from the contractor. Date of re-mobilization will be considered from the date of successful inspection carried out by Company representative.	For first and successive re-mobilization, contractor must intimate Company about arrival of the tools & equipment and Company will inspect the tools & equipment for each re-mobilization within 05 working days of receipt of intimation from the contractor. Date of re-mobilization will be considered from the date of successful inspection carried out by Company representative.	
98	Part 3 Section-III SCC Clause No: 2.5 DURATION OF CONTRACT: Sub Clause: (i)	Page 328 of 436	The contract shall commence as per the requirement of commencement of the contract of the anchor-moored semi-submersible Drilling Unit (contracted by the Company) and then continue till abandonment of the last well being drilled as per the operational programme of the Company or till de-hiring of the Drilling Unit. The Contract will be automatically extended for completion of jobs in the last well, on the same rates, terms & conditions.	The contract shall ~~commence as per the requirement of commencement of the contract of the anchor-moored semi-submersible Drilling Unit (contracted by the Company) and then~~ continue till abandonment of the last well being drilled as per the operational programme of the Company or till de-hiring of the Drilling Unit. The Contract will be automatically extended for completion of jobs in the last well, on the same rates, terms & conditions.	
99	Part 3 Section-III SCC Clause No: 3.0 LIQUIDATED DAMAGES FOR DEFAULT IN TIMELY MOBILISATION:	Page 328 of 436	Time is the essence of this Contract. In the event of the Contractor's default in timely mobilization for commencement of operations within the stipulated period, the Contractor shall be liable to pay liquidated damages @ 0.5% of the estimated Contract value including mobilization cost, per week or part	Time is the essence of this Contract. In the event of the Contractor's default in timely mobilization within the stipulated period for commencement of operations, the Contractor shall be liable to pay liquidated damages @ 0.5% of the estimated Contract value (as detailed below) including	

	Sub Clause: 3.1		thereof of delay subject to maximum of 7.5%.	mobilization cost, per week or part thereof of delay subject to maximum of 7.5%. 3.1.1 For delay in mobilisation of the services which are advised to be mobilised for commencement of contract, LD will be applicable on the estimated contract value for all the services advised to be mobilised. 3.1.2 For delay in mobilisation of the services which are advised to be mobilised at a later date in the duration of the contract, LD will be applicable on the estimated contract value for those services.
100	Part 3 Section-III SCC Clause No: 3.0 LIQUIDATED DAMAGES FOR DEFAULT IN TIMELY MOBILISATION: Sub Clause: 3.2	Page 328 of 436	Company shall have at any time but before Commencement Date, the right to terminate the Contract in the event Contractor fails to deploy all services at the first drilling location within aforesaid period, without prejudice to any other clauses including LD Clause. The parties agree that this is a genuine pre-estimate of the loss/damage which will be suffered on account of delay/breach on the part of the contractor and the said amount will be payable on demand, without there being any proof of the actual loss or damages caused by such delay/breach.	Company shall have at any time but after the stipulated period for mobilization ~~before Commencement Date~~, the right to terminate the Contract in the event Contractor fails to deploy all services at the designated ~~first drilling~~ locations within aforesaid period, without prejudice to any other clauses including LD Clause. The parties agree that this is a genuine pre-estimate of the loss/damage which will be suffered on account of delay/breach on the part of the contractor and the said amount will be payable on demand, without there being any proof of the actual loss or damages caused by such delay/breach.
101	Part 3 Section-III SCC Clause No: 3.0 LIQUIDATED DAMAGES FOR DEFAULT IN TIMELY MOBILISATION: Sub Clause: 3.3	Page 328 of 436	In case the Contractor fails to mobilize and deploy the services along with crew and/or fails to commence operations within the allocated mobilization time, Company shall have, without prejudice to any other provision in the contract including sub clause below, the right to invoke the performance security, forfeit the amount of performance security and terminate the contract. Apart from termination, Contractor will be put up on holiday of two years (CONSEQUENCES OF TERMINATION).	In case the Contractor fails to mobilize and deploy the services along with crew and/or are not ready to commence operations ~~fails to commence operations within the allocated mobilization time~~, Company shall have, without prejudice to any other provision in the contract including sub clause below, the right to invoke the performance security, forfeit the amount of performance security and terminate the contract. Apart from termination, Contractor will be put up on holiday of two years (CONSEQUENCES OF TERMINATION).

102	Part 3 Section-III SCC Clause No: 3.0 LIQUIDATED DAMAGES FOR DEFAULT IN TIMELY MOBILISATION: Sub Clause: 3.4	Page 328 of 436	If the Contractor is unable to mobilize / deploy the Services and commence the operation within the mobilization period specified in clauses above, it may request the Company for extension of the time with unconditionally agreeing for levy/payment of Liquidated Damages. Upon receipt of such a request, Company, at its discretion, may extend the period of mobilization and Company as its sole remedy can recover from the Contractor as ascertained and agreed Liquidated Damages as under of the Contract conditions.	If the Contractor is unable to mobilize / deploy the Services ~~and commence the operation~~ within the mobilization period specified in clauses above, it may request the Company for extension of the time with unconditionally agreeing for levy/payment of Liquidated Damages. Upon receipt of such a request, Company, at its discretion, may extend the period of mobilization and Company as its sole remedy can recover from the Contractor as ascertained and agreed Liquidated Damages as under of the Contract conditions.
103	Part 3 Section-III SCC Clause No: 4.0 INDIVIDUAL SERVICE DAY RATE (ISDR): Sub Clause: 4.1	Page 328 of 436	Contractor shall be paid Individual Service Day Rate (ISDR) for all the services covered under Bundled Services (exclusive of Liner Hanger Running Services and Well Testing Services) from the time they are mobilized / commissioned (as applicable) and made ready in all respects to start operations at the respective designated locations as per the Mobilization clause 2.3 during entire period of the Contract, except when specifically, otherwise provided for in this Contract as per the rates given at rate schedule.	Contractor shall be paid Individual Service Day Rate (ISDR) for all the services covered under Bundled Services (exclusive of Liner Hanger Running Services and Well Testing Services) from the time they are mobilized ~~/ commissioned (as applicable)~~ at the respective designated locations as per the Mobilization clause 2.3 and made ready in all respects to start operations, during entire period of the Contract, except when specifically, otherwise provided for in this Contract as per the rates given at rate schedule. Individual Service Day Rate (ISDR) will be payable for that service if the on-hire inspection during initial mobilization is not completed within 10 working days, provided the other services are ready in all respects to start operations. However, during on-hire inspection, some or any tool, equipment, consumables etc are found non-compliant then the rates paid for that service shall be recovered. Individual Service Day Rate (ISDR) will also be payable for that service if the on-hire inspection during interim remobilization is not completed within 05 working days. However, during on-hire inspection, some or any tool, equipment, consumables etc are found non-

				compliant then the rates paid for that service shall be recovered.
104	Part 3 Section-III SCC Clause No: 4.0 INDIVIDUAL SERVICE DAY RATE (ISDR): Sub Clause: 4.2	Page 328 & 329 of 436	Contractor shall be paid Individual Service Day Rate (ISDR) for Liner Hanger Running Services and Well Testing Services from the time they are mobilized / commissioned and made ready in all respects to start operations as per instruction of the Company and as per the Mobilization / remobilization clause 2.3 & 2.4, except when specifically, otherwise provided for in this Contract as per the rates given at rate schedule. ISDR shall not be payable during the period OCDR is payable in the Drilling Unit. When the Liner Hanger Running services is interim demobilized the ISDR shall cease with immediate effect.	Contractor shall be paid Individual Service Day Rate (ISDR) for Liner Hanger Running Services and Well Testing Services from the time they are mobilized ~~/ commissioned~~ and made ready in all respects to start operations as per instruction of the Company and as per the Mobilization / remobilization clause 2.3 & 2.4, except when specifically, otherwise provided for in this Contract as per the rates given at rate schedule. ISDR shall not be payable during the period OCDR is payable in the Drilling Unit. When the Liner Hanger Running services is interim demobilized the ISDR shall cease as per clause 2.4 (a).
105	Part 3 Section-III SCC Clause No: 5.0 OPERATING COMPONENT DAY RATE (OCDR) / OPERATING DAY RATE (ODR): Sub Clause: 5.1	Page 329 of 436	For Wireline Logging Services, the Operating Day Rate shall commence when the first tool is lowered below rotary after rigging up Wireline Logging services during any Wireline Logging operations. The Operating Day Rate shall end when the last tool is out of rotary prior to rigging down of Wireline Logging services for that particular set of logging runs. If a particular tool, including back-up tool, is found to be non-functional during operation in first well after initial mobilization, in that case neither **ISDR nor Operating Day Rate** shall be applicable from the date of receipt of that particular tool at OIL designated locations. The **ISDR / Operating Rate (as applicable)** for the replacement tool will be payable, from the time the replacement tool is made available at OIL designated locations subject to it being functional on subsequent logging operations.	For Wireline Logging Services, the **Operating Rate / Re-dressing Charges shall be payable per job as per the actual 'Unit' of data acquired as listed in Proforma-B.** If a particular tool, including back-up tool, is found to be non-functional during operation in first well after initial mobilization, in that case neither **ISDR nor Operating Rate** shall be applicable from the date of receipt of that particular tool at OIL designated locations. The **ISDR / Operating Rate (as applicable)** for the replacement tool will be payable, from the time the replacement tool is made available at OIL designated locations subject to it being functional on subsequent logging operations. However, the above penalty for the replacement tool shall be limited to 30 days.
106	Part 3 Section-III SCC Clause No: 8.0 INSPECTION CLAUSE: Sub Clause: iv)	Page 331 of 436	In case the Contractor fails to adhere to the time schedule, Company reserves its right to invoke the performance bond and terminate the contract without prejudice to any other right or remedy available as per contract.	Deleted

107	Part 3 Section-III SCC Clause No: 8.0 INSPECTION CLAUSE: Sub Clause: vi)	Page 331 of 436	Maximum time allowed for inspection of the initially mobilized services/tools/materials, shall be 30 man-days (Cumulative). The Contractor has to offer the services for inspection on complete readiness of the stipulated services. In case this inspection takes more than 30 man-days (due to factors attributable to the Contractor), the cost of inspection beyond 30 man-days would be to the account of the Contractor. In case inspection team is to be mobilized subsequently, for compliance of deficiencies during the first inspection, the entire cost towards second or subsequent inspections shall be to the account of the Contractor. However, for cumulative 30 man-days, only the inspectors' daily service charges shall be borne by Company.	Maximum time allowed for inspection of the initially mobilized services/tools/materials, shall be 30 days (Cumulative). The Contractor has to offer the services for inspection on complete readiness of the stipulated services. In case this inspection takes more than 30 days (due to factors attributable to the Contractor), the cost of inspection beyond 30 days would be to the account of the Contractor. In case inspection team is to be mobilized subsequently, for compliance of deficiencies during the first inspection, the entire cost towards second or subsequent inspections shall be to the account of the Contractor. However, for cumulative 30 days, only the inspectors' daily service charges shall be borne by Company.
108	Part 3 Section-III SCC Clause No: 8.0 INSPECTION CLAUSE: Sub Clause: vii)	Page 331 & 332 of 436	The charges for inspection for the cumulative period beyond 30 man-days for the initially mobilized services/tools/materials shall be paid directly by the Company to the TPI Agency and will be recovered from the Contractor from their invoices upon commencement of the Contract.	The charges for inspection for the cumulative period beyond 30 days for the initially mobilized services/tools/materials shall be paid directly by the Company to the TPI Agency and will be recovered from the Contractor from their invoices upon commencement of the Contract.
109	Part 3 Section-III SCC Clause No: 9.0 CONTRACTOR'S OBLIGATIONS: Clause No: 9.1 PERSONNEL: Sub Clause: 9.1.1	Page 332 of 436	Contractor shall ensure that its personnel will be competent as required under the service to be provided. However, the Contractor shall provide details of experience, qualification and other relevant data of the personnel to be deployed for scrutiny and clearance by the Company before the actual deployment, i.e within the mobilization period. The Contractor shall not deploy its personnel unless cleared by the Company. The contractor shall not replace the key personnel initially mobilised during the contract period.	Contractor shall ensure that its personnel will be competent as required under the service to be provided. However, the Contractor shall provide details of experience, qualification and other relevant data of the personnel to be deployed for scrutiny and clearance by the Company before the actual deployment, i.e within the mobilization period. The Contractor shall not deploy its personnel unless cleared by the Company. The contractor shall not replace the key personnel initially mobilised during the contract period, except in the case of leave, illness, and resignation.
110	Part 3 Section-III SCC Clause No: 9.0	Page 333 of 436	**Data Integration:** Contractor must have the facility to integrate their data with Rig's communication system for Real-Time transmission.	**Data Integration:** Contractor must have the facility to transmit their data with Rig's communication system for Real-Time transmission.

	CONTRACTOR'S OBLIGATIONS: Clause No: 9.1 PERSONNEL: Sub Clause: 9.1.15			
111	Part 3 Section-III SCC Clause No: 10.0 CONTRACTOR'S SPECIAL OBLIGATIONS: Sub Clause: 10.6	Page 335 of 436	Contractor should provide the list of items to be imported in the format specified in Proforma-A for issuance of recommendatory letter to Custom office for clearance of goods from customs at concessional (nil) rate of customs duty. Similarly, Contractor shall furnish list of all remaining and balance items imported under the recommendatory letter for re-export at the end of the Contract and prior to de-mobilization.	Contractor should provide the list of items to be imported in the format specified in Proforma-A for issuance of Essentiality Certificate to Custom office for clearance of goods from customs at concessional (nil) rate of customs duty. Similarly, Contractor shall furnish list of all remaining and balance items imported under the Essentiality Certificate for re-export at the end of the Contract and prior to de-mobilization.
112	Part 3 Section-III SCC Clause No: 10.0 CONTRACTOR'S SPECIAL OBLIGATIONS: Sub Clause: 10.7	Page 335 of 436	In case the Contractor imports the equipment/materials/consumables etc. on re-export basis, the Contractor shall ensure for re-export of the equipment and all consumables and spares (except those consumed during the contract period) and complete all documentation required. Company will issue necessary certificates etc. as required. The Contractor should arrange for re-export of equipment / materials / consumables within 60 days of notice of de-mobilization issued by the Company. If the re-export is not completed within the specified period, customs duty, penalty etc. levied by customs authorities for such delay shall be to Contractor's account and same will be deducted by the Company from Contractor's bills and security deposit.	In case the Contractor imports the equipment/materials/consumables etc. on re-export basis, the Contractor shall ensure for re-export of the equipment and all consumables and spares (except those consumed during the contract period) and complete all documentation required. Company will issue necessary certificates etc. as required. The Contractor should arrange for re-export of equipment / materials / consumables within 60 days of notice of de-mobilization issued by the Company. If the re-export is not completed within the specified period, customs duty, penalty etc. levied by customs authorities for such delay shall be to Contractor's account and same will be deducted by the Company from Contractor's bills and security deposit. Note: 'Re-export' used herein or elsewhere in the Contract shall also mean and include Block Transfer or re-export to SEZ as permissible under applicable customs rules / regulations and provided Company is out of charge after Block Transfer or re-export to SEZ.
113	Part 3 Section-III SCC	Page 336 of 436	To reduce the rates reasonably, at which payments shall be made if the Contractor is allowed to continue	Deleted

	Clause No: 13.0 RIGHTS AND PRIVILEGES OF COMPANY: Sub Clause: 13.6		the operation despite having certain deficiency in meeting the requirements as per provision in the contract.	
114	Part 3 Section-III SCC Clause No: 17.0 Sub Clause: 17.2	Page 337 of 436	17.0 RESPONSIBILITY FOR LOSS OF OR DAMAGE TO THE EQUIPMENT OR THE HOLE: 17.2 DAMAGE OR LOSS OF COMPANY EQUIPMENT: Contractor shall assume the risk of and shall be solely responsible for, damage to and loss or destruction of materials and equipment or supplies furnished by Company. In case there is a loss or damage to Company's equipment for causes attributable to Contractor, the Contractor shall compensate Company.	17.0 RESPONSIBILITY FOR LOSS OF OR DAMAGE TO THE EQUIPMENT: 17.2 Deleted
115	Part 3 Section-III SCC Clause No: 18.0 INDEMNITY AGREEMENTS: Sub Clause: 18.2	Page 338 of 436	Company agrees to protect, defend indemnify and hold Contractor and its sub-contractors, its agent and its affiliates, its other contractors and / or their employees harmless from and against all claims, suits, demands and causes of action, liabilities, expenses, costs, liens, rights in rem and judgments of every kind and character, without limit, which may arise in favour of Company, Company's employees, Agents, invitees, contractors (other than Contractor) and sub-contractors or their employees, on account of bodily injury or death of Company's employees, agents, invitees, contractors (other than Contractor) and sub-contractors or damage to said employees or its property (including any property of Company) as a result of the operations contemplated hereby, regardless of whether or not said claims, demands or causes of action arise out of the negligence or otherwise in whole or in part, unseaworthiness or other faults, including pre-existing conditions of Contractor, its sub-contractors, partners, Joint Ventures, employees or agents.	Company agrees to protect, defend indemnify and hold Contractor and its sub-contractors, its agent and its affiliates, its other contractors and / or their employees harmless from and against all claims, suits, demands and causes of action, liabilities, expenses, costs, liens, rights in rem and judgments of every kind and character, without limit, which may arise in favour of or against the Company, Company's employees, Agents, invitees, contractors (other than Contractor) and sub-contractors or their employees, on account of bodily injury or death of Company's employees, agents, invitees, contractors (other than Contractor) and sub-contractors or damage to said employees or its property (including any property of Company) as a result of the operations contemplated hereby, regardless of whether or not said claims, demands or causes of action arise out of the negligence or otherwise in whole or in part, unseaworthiness or other faults, including pre-existing conditions of Contractor, its sub-contractors, partners, Joint Ventures, employees or agents.

116	Part 3 Section-III SCC Clause No: 19.0 POLLUTION AND CONTAMINATION: Sub Clause: (b)	Page 338 of 436	Except as otherwise provided in article 19.(a), Company shall assume all responsibility for (including control and removal of the pollutant involved) and shall protect, defend and save the Contractor harmless from and against all claims, demands, and causes of action of every kind and character arising from all pollution or contamination, other than that described in sub-clause (a) above, which may occur from any cause including negligence of Contractor but not limited to, that which may result from fire, blowout, cratering, seepage of any other uncontrolled flow of oils, gas, water or other substances, as well as the use or disposition of oil emulsion, oil base or chemically treated drilling fluids, contaminated cuttings or caving, lost circulation and fish recovery materials and fluids provided however, Contractor's sole liability under this sub-clause is to reimburse Company **US Dollars One Million (US$ 1 Million)** of cost paid/incurred by Company in control of the pollutant, clean-up costs, or damage to a third party, provided said pollution results from contractor's sole negligence.	Except as otherwise provided in article 19.(a), Company shall assume all responsibility for (including control and removal of the pollutant involved) and shall protect, defend and save the Contractor harmless from and against all claims, demands, and causes of action of every kind and character arising from all pollution or contamination, other than that described in sub-clause (a) above, which may occur from gross negligence of Contractor but not limited to, that which may result from fire, blowout, cratering, seepage of any other uncontrolled flow of oils, gas, water or other substances, as well as the use or disposition of oil emulsion, oil base or chemically treated drilling fluids, contaminated cuttings or caving, lost circulation and fish recovery materials and fluids provided however, Contractor's sole liability under this sub-clause is to reimburse Company **US Dollars One Million (US$ 1 Million)** of cost paid/incurred by Company in control of the pollutant, clean-up costs, or damage to a third party, provided said pollution results from contractor's gross negligence, where after the Company shall indemnify and hold harmless Contractor for amounts in excess.
117	Part 3 Section-III SCC Clause No: 21.0 DEMOBILISATION & RE-EXPORT: New Sub Clause: 21.5	Page 339 of 436		'Re-export' used herein or elsewhere in the Contract shall also mean and include Block Transfer or re-export to SEZ as permissible under applicable customs rules / regulations and provided Company is out of charge after Block Transfer or re-export to SEZ.
118	Part 3 Section-III SCC Clause No: 22.0 CONFIDENTIALITY: Sub Clause: b)	Page 340 of 436	However, the above obligation shall not extend to information which: 1. Is, at the time of disclosure, known to the public. 2. Lawfully becomes at a later date known to the public through no fault of Contractor. 3. Is lawfully possessed by Contractor before receipt thereof from Company.	However, the above obligation shall not extend to information which: 1. Is, at the time of disclosure, known to the public. 2. Lawfully becomes at a later date known to the public through no fault of Company. 3. Is lawfully possessed by Company before receipt thereof from Contractor.

			4. Is disclosed to Contractor in good faith by a third party who has an independent right to such information. 5. Is developed by Contractor independently of the information disclosed by Company; or Contractor is required to produce before competent authorities or by court order. 6. Is required to be disclosed on the direction of Court or any statutory authority.	4. Is disclosed to Company in good faith by a third party who has an independent right to such information. 5. Is developed by Company independently of the information disclosed by Contractor; or Company is required to produce before competent authorities or by court order. 6. Is required to be disclosed on the direction of Court or any statutory authority.
119	Part 3 Section-III SCC Clause No: 27.0 LOSS OR DAMAGE OF SUB-SURFACE EQUIPMENT:	Page 341 & 342 of 436	Notwithstanding any provision under this Contract to the contrary, Company shall assume liability except in the event of Wilful Misconduct on the part of the Contractor for loss or damage to the Contractor's equipment/tool in hole below rotary table. Company shall at its option either reimburse the Contractor for the value of lost equipment/tool as declared in the import invoices at the time of mobilization or subsequent replacement/addition of the same equipment/tool or CIF value whichever is lower for any such loss or damage, less depreciation @ 3% per month from the date of start of the Contract up to a maximum depreciation equivalent to 50% of CIF value as indicated by the Contractor or at its option to replace similar equipment/tools and any transportation expenses incurred in connection herewith. All such cost shall be payable by Company, provided the equipment/tool is not covered under Insurance and provided such equipment/tool are included in the exclusion list of the Insurance Policies submitted by the Contractor in terms of Clause 14.16 (vii) under GCC of the Contract. All such cost shall be payable only after Contractor furnishes notarized undertaking in the prescribed format to the extent that the particular equipment/tool in question is not covered by Contractor's insurance. For claims of lost equipment/tools, Contractor	Notwithstanding any provision under this Contract to the contrary, Company shall assume liability except in the event of Wilful Misconduct on the part of the Contractor for loss or damage to the Contractor's equipment/tool in hole below rotary table. Company shall at its option either reimburse the Contractor for the value of lost/damaged equipment/tool as declared in the import invoices at the time of mobilization or subsequent replacement/addition of the same equipment/tool or CIF value whichever is lower for any such loss or damage, less depreciation @ 3% per month from the date of start of the Contract up to a maximum depreciation equivalent to 50% of CIF value as indicated by the Contractor or at its option to replace similar equipment/tools and any transportation expenses incurred in connection herewith. All such cost shall be payable by Company, provided the equipment/tool is not covered under Insurance and provided such equipment/tool are included in the exclusion list of the Insurance Policies submitted by the Contractor in terms of Clause 14.16 (vii) under GCC of the Contract or all such cost shall be payable only after Contractor furnishes notarized undertaking in the prescribed format to the extent that the particular equipment/tool in question is not covered by Contractor's insurance. For claims of

			must intimate the Company of their intention to lodge claim in writing within one month of the declaration of lost tool by Company and final claim thereof must be made within six months of the date of the lost tool or before expiry of the Contract, whichever is earlier. The inspection of recovered from downhole need to be made by Company Representative before submission of the invoice by Contractor.	lost/damaged equipment/tools, Contractor must intimate the Company of their intention to lodge claim in writing within one month of the declaration of lost/damaged tool by Company and final claim thereof must be made within six months of the date of the lost/damaged tool or before expiry of the Contract, whichever is earlier. The inspection of recovered from downhole need to be made by Company Representative before submission of the invoice by Contractor.
120	Part 3 Section-III SCC Clause No: 27.0 LOSS OR DAMAGE OF SUB-SURFACE EQUIPMENT: Notes: Sub Clause: (iv)	Page 342 of 436	The following documents to be submitted along with Lost in Hole claim: a) Date of Manufacturing along with documentary evidence. b) Invoice. b) Bill of Entry. c) Dispatch convey note. d) Certificate of Conformity. e) Report on Loss in hole. f) Proof of payment (towards the purchase of equipment).	Deleted
121	Part 3 Section-III SCC Clause No: 29.0 FORCE MAJEURE: Clause No: 29.1 CONDITIONS FOR FORCE MAJEURE:	Page 342 of 436	……. The term "Force Majeure" as employed herein shall mean floods, tempest, war, civil riot, fire and Acts, Cyclone and Cyclones Consequences, Rules and Regulations of respective government of the two parties namely Company and the Contractor, directly affecting the performance of the Contract. ……..	……. The term "Force Majeure" as employed herein shall mean floods, pandemic, endemic, tempest, war, civil riot, fire and Acts, Cyclone and Cyclones Consequences, Rules and Regulations of respective government of the two parties namely Company and the Contractor, directly affecting the performance of the Contract. ……..
122	Part 3 Section-III SCC Clause No: 31.0 FISHING OF EQUIPMENT: Sub Clause No: 31.1	Page 344 of 436	In the event any of the Contractor's OR Company OR Company's other Contractors Tools / Equipment is lost / stuck in the well or at site, then the Company shall, at its expense, attempt to recover or retrieve the same. All necessary fishing tools and services, as laid down in the Contract or available with the Drilling Unit, shall be provided by the Contractor as and when the Company decides to fish for any of	In the event any of the Contractor's OR Company OR Company's other Contractors Tools / Equipment is lost / stuck in the well or at site, then the Company shall, at its expense, attempt to recover or retrieve the same. All necessary fishing tools and services, as laid down in the Contract or available with the Drilling Unit, shall be provided by the Contractor as and when the Company decides to fish for any of

			the Contractor's OR Company OR Company's other Contractors Tools / Equipment. The Contractor shall have full responsibility and liability for such Operations and the Company shall render support in an advisory capacity at all times in connection with such fishing operations.	the Contractor's OR Company OR Company's other Contractors Tools / Equipment. The Company shall have full responsibility and liability for such Operations and the Contractor shall render support in an advisory capacity at all times in connection with such fishing operations.
123	Part 3 Section-III SCC Clause No: 31.0 FISHING OF EQUIPMENT: Sub Clause No: 31.2	Page 344 of 436	If such fishing activity occurs due to Contractors' fault, then "Zero Rates" will be applicable for the entire Bundle Services during the period of fishing operations.	If such fishing activity occurs due to Contractors' gross negligence, then "Zero Rates" will be applicable for the entire Bundle Services during the period of fishing operations.
124	Part 3 Section-III SCC Clause No: 33.0 Radioactive Sources and Explosives: Second Paragraph	Page 344 of 436	"The Contractor must be responsible for provisions of proper storage and safe transportation of Radioactive sources and explosives at Shore base, Marine Vessels and Drilling Unit as per the statutory requirement."	"The Contractor must be responsible for provisions of suitable containers for proper storage and safe transportation of Radioactive sources and explosives at Shore base, Marine Vessels and Drilling Unit as per the statutory requirement."
125	Part 3 Section-III SCC Clause No: 36.0 LOADING OF EQUIPMENT:	Page 345 of 436	Contractor shall make available all of Contractor's and its Sub-Contractor's material at Company's shore base at Port Blair and Kakinada/Karaikal as per the operational requirement. Company agrees to transport Contractor's and its Sub-Contractor's material to the drilling location nominated by Company for loading and unloading on board the Drilling Unit at Company's cost.	Contractor shall make available all of Contractor's and its Sub-Contractor's equipment, material at Company's shore base at Port Blair and Kakinada/Karaikal as per the operational requirement. Company agrees to transport Contractor's and its Sub-Contractor's material to the drilling location nominated by Company for loading and unloading on board the Drilling Unit at Company's cost.
126	Part 3 Section-III SCC Clause No: 37.0 HAZARDOUS WASTE:	Page 345 of 436	The Contractor shall be liable for the storage, handling, transportation (on land), manifest and disposal through authorised agency of any spent or used chemicals or other hazardous waste.	The Contractor shall be liable for the storage, handling, transportation (on land), manifest and disposal through authorised agency of any spent or used chemicals or other hazardous waste generated at its storing facilities in Port Blair.
127	Part 3 Section-III SCC Clause No: 40.0 CUSTOMS DUTY: New Note:	Page 345 of 436		"Recommendatory Letter" wherever appearing in clause 40 is replaced with "Essentiality Certificate" and to be read accordingly.

128	Part 3 Section-III SCC Clause No: 43.0 MATERIALS, SUPPLIES, EQUIPMENT & SERVICES:	Page 348 of 436	For all services rendered or materials supplied to Company by Contractor at Company's request, which services or materials are the obligations of the Company, the Contractor shall charge the Company for actual costs as supported by vendor's invoice plus 7.5% fee on FOB value for each procurement costing up to US$ 60,000 and 5% for each procurement costing more than US$ 60,000, thereon to cover costs on account of such procurement and actual cost for services. In addition, transportation costs paid and / or incurred would be reimbursed at actuals against documentary evidence. Company will provide Recommendatory Letter to Contractor for Contractor to obtain Essentiality Certificate from DGH for availing Customs duty exemption. Any equipment, materials, or supplies purchased by Contractor on account of Company shall thereafter become the property of Company upon payment by Company.	For all services rendered or materials supplied to Company by Contractor at Company's request, which services or materials are the obligations of the Company, the Contractor shall charge the Company for actual costs as supported by vendor's invoice plus 7.5% fee on FOB value for each procurement costing up to US$ 60,000 and 5% for each procurement costing more than US$ 60,000, thereon to cover costs on account of such procurement and actual cost for services. In addition, transportation costs paid and / or incurred would be reimbursed at actuals against documentary evidence. Company will provide ~~Recommendatory Letter to Contractor for Contractor to obtain~~ Essentiality Certificate ~~from DGH~~ for availing Customs duty exemption. Any equipment, materials, or supplies purchased by Contractor on account of Company shall thereafter become the property of Company upon payment by Company.
129	Part 3 Section-III SCC Clause No: 44.0 TRAINING REQUIREMENT OF PERSONNEL: Sub Clause No: 44.1	Page 348 & 349 of 436	All the crew members including catering personnel should have undergone Personal Survival Training (PST), Fire Prevention & Fire Fighting (FPFF) Training/Basic Fire Fighting Training (BFF), Personnel Safety and Social responsibility (PSSR) and Elementary First Aid (EFA) from DGS approved agencies, and OPITO approved Helicopter Underwater Escape Training (HUET). Or All the crew members including catering personnel should have undergone OPITO approved BOSIET – Basic Offshore Safety Induction and Emergency Training (with EBS), which should cover at least PST, FPFF/BFF, PSSR, EFA, HUET. <u>No personnel shall be allowed to go on offshore rigs / marine vessels</u>	All the crew members ~~including catering personnel~~ should have undergone Personal Survival Training (PST), Fire Prevention & Fire Fighting (FPFF) Training/Basic Fire Fighting Training (BFF), Personnel Safety and Social responsibility (PSSR) and Elementary First Aid (EFA) from DGS approved agencies, and OPITO approved Helicopter Underwater Escape Training (HUET). Or All the crew members ~~including catering personnel~~ should have undergone OPITO approved BOSIET – Basic Offshore Safety Induction and Emergency Training (with EBS), which should cover at least PST, FPFF/BFF, PSSR, EFA, HUET. <u>No personnel shall be allowed to go on offshore rigs / marine vessels</u>

			without undergoing the above training.	without undergoing the above training.
130	Part 3 Section-III SCC Clause No: 45.0 NOTICES: Sub Clause No: 45.2	Page 349 of 436	A notice shall be effective when delivered or on the notice's effective date, whichever is later.	A notice shall be effective when sent by email (email sent date) or on the notice's effective date whichever is later. Either party may change its address by giving Written Notice to the other party.
131	Part 3 Section-III SCC Clause No: 46.0 LOG INTERPRETATION: New Clause	Page 349 of 436		Since all log interpretations are based on inference from electrical or other measurements, Contractor cannot and does not guarantee the accuracy or correctness of any interpretation and Company agrees that Contractor shall not be liable or responsible except for the case of gross negligence on Contractor or his sub-contractors part, for any loss, cost, damage or expense incurred or sustained by Company resulting directly or indirectly from any interpretation made by Contractor or any of its agents, servants, officers or employees. Should any such interpretation or recommendation be relied upon as the sole basis for any drilling, completion, well treatment or production decision or any procedure involving any risk to the safety of any drilling ventures, drilling rig, or its crew or any other individual, Company agrees that under no circumstances shall Contractor be liable for any loss or damages on this account except in case of wilful misconduct or gross negligence.
132	Part 3 Section-III SCC Clause No: 47.0 REAL TIME DATA TRANSMISSION: New Clause	Page 349 of 436		Wireline Logging, Mudlogging & MWD-LWD data to be transmitted in Real-Time from Drilling Unit to Operator’s onshore base, via latest version of industry standard WITS / WITSML data exchange format using contractor provided V-SAT at Drilling Unit.
133	Part 3 Section-III SCC Clause No: 48.0 Base Coordinator:	Page 349 of 436		Contractor at its cost shall provide Base Coordinators for Cementing Services, Directional Drilling Services, Mud Engineering Services, Wireline Logging Services and Well Testing Services. The Base

<table>
<tr><td></td><td>New Clause</td><td></td><td></td><td>Coordinators will be primarily based in Kakinada or such other location in India as mutually agreed, be available for daily operational morning meetings (online/offline) and consultation at all times throughout the duration of the contract. Contractor will provide detailed resumes for the proposed coordinators and their alternates, which Contractor may wish to use in case the primary coordinator becomes unavailable.</td></tr>
<tr><td>134</td><td>Part 3 Section-III SCC

Clause No: 49.0

New Clause</td><td></td><td>New Clause</td><td>The following insurance provisions under General Conditions of Contract stand amended as mentioned hereunder for the particular services under this tender/contract:
<table>
<tr><td>GCC Clause No.</td><td>Amended Clause</td></tr>
<tr><td>14.6</td><td>Contractor shall also inform the Company at least 30 days in advance regarding the expiry cancellation and / or changes in any of such documents & ensure revalidation / renewal, etc., as may be necessary well in time.</td></tr>
<tr><td>14.7</td><td>If any of the above policy expire or/are cancelled during the term of this Contract and Contractor fails for any reason to renew such policies, OIL in no case shall be liable for any loss/damage occurred during the term when the policy is not effective. Furthermore, a penal interest @0.5% of the Total Contract value shall be charged towards not fulfilling of the contractual obligations.
Notwithstanding above, should there be a lapse in any insurance</td></tr>
</table></td></tr>
</table>

					required to be taken by the Contractor for any reason whatsoever, loss / damage claims resulting therefrom shall be to the sole account of Contractor.
				14.9	**Additional Assured: "Oil India Limited**" is to be included as Additional Assured in the Insurance Policies (except in case of Workmen's Compensation / Employer's Liability insurance).
				14.10	**Waiver of subrogation:** Except for the workmen's Compensation / Employer's Liability Insurance for workmen engaged under this contract which have been obtained by the contractor as their Corporate policy/rules, where OIL is neither required to be present as principal Assured or additional Assured, all insurance policies of the CONTRACTOR with respect to the operations conducted hereunder as set forth in clauses hereof, shall be endorsed by the underwriter in accordance with the following policy wording: "The insurers hereby waive their rights of subrogation against Oil India Limited or any of their employees or their affiliates and assignees to the extent of the indemnities undertaken by the Contractor under this contract".

				14.12 Not Applicable against this tender/contract 14.13 Not Applicable against this tender/contract
135	Part 3 Section-III SCC Clause No: 50.0 New Clause			**Risk Purchase:** In the event, CONTRACTOR's failure to provide the services as per the Contractual scope, terms and conditions, COMPANY (OIL) reserves the right to hire the services from any other source at the CONTRACTOR's risk & cost and the difference in cost shall be borne by the CONTRACTOR. Further, OIL shall retain the right of forfeiture of Performance Bank Guarantee and any other action as deemed fit.
Sl. No.	**CLAUSE No.**	**Page No.**	**ORIGINAL CLAUSE**	**AMENDED CLAUSE**
PART-III SECTION-IV SCHEDULE OF RATES (SOR)				
136	Part 3 Section-IV SOR Clause No: C. MOBILIZATION / REMOBILIZATION Sub Clause No: (i)	Page 351 of 436	Mobilization charges shall become payable after the Bundled Services, ready in all respects as per scope of work, including obtaining all statutory clearances (as applicable) are mobilised to the respective locations and after on-hire survey by the Company Representative, which shall be no later than 10 working days from the date of arrival/intimation by the contractor & provided it is certified by the Contractor and accepted by Company Representative and/or by Third Party Inspection agency that all items are in good working condition. Date of mobilization will be considered from the date of successful inspection carried out by Company representative and/or by Third Party Inspection agency.	Mobilization charges shall become payable after the Bundled Services, ready in all respects as per scope of work, including obtaining all statutory clearances (as applicable) are mobilised to the designated locations and after on-hire survey by the Company Representative, which shall be no later than 10 working days from the date of arrival/intimation by the contractor & provided it is certified by the Contractor and accepted by Company Representative and/or by Third Party Inspection agency that all items are in good working condition. Date of mobilization will be considered as completed from the date of successful inspection carried out by Company representative and/or by Third Party Inspection agency. However, for the purposes of LD, the mobilisation would be deemed complete from the date and time the equipment, tools, consumables etc. are mobilized in the designated location.

137	Part 3 Section-IV SOR Clause No: C. MOBILIZATION / REMOBILIZATION Sub Clause No: (ii)	Page 351 of 436	Remobilization charges shall become payable after the individual service, ready in all respects as per scope of work, including obtaining all statutory clearances (as applicable) are remobilised to the respective locations and after on-hire survey by the Company Representative and/or by Third Party Inspection agency, which shall be no later than 07 working days from the date of arrival/intimation by the contractor & provided it is certified by the Contractor and accepted by Company Representative and/or by Third Party Inspection agency that all items are in good working condition. Date of re-mobilization will be considered from the date of successful inspection carried out by Company representative and/or by Third Party Inspection agency.	Remobilization charges shall become payable after the individual service, ready in all respects as per scope of work, including obtaining all statutory clearances (as applicable) are remobilised to the designated locations and after on-hire survey by the Company Representative and/or by Third Party Inspection agency, which shall be no later than 05 working days from the date of arrival/intimation by the contractor & provided it is certified by the Contractor and accepted by Company Representative and/or by Third Party Inspection agency that all items are in good working condition. Date of re-mobilization will be considered from the date of successful inspection carried out by Company representative and/or by Third Party Inspection agency.
138	Part 3 Section-IV SOR Clause No: C. MOBILIZATION / REMOBILIZATION Sub Clause No: (iv)	Page 351 & 352 of 436	Mobilization charges are inclusive of transportation, sea / airfreight, loading / unloading, shipping, wharfage / demurrage and harbour fees, port or airport fees, packing and handling charges, permit, import clearance charges and all insurance adequate to cover the shipment from the place of origin until arrival at COMPANY'S base/site where equipment is ordered to be mobilized.	Mobilization charges are inclusive of transportation, sea / airfreight, loading / unloading, shipping, wharfage / demurrage and harbour fees, port or airport fees, packing and handling charges, permit, import clearance charges and all insurance adequate to cover the shipment from the place of origin until arrival at COMPANY'S Shore Base at Port Blair or COMPANY'S OCTG Yard at Kakinada/Karaikal (as applicable) where equipment is ordered to be mobilized.
139	Part 3 Section-IV SOR Clause No: C. MOBILIZATION / REMOBILIZATION Sub Clause No: (v)	Page 352 of 436	The Company will issue necessary recommendatory letter for EC as required for custom clearance as the service will be used in PEL/ML area, only on receipt of request from the Contractor and all such requests must be made by the Contractor well in advance, so that the Company can make necessary arrangements for providing the documents in time without causing any delay for the customs/port clearance.	The Company will issue ~~necessary recommendatory letter for~~ EC as required for custom clearance as the service will be used in PEL/ML area, only on receipt of request from the Contractor and all such requests must be made by the Contractor well in advance, so that the Company can make necessary arrangements for providing the documents in time without causing any delay for the customs/port clearance.
140	Part 3 Section-IV SOR Clause No: C.	Page 352 of 436	Total Mobilisation charges quoted by the bidder shall not exceed 1% of the total quoted value. However,	Total Mobilisation charges quoted by the bidder shall not exceed 5% of the total quoted value. However,

	MOBILIZATION / REMOBILIZATION Sub Clause No: (vi)		mobilization charges if quoted in excess of 1% of the total quoted value, the excess amount shall be paid at the end of the contract.	mobilization charges if quoted in excess of 5% of the total quoted value, the excess amount shall be paid at the end of the contract.
141	Part 3 Section-IV SOR Clause No: C. MOBILIZATION / REMOBILIZATION Sub Clause No: (viii)	Page 352 of 436	Company reserves the right to exercise the option of accepting part mobilization of services / tools / units / sets etc, if the same can be utilized operationally. However, the mobilisation charges shall be paid only after completion of full services/tools/units/sets etc. In case, Company de-mobilizes such services/tools/units/sets etc after part mobilisation, mobilization charges shall be pro-rated on the basis of CIF value as per import invoice vis-à-vis the CIF Value as per CONTRACT. In the event, the Drilling Unit cannot perform its intended operations for reasons due to non-mobilisation of the outstanding equipment/tools/materials/services etc, then no rate whatsoever shall be payable to the Contractor except the cost of the well consumables till the time the rig resumes its normal intended operations after mobilisation of such equipment / tools / materials / services etc.	Company reserves the right to exercise the option of accepting part mobilization of services / tools / units / sets etc, if the same can be utilized operationally. However, the mobilisation charges shall be paid only after completion of full services/tools/units/sets etc. In case, Company de-mobilizes such services/tools/units/sets etc after part mobilisation, mobilization charges shall be pro-rated on the basis of CIF value as per import invoice vis-à-vis the CIF Value as per CONTRACT when the mobilization charges are quoted in lumpsum basis. However, for those items whose mobilization charges has been quoted, the mobilization charges will be payable as per the rates quoted in the price proforma. In the event, the Drilling Unit cannot perform its intended operations for reasons due to non-mobilisation of the outstanding equipment / tools / materials / services etc, then no rate whatsoever shall be payable to the Contractor except the cost of the well consumables till the time the rig resumes its normal intended operations after mobilisation of such equipment / tools / materials / services etc.
142	Part 3 Section-IV SOR Clause No: C. MOBILIZATION / REMOBILIZATION Sub Clause No: (ix)	Page 352 of 436	Company shall have the option to ask for delayed mobilization of any unit / tools to be mobilized / remobilized as per Contract. A minimum notice period of 15 days before the schedule date of mobilization shall be applicable at the time of asking for such delay in mobilization. Mobilization can be delayed for a maximum of 45 days on each occasion.	Company shall have the option to ask for delayed mobilization of any unit / tools to be mobilized / remobilized as per Contract. A minimum notice period of 30 days before the schedule date of mobilization shall be applicable at the time of asking for such delay in mobilization. Mobilization can be delayed for a maximum of 45 days, limited to twice in the duration of the Contract.
143	Part 3 Section-IV SOR Clause No: D.	Page 352 of 436	The Contractor shall arrange for and execute demobilization of their Tools / Equipment / Spare / Accessories / personnel etc. upon	The Contractor shall arrange for and execute demobilization of their Tools / Equipment / Spare / Accessories / personnel etc. upon

	DEMOBILIZATION Sub Clause No: (i)		receipt of notice from the Company and/or offloaded from the Drilling Unit.	receipt of notice from the Company and offloaded at the OIL's shore base where it was initially mobilized as per the Contract.
144	Part 3 Section-IV SOR Clause No: D. DEMOBILIZATION Sub Clause No: (ii)	Page 352 of 436	All charges on Tools / Equipment / Spare / Accessories / personnel etc. shall cease to exist with effect from the day the Contractor is issued de-mobilization notice by the Company and / or Tools / Equipment / Spare / Accessories / personnel etc. are offloaded from the Drilling Unit.	All charges on Tools / Equipment / Spare / Accessories / personnel etc. shall cease to exist with effect from the day the Contractor is issued de-mobilization notice by the Company and Tools / Equipment / Spare / Accessories / personnel etc. are offloaded at the OIL's shore base where it was initially mobilized as per the Contract. No day rates will be payable to the crew once they are offloaded from the Drilling Unit.
145	Part 3 Section-IV SOR Clause No: D. DEMOBILIZATION Sub Clause No: (iii)	Page 352 of 436	The contractor will ensure that demobilization is completed, and the Drilling Unit and Company's Shore Base at Port Blair is cleared-off Contractor's property within 07 days of notice from the Company and / or offloaded from the Drilling Unit. The contractor should also ensure that the Contractor's property at OCTG Yard at Kakinada/Karaikal is cleared off within 03 (three) weeks of receipt of items at OCTG Yard from the Drilling Unity, failing which, demobilization charges and/or retention amount will not be payable.	The contractor will ensure that demobilization is completed, and the Drilling Unit and Company's Shore Base at Port Blair is cleared-off Contractor's property within 07 days of notice from the Company and offloaded at the OIL's shore base in Port Blair. The contractor should also ensure that the Contractor's property at OCTG Yard at Kakinada/Karaikal is cleared off within 03 (three) weeks of receipt of items at OCTG Yard from the Drilling Unit, failing which, demobilization charges and/or retention amount will not be payable.
146	Part 3 Section-IV SOR Clause No: D. DEMOBILIZATION Sub Clause No: (iv)	Page 353 of 436	De-mobilization charges shall become payable on clearance & re-export of all equipment from Indian Port / Custom authorities for re-export of equipment to Contractor's base. However, Company shall not pay de-mobilization charges of services / tools / units / sets etc. which are not re-exported on completion of Contract / termination and also if the Contractor deploys such services / tools / units / sets etc. against any other contract(s) for Company in India.	De-mobilization charges shall become payable on clearance & re-export of all equipment from Indian Port / Custom authorities for re-export of equipment to Contractor's base or Block Transfer or re-export to SEZ as permissible under applicable customs rules / regulations and provided Company is out of charge after Block Transfer or re-export to SEZ. However, Company shall not pay de-mobilization charges of services / tools / units / sets etc. which are not re-exported on completion of Contract / termination and also if the Contractor deploys such services / tools / units / sets etc. against any other contract(s) for Company in India.

147	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 1. CEMENTING SERVICES (1) **NOTE:**	Page 354 of 436	1) Contractor must provide API class-G cement (Dalmia Make) required for slurry design. 2) All calculation shall be based on 94lbs per sack of dry cement. 3) Bidder to provide Micromax & Silica flour wherever required for slurry design testing. 4) Light weight cement slurry (13.4 ppg) should be proposed for cementing 7" casing/liner. The formulation for such cement slurry should have high performance light weight cement slurry additives for attaining compressive strength of 2000 psi in 24 hours. 5) Contractor to consider 15 bbls of Pre-Flush and 20 bbls of Spacer for all sections cementing jobs.	1) Contractor must provide API class-G cement (Dalmia Make) required for slurry design. 2) All calculation shall be based on 94lbs per sack of dry cement. 3) Bidder to provide Micromax & Silica flour wherever required for slurry design testing. 4) Light weight cement slurry (13.4 ppg) should be proposed for cementing 7" casing/liner. The formulation for such cement slurry should have high performance light weight cement slurry additives for attaining compressive strength of 1500 psi in 24 hours. 5) Contractor to consider 15 bbls of Pre-Flush and 20 bbls of Spacer for all sections cementing jobs. 6) Make of Cement Additives must be from the following: Schlumberger, Halliburton and Baker Hughes.
148	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 2. CASING ACCESSORIES (2) Sub Clause No: 2.2 TERMS OF PAYMENT OF CASING ACCESSORIES	Page 355 of 436	Casing accessories will be supplied to and maintained by the contractor at Company's shore base. Contractor to supply the Casing Accessories at Company's Shore Base, Port Blair, India on FOR destination basis. Company will mobilize the Casing Accessories in staggered manner.	Casing accessories will be supplied to and maintained by the contractor at Company's shore base. Contractor to supply the Casing Accessories at Company's Shore Base, Port Blair, India on DDP (Port Blair) basis. Company will mobilize the Casing Accessories in staggered manner.
149	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 3. CASING & TUBING RUNNING SERVICES (3) Sub Clause No: 3.1 CASING AND TUBING RUNNING TOOLS & EQUIPMENT Serial No: (e)	Page 355 of 436	On-hire inspection of all tools & equipment shall be done at base only. In case, any Service(s) which require mobilization at rig are not sent to rig after on-hire survey due to any reason not attributable to Contractor, then Individual Service Day Rate charges as applicable shall be payable after 7 days onwards from on-hire survey date e.g., in case on-hire survey is done on Day 1, then Individual Service Day Rate shall start from Day 8.	On-hire inspection of all tools & equipment shall be done only at the designated location where the services are to be mobilized. In case, any Service(s) which require mobilization at rig are not sent to rig after on-hire survey due to any reason not attributable to Contractor, then Individual Service Day Rate charges as applicable shall be payable after 7 days onwards from on-hire survey date e.g., in case on-hire survey is done on Day 1, then Individual Service Day Rate shall start from Day 8.

150	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 3. CASING & TUBING RUNNING SERVICES (3) Sub Clause No: 3.1 CASING AND TUBING RUNNING TOOLS & EQUIPMENT Serial No: (f)	Page 355 of 436	Individual Service Day Rate (ISDR) for each of the tools & equipment will continue till issue of Demobilization notice or offloaded from the Drilling Unit after issue of Demobilization notice.	Individual Service Day Rate (ISDR) for each of the tools & equipment will continue till issue of Demobilization notice or offloaded at the OIL's shore base in Port Blair after issue of Demobilization notice.
151	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 3. CASING & TUBING RUNNING SERVICES (3) Sub Clause No: 3.2 SERVICE PERSONNEL DAY RATE	Page 356 of 436	Company shall pay the Contractor the quoted DAY RATE to following service personnel. a. Casing Crew Chief (01 Number) b. Casing Stabber (01 Number) c. Casing Tong Operator (01 Number) Note: Personnel will be required on a call out basis. Company shall give a maximum of 10 days' notice.	Company shall pay the Contractor the quoted DAY RATE to following service personnel. a. Casing Crew Chief (01 Number) b. Casing Stabber (02 Numbers) c. Casing Tong Operator (02 Numbers) Note: Personnel will be required on a call out basis. Company shall give a maximum of 10 days' notice.
152	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 4. DRILLING TOOLS RENTAL SERVICES (4) Serial No: (e)	Page 356 of 436	On-hire inspection of all type of Drilling Tools shall be done at base only. In case, any Service(s) which require mobilization at rig are not sent to rig after on-hire survey due to any reason not attributable to Contractor, then Individual Service Day Rate charges as applicable shall be payable after 7 days onwards from on-hire survey date e.g., in case on-hire survey is done on Day 1, then Individual Service Day Rate shall start from Day 8.	On-hire inspection of all type of Drilling Tools shall be done only at the designated locations where the services are to be mobilized. In case, any Service(s) which require mobilization at rig are not sent to rig after on-hire survey due to any reason not attributable to Contractor, then Individual Service Day Rate charges as applicable shall be payable after 7 days onwards from on-hire survey date e.g., in case on-hire survey is done on Day 1, then Individual Service Day Rate shall start from Day 8.
153	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 4. DRILLING TOOLS RENTAL SERVICES (4) Serial No: (f)	Page 356 of 436	Individual Service Day Rate (ISDR) for each of the type of Drilling Tools will continue till issue of Demobilization notice or offloaded from the Drilling Unit after issue of Demobilization notice.	Individual Service Day Rate (ISDR) for each of the type of Drilling Tools will continue till issue of Demobilization notice or offloaded at the OIL's shore base where it was initially mobilized as per the Contract after issue of Demobilization notice.

154	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 5. DIRECTIONAL, MWD AND LWD SERVICES (5) Sub Clause: 5.2.5	Page 358 of 436	For the purpose of Liquidated damage (LD), the Mobilization would be deemed complete for a particular set of Tools & Equipment belonging to any hole section on the date as per 5.2.4 above, only if the Main or Backup tools & equipment passes the first Surface Test on the Drilling Unit. Otherwise, Mobilization would be deemed complete only when Main or Backup Tools & Equipment passes the first Surface test on the Drilling Unit on subsequent date. For the purpose of Payment, Mobilization for a particular set of Tools & Equipment belonging to any hole section would be deemed complete after issuance of acceptance/clearance certificate from the Company, if it passes the first Surface test and work commences smoothly. If it fails on the first Surface test, Mobilization will be considered complete on acceptance of Main or Back-up Tools & Equipment on subsequent test.	The Mobilization would be deemed complete for a particular set of Tools & Equipment belonging to any hole section on the date as per 5.2.4 above, only if the Main or Backup tools & equipment passes the first Surface Test on the Drilling Unit. Otherwise, Mobilization would be deemed complete only when Main or Backup Tools & Equipment passes the first Surface test on the Drilling Unit on subsequent date. For the purpose of Payment, Mobilization for a particular set of Tools & Equipment belonging to any hole section would be deemed complete after issuance of acceptance / clearance certificate from the Company, if it passes the first Surface test and work commences smoothly. If it fails on the first Surface test, Mobilization will be considered complete on acceptance of Main or Back-up Tools & Equipment on subsequent test.
155	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 5. DIRECTIONAL, MWD AND LWD SERVICES (5) Sub Clause: 5.3.1	Page 358 of 436	The Contractor shall arrange for and execute demobilization of their Tools / Equipment / Spares / Accessories etc. (one or more sets), upon receipt of notice from the Company. All Tools / Equipment / Spares / Accessories etc. (one or more sets) will be demobilized upon issue of Demobilization notice or offloaded from the Drilling Unit after issue of Demobilization notice.	The Contractor shall arrange for and execute demobilization of their Tools / Equipment / Spares / Accessories etc. (one or more sets), upon receipt of notice from the Company. All Tools / Equipment / Spares / Accessories etc. (one or more sets) will be demobilized upon issue of Demobilization notice or offloaded at the OIL's shore base in Port Blair after issue of Demobilization notice.
156	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 5. DIRECTIONAL, MWD AND LWD SERVICES (5) Sub Clause: 5.3.2	Page 358 of 436	All rates on Tools / Equipment / Spare / Accessories etc. (one or more sets) shall cease to exist with effect from the day the Contractor is issued de-mobilization notice by Company or offloaded from the Drilling Unit after issue of Demobilization notice.	All rates on Tools / Equipment / Spare / Accessories etc. (one or more sets) shall cease to exist with effect from the day the Contractor is issued de-mobilization notice by Company or offloaded at the OIL's shore base in Port Blair after issue of Demobilization notice.

157	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 5. DIRECTIONAL, MWD AND LWD SERVICES (5) Sub Clause: 5.4.3	Page 359 of 436	Individual Service Day Rate (ISDR) will be payable to the tools & equipment upon acceptance of mobilization by the Company and will cease upon issue of Demobilization notice or offloaded from the Drilling Unit after issue of Demobilization notice.	Individual Service Day Rate (ISDR) will be payable to the tools & equipment upon acceptance of mobilization by the Company and will cease upon issue of Demobilization notice or offloaded at the OIL's shore base in Port Blair after issue of Demobilization notice.
158	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 5. DIRECTIONAL, MWD AND LWD SERVICES (5) Sub Clause: 5.5.2	Page 359 of 436	Operating Component Day Rate Charges shall be payable for all tools and equipment of the Contractor (exclusive of Skid-Mounted pressurized MWD and LWD surface unit) for the period the tools and equipment are in operational mode from the time of successful completion of Surface Testing (as defined below) of Contractor's BHA (consisting of down hole tools/equipment) after lowering it below rotary table (BRT) in the well and till the same is pulled out of hole. This period will be considered as operating period and shall be pro-rated to the nearest hour.	Operating Component Day Rate Charges shall be payable for all tools and equipment of the Contractor (inclusive of Skid-Mounted pressurized MWD and LWD surface unit) for the period the tools and equipment are in operational mode from the time of successful completion of Surface Testing (as defined below) of Contractor's BHA (consisting of down hole tools/equipment) after lowering it below rotary table (BRT) in the well and till the same is pulled out of hole. This period will be considered as operating period and shall be pro-rated to the nearest hour.
159	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 5. DIRECTIONAL, MWD AND LWD SERVICES (5) Sub Clause: 5.8 SERVICE PERSONNEL DAY RATE	Page 361 of 436	Company shall pay the Contractor the quoted **DAY RATE** to following service personnel. 1. Directional Driller (01 No) 2. Lead LWD/MWD Engineer (01 No) 3. LWD/MWD Engineer (01 No)	Company shall pay the Contractor the quoted **DAY RATE** to following service personnel. 1. Directional Driller (01 No) 2. Directional Driller (On Call Out) (01 No) 3. Lead LWD/MWD Engineer (01 No) 4. LWD/MWD Engineer (01 No)
160	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 6. MUD ENGINEERING SERVICES (6) Sub Clause: 6.2 CHARGES FOR MUD CHEMICALS AND LCM:	Page 363 & 364 of 436	NEW **<u>Contingency/Specialty Chemicals</u>** Serial No: 4 Diatomceous Earth – 3000 Kg Serial No: 26 Spotting Fluids for SOBM – 1000 Kg Serial No: 27 Lubricant for SOBM – 2000 Kg	Serial No: 27 Linseed Oil – 10000 LITRES **<u>Contingency/Specialty Chemicals</u>** Serial No: 4 DELETED Serial No: 26 DELETED Serial No: 27 DELETED

			Completion Chemicals Serial No: 5 CaBr2 (91.5% Purity) – 1000 MT Serial No: 10 Corrosion Inhibitor (Chloride Base brine) – 5000 LITRES Serial No: 11 Corrosion Inhibitor (Amine Base brine) – 5000 LITRES	**Completion Chemicals** Serial No: 5 CaBr2 (91.5% Purity) – 50 MT New Serial No: 8 CaBr2 Brine in IBCs (14.2ppg) – 6000 US BBLS New Serial No: 9 CaCl2-CaBr2 Blended Brine in IBCs (15ppg) – 6000 US BBLS Serial No: 10 Corrosion Inhibitor (Chloride Base) – 5000 LITRES Serial No: 11 Corrosion Inhibitor (Amine Base) – 5000 LITRES
161	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 7. DRILL BITS (7) Sub Clause: 7.1 SUPPLY OF DRILL BITS:	Page 364 & 365 of 436	The Contractor shall supply the drill bits on consignment basis as per Table 1 of exhibit 7 of "Scope of Work". The Contractor has to supply the drill bits at Company's Shore Base, Port Blair, India on FOR/CIF/CRF destination basis. The bits will be supplied to the Company on consignment basis with no re-stocking charges if returned unused. Company solely at its discretion may retain maximum two numbers of each size unused bits at the end of the Contract.	The Contractor shall supply the drill bits on consignment basis as per Table 1 of exhibit 7 of "Scope of Work". The Contractor has to supply the drill bits at Company's Shore Base, Port Blair, India on DDP (Port Blair) basis. The bits will be supplied to the Company on consignment basis with no re-stocking charges if returned unused. Company solely at its discretion may retain maximum two numbers of each size unused bits at the end of the Contract.
162	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 8. LINER HANGER SERVICES (8) Sub Clause: 8.1 MOBILIZATION / INTERIM REMOBILIZATION Serial No: (ii)	Page 365 of 436	Liner Hanger tools and equipment along shall be interim remobilized to Company's OCTG Yard at Kakinada / Karaikal (Exact Location will be informed to the successful bidder) as per the interim remobilization schedule defined under Part-3; Section-III; SCC Clause No: 2.4.	Liner Hanger tools and equipment ~~along~~ shall be interim remobilized to Company's OCTG Yard at Kakinada / Karaikal (Exact Location will be informed to the successful bidder) as per the interim remobilization schedule defined under Part-3; Section-III; SCC Clause No: 2.4.
163	Part 3 Section-IV SOR Clause No: E. SERVICES	Page 365 of 436	Company shall place order for complete set of consumables as detailed in Table-A Equipment Details under Exhibit 8 of "Scope of Work", to be delivered at Company's OCTG Yard at Kakinada /	Company shall place order for complete set of consumables as detailed in Table-A Equipment Details under Exhibit 8 of "Scope of Work", to be delivered at Company's OCTG Yard at Kakinada /

	Clause No: 8. LINER HANGER SERVICES (8) Sub Clause: 8.3 CONSUMABLES Serial No: (i)		Karaikal, India on FOR/CIF/CRF destination basis. Unused liner hanger system consumables, as per quantities mentioned in the price proforma, shall be returned to Contractor at conclusion of drilling campaign. Contractor must quote buy-back charges (minimum 30% of the quoted rate) for the unused consumables which shall be considered for price evaluation.	Karaikal, India on DDP (Kakinada/Karaikal) basis. Unused liner hanger system consumables, as per quantities mentioned in the price proforma, shall be returned to Contractor at conclusion of drilling campaign. Contractor must quote buy-back charges (minimum 30% of the quoted rate) for the unused consumables which shall be considered for price evaluation.
164	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 9. MUD LOGGING SERVICES (9) Sub Clause: 9.2 DEMOBILIZATION CHARGES Serial No: (i)	Page 367 of 436	The Contractor shall arrange for and execute demobilization of the Mud Logging Unit and accessories upon receipt of notice from the Company. The Mud Logging Unit and accessories will be demobilized upon issue of Demobilization notice or offloaded from the Drilling Unit after issue of Demobilization notice.	The Contractor shall arrange for and execute demobilization of the Mud Logging Unit and accessories upon receipt of notice from the Company. The Mud Logging Unit and accessories will be demobilized upon issue of Demobilization notice or offloaded at the OIL's shore base in Port Blair after issue of Demobilization notice.
165	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 9. MUD LOGGING SERVICES (9) Sub Clause: 9.3 INDIVIDUAL SERVICE DAY RATE (ISDR) Serial No: (ii)	Page 367 of 436	ISDR for the Mud Logging Unit and accessories will continue till it is offloaded from the Drilling Unit after issue of Demobilization notice.	ISDR for the Mud Logging Unit and accessories will continue till it is offloaded at the OIL's shore base in Port Blair after issue of Demobilization notice.
166	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 10. SUBSEA WELLHEADS AND CONDUCTOR PIPE (10) Sub Clause: 10.3 CONSUMABLES Serial No: (i)	Page 368 of 436	Company will place firm order for two sets of Subsea Well Head to be delivered at Company's OCTG Yard at Kakinada / Karaikal, India on FOR/CIF/CRF destination basis (Exact Location will be informed to the successful bidder).	Company will place firm order for two sets of Subsea Well Head to be delivered at Company's OCTG Yard at Kakinada / Karaikal, India on DDP (Kakinada/Karaikal) basis (Exact Location will be informed to the successful bidder).
167	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 10.	Page 368 of 436	Company will place order for two more set of Subsea Well Head on a buy back basis, to be delivered at Company's OCTG Yard at Kakinada / Karaikal, India on FOR/CIF/CRF destination basis. All unused Subsea Well Heads systems will be returned to Contractor at the conclusion of drilling campaign. Contractor must	Company will place order for two more set of Subsea Well Head on a buy back basis, to be delivered at Company's OCTG Yard at Kakinada / Karaikal, India on DDP (Kakinada/Karaikal) basis. All unused Subsea Well Heads systems will be returned to Contractor at the conclusion of drilling campaign.

	SUBSEA WELLHEADS AND CONDUCTOR PIPE (10) Sub Clause: 10.3 CONSUMABLES Serial No: (ii)		quote buy-back charges (minimum 30% of the quoted rate) for all unused sets of Subsea Well Head which will be considered for price evaluation.	Contractor must quote buy-back charges (minimum 30% of the quoted rate) for all unused sets of Subsea Well Head which will be considered for price evaluation.
168	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 10. SUBSEA WELLHEADS AND CONDUCTOR PIPE (10) Sub Clause: 10.4 INDIVIDUAL SERVICE DAY RATE (ISDR) Serial No: (ii)	Page 369 of 436	Individual Service Day Rate (ISDR) will continue till issue of Demobilization notice or offloaded from the Drilling Unit after issue of Demobilization notice.	Individual Service Day Rate (ISDR) will continue till issue of Demobilization notice or on receipt of the rental Tools / Equipment / Spares / Accessories etc. at Company's OCTG Yard at Kakinada / Karaikal from the Drilling Unit after issue of Demobilization notice.
169	Part 3 Section-IV SOR Clause No: E. SERVICES	Page 369 of 436	Clause No: 11. WELL TESTING SERVICES, SURFACE AND DOWNHOLE TOOLS (11)	Refer to amended Clause No: 11. WELL TESTING SERVICES, SURFACE AND DOWNHOLE TOOLS (11) vide Annexure-VI.
170	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 12. FISHING TOOLS AND SERVICES (12) Sub Clause: 12.2 INDIVIDUAL SERVICE DAY RATE (ISDR) Serial No: (ii)	Page 372 of 436	Individual Service Day Rate (ISDR) will continue till issue of Demobilization notice or offloaded from the Drilling Unit after issue of Demobilization notice.	Individual Service Day Rate (ISDR) will continue till issue of Demobilization notice or offloaded at the OIL's shore base in Port Blair after issue of Demobilization notice.
171	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13) Sub Clause: 13.1 MOBILIZATION CHARGES New Serial No: (iii)	Page 372 of 436	New	(iii) Mobilization charges of the Unit and tools shall not exceed their respective one month's rental charge.
172	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13) Sub Clause: 13.2	Page 372 of 436	The Contractor shall arrange for and execute demobilization of the Wireline Logging Service Package upon receipt of notice from the Company. The Wireline Logging Service Package will be demobilized upon issue of Demobilization notice	The Contractor shall arrange for and execute demobilization of the Wireline Logging Service Package upon receipt of notice from the Company. The Wireline Logging Service Package will be demobilized upon issue of Demobilization notice

	DEMOBILIZATION CHARGES Serial No: (i)		or offloaded from the Drilling Unit after issue of Demobilization notice.	or offloaded at the OIL's shore base after issue of Demobilization notice.
173	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13) Sub Clause: 13.3 INDIVIDUAL SERVICE DAY RATE (ISDR) Serial No: (ii)	Page 372 of 436	In the event the unit/tool(s) are put into use in its first job after mobilization and it fails to provide the desired satisfactory service as required under the terms of the contract, then payment of Individual Service Day Rate charges of the failed unit/tool(s) shall only start when the unit/tool(s) are replaced/rectified and gives satisfactory performance in the second job. However, Break Down clause under Part-3; Section-III; SCC Clause No: 6.0 will be applicable if contractor's tool/equipment fails to perform its intended operations until the tool/equipment is back in operating condition.	In the event the unit/tool(s) are put into use in its first job after mobilization and it fails to provide the desired satisfactory service as required under the terms of the contract, then payment of Individual Service Day Rate charges of the failed unit/tool(s) shall only start when the unit/tool(s) are replaced/rectified and gives satisfactory performance in the second job. The above penalty for the replaced/rectified tool between the first job and second job shall be limited to 30 days. However, Break Down clause under Part-3; Section-III; SCC Clause No: 6.0 will be applicable if contractor's tool/equipment fails to perform its intended operations until the tool/equipment is back in operating condition.
174	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13) Sub Clause: 13.3 INDIVIDUAL SERVICE DAY RATE (ISDR) Serial No: (iv)	Page 373 of 436	Individual Service Day Rate (ISDR) will continue till issue of Demobilization notice or offloaded from the Drilling Unit after issue of Demobilization notice.	Individual Service Day Rate (ISDR) will continue till issue of Demobilization notice or offloaded at the OIL's shore base after issue of Demobilization notice.
175	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13)	Page 373 of 436	13.4 OPERATING DAY RATE (ODR)	13.4 OPERATING RATE (OR)
176	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13)	Page 373 of 436	The Operating Day Rate (ODR) for rental tools shall commence when any of the rental tool(s) is lowered below rotary and shall end when the tool is out of rotary on rig floor. ODR charges will be payable for full day or part thereof on pro-rata basis up to the nearest hour.	Operating Rate means total charges payable per successful logging job in line with quoted unit rates which includes Survey Charge per job unit and Flat charge. The quoted operating charge are inclusive of processing charges wherever applicable.

	Sub Clause: 13.4 OPERATING RATE (OR) Serial No: (i)			Rate per job unit: This is the survey charge/job charge payable per job unit (e.g., per sample, per meter, per cut etc.). Flat charge: This charge is payable per instance of availing a service and is a fixed amount irrespective of the amount of job units in that particular run.
177	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13) Sub Clause: 13.4 OPERATING RATE (OR) Serial No: (ii)	Page 373 of 436	Operating charges means total charges payable per successful logging job in line with quoted unit rates which includes Rate per job unit, Depth charge and Flat charge. The quoted operating charge should be inclusive of processing charges wherever applicable.	The Operating Rate / Re-dressing Charges shall be payable per job as per the actual 'Unit' of data acquired as listed in Proforma-B.
178	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13) Sub Clause: 13.4 OPERATING RATE (OR) Serial No: (vi)	Page 373 of 436	Operating ~~Day~~ Rate charge of any equipment/service (including processing charges wherever applicable) should be between 100% and 135% of its Individual Service Day Rate charge. This limit however does not apply for the following services: as per TABLE–1: LIST OF REQUIRED WIRELINE SERVICES AND TOOL of EXHIBIT 13 of "Scope of Work". A-12: String shots A-13A/B: Setting jobs. A-14: Through Tubing Perforation A-16: Explosive Pipe Cutter A-17: Severing/Colliding Tool A-18: Puncture Services	Operating Rate charge of any equipment/service (including processing charges wherever applicable) should be between 100% and 135% of its Individual Service Day Rate charge. This limit however does not apply for the following services: as per TABLE–1: LIST OF REQUIRED WIRELINE SERVICES AND TOOL of EXHIBIT 13 of "Scope of Work". A-12: String shots A-13A/B: Setting jobs. A-14: Through Tubing Perforation A-16: Explosive Pipe Cutter A-17: Severing/Colliding Tool A-18: Puncture Services
179	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13) Sub Clause: 13.4 OPERATING RATE (OR) Serial No: (viii)	Page 373 of 436	Operating charge of Depth Determination service shall not be more than the lowest quoted Operating charge of services A-1 to A-19 in the Standard services category.	Operating rate of Depth Determination service shall not be more than the lowest quoted Operating charge of services A-1 to A-19 in the Standard services category.
180	Part 3 Section-IV SOR Clause No: E.	Page 374 of 436	Operating Charges/ODR shall be payable with Tool/equipment in hole for the first 12 (twelve) hours,	DELETED

	SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13) Sub Clause: 13.4 OPERATING RATE (OR) Serial No: (x)		per occurrence, in case drilling is stopped due to major rig maintenance. Individual Service Day Rate Charges only shall be payable beyond 12 (twelve) hours till normal operation is resumed.	
181	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13) Sub Clause: 13.4 OPERATING RATE (OR) New Serial No: (x)	Page 374 of 436		Operating charge of Depth Determination (A-15) service shall not be more than the lowest Operating charge of services A-1 to A-18 in the Standard services category.
182	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13) Sub Clause: 13.4 OPERATING RATE (OR) Serial No: (xiii). c)	Page 375 of 436	In case of bad hole condition, if no data is acquired then one DD charge shall be payable.	In case of bad hole condition, if no data is acquired then 50% of Flat charge shall be payable.
183	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13) Sub Clause: 13.7 INCOMPLETE OPERATIONS: Serial No: b)	Page 376 of 436	In case partial log has been recorded prior to cancellation of the operation and the logging data is acceptable to Company, then operating charge for the performed job units shall be payable instead of DD charge for the survey.	In case partial log has been recorded prior to cancellation of the operation and the logging data is acceptable to Company, then operating rate for the performed job units shall be payable instead of DD charge for the survey.
184	Part 3 Section-IV SOR Clause No: E. SERVICES Clause No: 13. WIRELINE LOGGING SEVICES (13) Sub Clause: 13.9	Page 376 of 436	Company shall pay the Contractor the quoted DAY RATE to following service personnel. (a) Wireline Logging engineer (01 Number). (b) Wireline Logging Operator. (01 Number). (c) Logging Specialist. (01 Number)	Company shall pay the Contractor the quoted DAY RATE to following service personnel. (a) Wireline Logging engineer (01 Number). (b) Wireline Logging Operator. (02 Numbers). (c) Logging Specialist. (01 Number)

	SERVICE PERSONNEL DAY RATE		Note: Logging Specialist will be required on a call out basis. Company shall give a maximum of 15 days' notice.	Note: Logging Specialist will be required on a call out basis. Company shall give a maximum of 15 days' notice.
185	Part 3 Section-IV SOR Clause No: F. Sub Clause: (ii)	Page 377 of 436	Payment towards force majeure day rate shall be 60% of respective Individual Service Day Rate. This will be considered as FORCE MAJEURE RATE under all conditions.	Payment towards force majeure day rate shall be 75% of respective Individual Service Day Rate. This will be considered as FORCE MAJEURE RATE under all conditions.
186	Part 3 Section-IV SOR Clause No: G. Sub Clause: (ii)	Page 377 of 436	Payment towards suspension rate shall be 60% of respective Individual Service Day Rate.	Payment towards suspension rate shall be 75% of respective Individual Service Day Rate.
187	Proforma-J Integrity Pact	Page 392 of 436	As per existing	**Revised Proforma-J** enclosed

1.1 Revised Exhibits & Proforma are enclosed herewith.

1.2 Minutes of Pre-bid Meeting and OIL's response to Pre-bid queries of bidders are uploaded in OIL's e-portal under "Technical Attachments" Tab.

1.3 The **revised Price Bid Format (Proforma-B)** is uploaded under "Notes & Attachments" Tab in OIL's e-Portal. Bidders are to submit their price bids as per Revised Proforma-B only.

2.0 Bid Closing / Bid Opening extended as per following:

i) Bid Closing Date & Time : Extended up to **11.10.2023** [1300 Hrs (IST)]
ii) Bid Opening Date & Time : Extended up to **11.10.2023** [1500 Hrs (IST)]

3.0 All other terms and conditions of the Tender remain unchanged. Bidders are requested to submit their offer considering above amendments/notifications.

Oil India Limited
KG Basin Project

1. CEMENTING SERVICES

1.0 GENERAL

The Scope of Work will include but not be limited to:

a) Performing all cementing operations including cementing engineering and design, cementing programme, centralisation plan, primary and remedial cementing jobs, cement plugs for side tracking operations, abandonment or suspension of the well, for well control related issues and for any other related jobs as required.
b) To achieve minimum compressive strength of 1000 psi for Lead slurry, 1500 psi for tail slurry and 1500 psi for Single slurry after 24 hrs.
c) Performing pressure testing of lines, BOP, tubing and casing, formation integrity and other testing as required
d) Assisting in well circulation, well killing operations if necessary and as required.
e) Setting down hole tools including retrievable packers, cement retainers, bridge plugs, inflatable packers;
f) Performing other pumping services including but not limited to well testing, completion, acidizing, formation fracturing, formation strength tests.
g) Performing Leak Off Tests, with calculations and reports
h) Be responsible solely for the operation of the Contractor's equipment and items including but not limited to rigging up, testing, running, and rigging down of the Contractor's equipment and items.
i) Supply of cement and chemicals of good quality and supply of equipment and downhole tools as required by this scope of work.

2.0 EXPERIENCE

The Contractor should have minimum of five years of experience in providing Cementing services to Drilling/E&P Companies with at least three (03) years in offshore areas.

The Contractor should also have the experience of cementing at least 2 deep water Wells (WD> 500 meters) and should have executed at least one contract for Cementing services in offshore areas in the last 07 years reckoned from original bid closing date.

2.1 Contractor to Provide

2.1.1 Contractor shall be able to provide all equipment, labour and materials, and services specified herein or in the Compensation Schedule.

2.1.2 Contractor shall provide cement and the additives (in sacks) on 1 MT capacity pallets. The pallets shall be reusable at least once but with the approval of the Base Manager at the Shore Base only.

2.1.3 The Company reserves the right to mobilize all, or part of the equipment, personnel or services mentioned herein and, in the Equipment, List included in this exhibit.

2.2 Bulking Facility

a) Supervision at the facility as required.

2.3 Approvals

The contractor shall submit the following to Company for approval prior to the Commencement Date:

i) Preventive maintenance schedule and plan for all Contractor's Equipment.
ii) Bulk handling guidelines.
iii) Emergency procedures for gas, fire, and other emergencies.
iv) Contractor's safety manual and procedures.

2.4 Personnel

All the Contractor's offshore personnel should possess a valid Offshore Survival Certificate and other Statutory Certificates.

The contractor shall submit CVs of the personnel to the company within 30 days of issue of letter of award or 45 days prior to commencement of contract (whichever later) for-Company's approval. The Contractor shall not deploy its personnel unless cleared by the Company.

The Expatriate personnel of the Contractor shall possess all clearances and the Contractor shall ensure that such clearances are obtained at his own responsibility and cost prior to any expatriate personnel mobilized to the field.

2.5 Supervision (at Contractor's cost)

Contractor shall provide a qualified and skilled Cementing Engineer with relevant and adequate experience in floating rig environment, primarily based at Port Blair, Andaman & Nicobar Islands or such other location as Company at its sole option may agree. The Cementing Engineer shall have a minimum of five years' experience, out of which of 3 years should be in floater rig. The Contractor shall submit the resume of the proposed personnel to the Company for approval prior to deploying the Cementing Engineer. The Cementing Engineer shall be responsible including but not limited to the following:

a. Cementing engineering, design, and stimulation;
b. Cement programmes;
c. Logistics management of equipment and personnel related to the Work, including customs clearance, transport and inspection if required;
d. Administration of the Contractor's Day to day affairs under the Contract;
e. Responsible for preparing, checking and submitting the invoices to the Company;
f. Shall be available for consultation at all times for the duration of the Contract;
g. Responsible for preparing consumption reports based on reports from the Field Cementing Engineer and submit a report to the Company Representative at Kakinada office within 24 hrs after the job is carried out;
h. Responsible for preparing the end of well reports and end of job report. The job report shall be submitted within 48 hrs after the job is carried out and the end of well reports within 14 days after the completion of the well to the Company Representative at Kakinada office;
i. The end of job report shall include detailed analysis and recommendations.

3.0 CEMENTING ENGINEERS ON DRILLING UNIT

Contractor shall provide two qualified, skilled and experienced Field Cementing Engineers with particular experience of working in deep water, in water depths of at least 400m, to work on the Drilling Unit on rotation basis (one Field Cementing Engineer at a time on the rig). The Cementing Engineer shall have a minimum of five years' experience, out of which of 2 years should be in floater rig. The Field Cementing Engineer shall be responsible including but not limited to the following:

a) Cementing calculations for each job.
b) Management of cementing operation and the unit.

c) Maintain a stock of inventory on the rig and ensure that adequate stock is available on the rig for each cement job.
d) Ensure that adequate equipment, tools and materials are available on the rig at all times to carry out the services, including but not limited to, as stated in the attachment to this exhibit.
e) Prepare job sheets after each job and submit to the Company Representative for approval.
f) Maintain and service equipment and tools to ensure that they are in operating condition at all times.
g) Ensure that adequate spares for all the equipment and tools are available on the rig to carry out any repairs without downtime.
h) Should have experience in remedial cement jobs, setting/releasing packers, bridge plugs etc.

4.0 CEMENTING HELPERS

The contractor shall provide four qualified, skilled Cement Helpers with relevant experience to work on the Drilling Unit on rotation basis (Maximum two Cement Helpers at a time on the rig). Additional cementing helpers to be available as and when requested by the Company.

5.0 SHORE BASE PERSONNEL (AT CONTRACTOR'S COST)

Two supervisors (at a time, day & night) to be deployed at the Shore Base (Port Blair) for supervision of the bulking activities and logistics of moving the tools, cement and additives to the Drilling Unit. The supervisor deployed at the Shore Base will co-ordinate with the Company's Base Manager at the Shore Base. The Supervisor shall be responsible including but not limited to the following:

a) Logistics management of equipment and personnel related to the Services, between the Company Shore Base and the Drilling Unit;
b) Administration of the Contractor's day-to-day affairs under the Contract.
c) Responsible for preparing, checking, and submitting the manifests to the Base Manager;
d) Responsible for maintaining the stock and inventory at all times and submitting a weekly status report to the Base Manager;
e) Responsible for preparing consumption reports based on reports from the Field Cementing Engineer and submitting a report to the Base Manager within 24 hrs after the job is carried out;
f) Responsible for receiving, maintaining, and releasing any of the Contractor's material and responsible to obtain a counter signature and approval from the Base Manager for any such movement of the material;
g) Shall be available for consultation at all times for the duration of the Contract.

6.0 CONTRACTOR TO PROVIDE

The contractor shall provide in the technical element of its submission, the information and data requested below.

6.1 Other Commitments

The contractor shall state all similar existing commitments and warrant the availability of the equipment being proposed.

Contractor shall provide details of the existing commitments of its and its major subcontractors' key personnel proposed for the Services. The Contractor should have minimum of 5 years of experience of providing similar services in oil exploration out of which of three (03) years in offshore areas.

6.2 Previous Experience

Details relevant to elements of the Services, of Contractor's (including, separately, all joint venturers) and any major subcontractor's experience using the same equipment intended to be used or installed in the Services.

6.3 Organisation

The organisation shall describe the responsibilities of each post holder particularly with reference to management, planning, technical, marine, safety and QA/QC.

Details of Contractor's organisation and management of the Services including:

a. A chart (or charts) showing the relationship to corporate management but particularly detailing the management structure of the organisation proposed including all its elements, sub-contractors and functional groups. The chart(s) shall show titles and names of Cementing Engineer and personnel of higher status. The chart(s) shall show lines of communication and lines of authority and shall clearly define the QA/QC and safety functions. The organisation shall relate to the mobilisation plan.

b. Career résumés of Contractor's proposed Cementing Engineer and Cement Company's and above personnel for the Services, which shall provide as a minimum, full details of qualifications, years of relevant experience, previous employment and responsibilities. Contractor shall state current location and commitment of proposed personnel. The cementing engineers shall have adequate experience in similar cementing operations.

6.4 Provisions by the Contractor

a. Contractor shall submit a cementing programme based on Company's proposed well design for the wells and abandonment plugs as given along with the Bid. All the testing of the cement slurries shall be based on API standards as a minimum. The provisional well data and design parameters for cement design are included in the introduction to this scope-of-work document.

b. The cost details shall not be included in the Technical Proposal. The Technical Proposal shall contain only the quantities of cement and additives required. The cost details shall be included only in the Price Bid.

c. The Contractor shall propose equipment and tools necessary to carry out the scope of work including but not limited to the following effectively and most efficiently. A minimum requirement is proposed in Table 1 of this exhibit.

d. Contractor shall provide a list of all equipment necessary to carry out a cement job on rental basis. A minimum requirement is indicated in Table 1 of this exhibit. Contractor shall provide detailed technical specifications including but not limited to the year of manufacture, date of last inspection carried out and dimensional sketch of the equipment which will be installed on the Drilling Unit.

e. Contractor shall provide a list of all the other additional tools and equipment on rental as necessary. A minimum requirement is listed in Table 2 of this exhibit. Contractor shall provide detailed technical specifications including but not limited to the year of manufacture, date of last inspection or maintenance carried out.

f. In respect of the provision of cement and additives necessary to carry out the cement job and Contractor is required to price such provision on consignment basis. A minimum list of additives is indicated in Table 3 of this exhibit. Contractor is encouraged to propose additional additives if required to carry out the cement job more efficiently. Contractor shall submit detailed technical specifications of each additive including the MSDS sheets and standards with which they comply. Tendered should ensure that all the chemicals and additives supplied have adequate shelf life till the completion of the contract. The minimum applicable standard is API.

g. Contractor shall provide copies of the relevant certificates from a recognised Certifying Authority establishing the proper certification of the spread and all principal equipment related thereto for the purpose required. Contractor shall state the availability of the spread for inspection by Company.

6.5 Reporting

Contractor shall submit sample report formats for all reports as mentioned in section 10.0.

6.6 Mobilisation and Logistics

Contractor shall submit detailed mobilisation plan.

7.0 Technical Support

a. Contractor shall state from where it will obtain laboratory services for the analysis.
b. Contractor shall provide details of its supply base facilities at Port Blair.
c. Contractor shall provide the experience and qualifications of the person nominated.

8.0 Pricing

The Contractor must mobilize all the equipment, personnel or services mentioned herein as per the mobilization notice.

a. Mobilization/Demobilization charges are to include cost of appropriate packaging, anti-corrosion measures, etc, to ensure arrival of the equipment in good condition as follows:

i. Where appropriate all equipment and materials must be delivered on/in suitable skids, tool racks, baskets, containers, pallets, etc for delivery offshore or for temporary storage;
ii. Dangerous goods and explosives must be suitably packaged, labelled and otherwise marked according to all regulations;
iii. Appropriate packaging must be utilised for all sea and airfreight deliveries – where appropriate, specify your proposed packaging method;
iv. If appropriate, material must be suitably coated with a corrosion prevention material and be packed with a dehumidifier, both of which must be suitable for storage at ambient temperatures of 45°C;
v. If appropriate, material must be securely contained within rigid wooden containers;
vi. Contractor shall supply appropriate lifting gear for all equipment to be delivered offshore; current load tests certificates for all slings, rigging and lifting gear utilised will be required.

b. Company will provide only sufficient temporary space at its shore base for items to be loaded immediately on-board marine vessels. Contractor is to maintain sufficient inventory of chemicals, cement and consumables at its own base located a conveniently close distance from Company shore base.

c. The Service Day Rate of the tools to commence on arrival at Company's logistics shore base after customs, inspections and other clearances and Service Day Rate when the demobilization notice is issued by the Company.

d. All Mobilization and Demobilization cost to be inclusive of all freight, taxes, insurance and any other cost to and from Company Shore Base.

e. Contractor will invoice, and Company will pay on actual per barrel basis, payment will be made as per the quoted per barrel price which is inclusive of cement and all other required chemical and additives cost as per the concentration required to be prepare for each cementing job. Any excessive consumption of chemical and additives Company will pay only 15% excess concentration of the concentration as quoted, irrespective of any consumption beyond 15%.

f. Pricing for chemicals and consumables shall be inclusive of cost, freighting, insurance, customs clearance, any other local taxes and surcharges and to be delivered at Company Shore Base. Company to provide the necessary documentations for all necessary clearances. Contractor is requested to provide a consignment plan for such items. Payment will be made on actual consumption and all unused chemicals and consumables will be taken back by the Contractor. Once a standard package is opened, it will be considered as consumed.

g. The Contractor shall provide a complete list of all items that can be provided by the Contractor for this Contract. The cost of each of the item shall be provided in the format as indicated in the Price Schedule. Mark the global list of items clearly as "Global Price List" with applicable discount. All excessive cement, chemical and additive consumption up to 15% per barrel will be paid based on the quoted unit price after Company's prior approval, which needs to be done at the time of finalizing the cement recipe.

9.0 Subcontractors

If Contractor wishes to subcontract or associate in any way with another company or other companies for the performance of the Contract, then Contractor is required to state those parts of the Services which it intends to subcontract and name the party which is proposed to carry out that part of the Services. A full description of the SoW to be subcontracted, together with details of the proposed subcontractor's resources, capabilities and its previous experience in relation to the subcontracted scope is to be provided. Contractor must list all such subcontracts which are minor and of little significance to drilling work or programme as a pre-tender tie-up with a subcontractor in the Contractors final submitted bits.

In the absence of such information, or in respect of the any of the Services not specified as being subcontracted, Company will assume that Contractor will carry out the entire or remaining Services itself and no subcontracting or association will be permitted, except with the express approval of the Company.

10.0 REPORTING

A. General

Contractor shall comply with the following reporting requirements as a minimum. Contractor shall also provide additional reports to the Company Representative as may reasonably be requested during the Work.

a. Tools & Equipment Inventory

Contractor shall maintain an up-to-date inventory of all tools and equipment held on the Drilling Unit, Shore Base, work boats or elsewhere. This report shall be submitted on a weekly basis to the Company Representative.

b. Cementing Supplies Inventory

Contractor shall maintain an up-to-date inventory of all cement, cement blend and additives held on the Drilling Unit, Shore Base, Work Boats or elsewhere. This report shall be submitted on a weekly basis to the Company Representative.

c. Cement Evaluation Report

Contractor shall provide a detailed evaluation of each cement job, which shall include but not be limited to the following:

i. Cement design and cement programme;
ii. Assumptions used in the cement design and programme;
iii. Details of the operations including time break up and cost break up;
iv. Comparison between the plan and the actual parameters;
v. List of consumables used for the cement job;
vi. Comparison of planned Vs actual cost;
vii. Analysis of the cement job including detailed evaluation of any downtime.
viii. The detailed report of the unit which includes but not limited to pressures, rates and densities etc. and other equipment in both hard and soft copies;

This report shall be submitted within 24 hrs after the job is carried out.

d. End Of Well Report

The contractor shall provide the following end-of-well reports within 14 days of the end of operations on each well:

i. A detailed recap of the cementing operation at the end of each well;
ii. An evaluation of all the other operations including the setting of down hole tools, performing other pumping services related to well testing, completion, acidizing, formation fracturingand , formation strength tests;
iii. An evaluation of any squeeze or remedial cement jobs and the abandonment plug jobs carried out in the well;
iv. A detailed cost breakdown and material reconciliation for all the services performed;
v. Details of downtime and reason for the same

e. Sample Reports

The Contractor shall submit the sample reports to the Company prior to the commencement of the operation. The format of the reports shall be mutually agreed between the Company and the Contractor prior to the commencement of operations.

11.0 EQUIPMENT, MATERIALS AND ADDITIVES

a. Minimum Requirements

The contractor shall provide all equipment, cement and additives necessary to carry out a cement job. The indicative lists are attached as Tables 1 & 2 of this exhibit. All cementing equipment should be capable of performing the job satisfactorily with the tubular which shall be advised after the finalization of the Rig Contract.

Contractor must provide API class-G cement (Dalmia Make) required for slurry design.

Make of Cement Additives must be from the following: Schlumberger, Halliburton and Baker Hughes.

b. Maintenance

Upon request by Company, Contractor shall provide proof of maintenance and service history of all items of equipment supplied.

The contractor shall maintain the equipment in such a manner to prevent downtime or waiting on equipment during operation.

c. Equipment to be Operational

The contractor shall maintain all equipment in operating condition and shall supply all relevant certifications requested by Company.

d. Inspection

Contractor acknowledges that Company may inspect Contractor's Equipment using a third-party inspection company as per Clause No: 8.0 of SCC and at any time during the duration of the contract.

12.0 LOGISTICS

a. Shore Base

The contractor is required to mobilize all its equipment, chemicals etc to the Company's Shore Base at Port Blair, Andaman & Nicobar Islands, India. All the equipment, materials, consumables etc. supplied by the Contractor to the Company under the contract, shall be stored in Contractor's facilities at Port Blair and shall be delivered at Company's Shore Base at Port Blair as per operational requirement and when instructed by the Company.

All lifting and load-bearing equipment of the Contractor shall be certified prior to shipment to the drilling unit and all relevant certifications shall be available for inspection. Cement shall be supplied on 1 MT double-lining installed marine bags.

13.0 TECHNICAL SUPPORT

a. Samples

The contractor shall obtain samples of cement, additives and water before any cement job for testing in Contractor's accredited laboratory. Contractor shall inform the Company of where the cement, additives and water are tested, giving details of the location, method of transport of samples to the laboratory and try, minimum time required for the whole process starting from obtaining samples to issuing the test result to the Drilling Unit. The final cement programme shall be based on such these results and shall be submitted to the Company and the Drilling Unit 48 hours before the cement job. These tests may be witnessed by Company's representative.

b. Logistical Support

Contractor shall provide all necessary logistic support for their services.

c. Technical

Contractor shall nominate a contact person to assist on technical queries and issues, in support of the Cementing Engineer based in India. Contractor shall state the location of the nominee and provide details of experience and qualifications.

d. New Developments

Contractor shall make available to Company in as much as it is not constrained by agreements of confidentiality, details of any ongoing research and development activities that it is undertaking, and which may be relevant to the Company's operation.

Table 1: Rental Equipment List

Sr. No.	Equipment	Company's minimum specification	Qty
1.	Cementing Unit twin pump unit	Will be provided as part of the rig equipment.	Nil.
2.	Bulk facilities	Will be provided by Shore Base Service provider.	Nil.
3.	Batch Cement Mixer	Twin 50bbl compartments (Total 100 bbl) c/w chemical hopper, mixing facilities and transfer arrangements, Paddle mixer system, Diesel engine powered.	1
4.	Chiksan Pipes Required (Sour Service) (All connections should be Fig. 1502 connections) All the components shall be rated to 10,000 psi Working Pressure	1. 6 m. Loop and 1 m Straight 2. Lo-Torc valves 3. 90 degree Elbows & 45 degree Elbows 4. Swivels 5. X-O from 2" fig.1502 x 3" fig.1502 6. X-O from 2" fig.1502 male x 2" fig. 1502 female 7. Adapter for 2" fig. 1502 male	Sufficient qty to be provided for all the job as mentioned in the Scope of work
5.	Cementing Tools	Chiksan accessories (other than those mentioned above) – 15,000 psi WP rating (sour service) 2" High pressure hoses – 10,000 psi WP rating All connections should be Fig. 1502.	Sufficient qty to be provided for all the job as mentioned in the Scope of work
6.	Subsea cementing head (to house ball, dart etc) & sub-sea running mandrel / mandrels to hold sub-sea cementing plugs as per size of casing for carrying out primary casing cementation	For 13-3/8" casing, 68 lb/ft, N-80, BTC connections	1

7.	Subsea cementing head (to house ball, dart etc) & sub-sea running mandrel / mandrels to hold sub-sea cementing plugs as per size of casing for carrying out primary casing cementation	For 9-5/8" casing, 47 lb/ft, P-110, BTC connections	1
8.	Circulating Head c/w 2" WECO 1502 connection	For 13-3/8" casing, 68 lb/ft, N-80, BTC connections	1
9.	Circulating Head c/w 2" WECO 1502 connection	For 9-5/8" casing, 47 lb/ft, P-110, BTC connections	1
10.	Circulating Head c/w 2" WECO 1502 connection	For 7" casing, 29 lb/ft, N-80, BTC connections	1
11.	Circulating Head c/w box connection suitable for drill pipe.	For 13-3/8" casing, 68 lb/ft, N-80, BTC connections	1
12.	Circulating Head c/w box connection suitable for drill pipe.	For 9-5/8" casing, 47 lb/ft, P-110, BTC connections	1
13.	Circulating Head c/w box connection suitable for drill pipe.	For 7" casing, 29 lb/ft, N-80, BTC connections	1

Table 2: Other Rental Equipment List

Sr. No.	Equipment	Company's minimum specification	Qty
1.	Retrievable squeeze packer c/w circulating valves and crossovers	13-3/8" casing, 68 lb/ft, N-80, BTC connections	1 no + 1 back up
2.	Retrievable squeeze packer c/w circulating valves and crossovers	For 9-5/8" casing, 47 lb/ft, P-110, BTC connections	1 no + 1 back up
3.	Retrievable squeeze packer c/w circulating valves and crossovers	For 7" casing, 29 lb/ft, N-80, BTC connections	1 no + 1 back up l
4.	Retrievable storm packer, c/w circulating valve, storm valve and crossovers.	13-3/8", 68 lbs/ft, capable of hanging +/- 300 klbs	1 no + 1 back up

5.	Retrievable storm packer, c/w circulating valve, storm valve and crossovers.	9-5/8", 47 lbs/ft casing, capable of hanging +/- 300 klbs	1 no + 1 back up
6.	Pressurized mud balance c/w spares		2 nos
7.	Pilot test unit and necessary equipment		1 set
8.	Sampling kit for transporting samples		As required

Table 3: Chemicals and Additives

Sr. No.	Chemical	Packaging Size
1.	API Class 'G' cement	
2.	API Class G cement with 35% Si Flour	
3.	API Class G/H light weight cement	
4.	Bentonite (Gel)	50lb/sack
5.	Sodium Chloride	
6.	Calcium Chloride	
7.	Low-Medium temperature retarder	
8.	Medium-High temperature retarder	
9.	Low-Medium temperature Fluid Loss Additive	
10.	Medium-High temperature Fluid loss additive	
11.	Powdered fluid loss additive	
12.	Extender	
13.	Friction reducer	
14.	Dispersant	
15.	Spacer additives	
16.	Pre-flush chemicals – List them as proposed	
17.	Antifoam Additive	
18.	Anti-gas migration additives – Specify as proposed	
19.	Light Weight Additives	
20.	Surfactants	
21.	Fibrous chemicals as loss circulating material	
22.	Additional chemical and additive but not limited to the above	

Table 3: Personnel

Sr. No.	Position	Rotation
1.	Cementing Engineer – Shore Based	At no cost
2.	Logistics Supervisors (2 at all times)	At no cost
3.	Cementing Engineer – Drilling Unit Based	On rotation basis
4.	Cementing Helper – Drilling Unit Based	On rotation basis
5.	Cementing Helper – Call Out Personnel	On rotation basis or as required

Other Amendments to above SOW

It may be required to drill 36" hole in all three wells, run 30" conductor and cement same. Therefore, the bidders are required to offer the cement slurry for the same.

Gas tight slurries would be required for 9-5/8" casing and 7" liner for well OAEA, OAEB and for 9-5/8 casing for well OAWB. Bidders are requested to formulate the slurries accordingly.

Refer below the details:

1. <u>PLANNED CEMENTING PROGRAMME (Tables updated for 30" conductor):</u>

Table A: Well OAEA: Seabed at 330m BRT

Hole Size	Casing Size	Shoe Depth	% Excess	Top Cement	Cement Height	Density, lb/gal	Temperature (Deg C)	Pore press.
36"	30"	380	150	Seabed	50	15.8 (Neat Slurry)	--	--
26	20"	780	150	Seabed	50 400	15.8 tail 11.2 lead	25	1131
17-1/2	13-3/8"	1280	100	980 580	300 400	15.8tail 12.0lead	40	1700
12-1/4	9-5/8"	3000	75	1080	1920	14.5 **(Gas tight)**	85	5386
8-1/2	7" liner	4280	25	2850	1430	13.4 **(Gas tight)**	104	7569

Table B: Well OAEB: Seabed at 400m BRT

Hole Size	Casing Size	Shoe Depth	% Excess	Top Cement	Cement Height	Density, lb/gal	Temperature (Deg C)	Pore press.
36"	30"	450	150	Seabed	50	15.8 (Neat Slurry)	--	--
26	20"	900	150	Seabed	50 450	15.8 tail 11.2 lead	30	1520
17-1/2	13-3/8"	1200	100	1100 700	100 400	15.8 tail 12.0 lead	47	2088
12-1/4	9-5/8"	3000	75	1000	2000	14.5 **(Gas tight)**	86	5421
8-1/2	7" liner	4280	25	2850	1430	13.4 **(Gas tight)**	108	7670

Table C: Well OAWB: Seabed at 123m BRT

Hole Size	Casing Size	Shoe Depth	% Excess	Top Cement	Cement Height	Density, lb/gal	Temperature (Deg C)	Pore Press.
36"	30"	173	150	Seabed	50	15.8 (Neat Slurry)	--	--
26	20"	600	150	Seabed	100 377	15.8 tail 11.2 lead	45	893

17-1/2	13-3/8"	1500	100	1100 700	200 900	15.8 tail 12.5 lead	62	2291
12-1/4	9-5/8"	3010	75	1000	1710	15.8 **(Gas tight)**	89	4590

MW planned to be used (We can use the actual MW as amended in the Mud Engineering SOW instead of range):

Casing and Hole Size	**Mud program, Wells OAEA and OAEB**	**Mud program, Well OAWB**
30" hole jetting with 26" drill ahead tool or 36" hole and 30" casing	Sea water and sweeps	Sea water and sweeps
26" hole x 20" casing	Sea water and sweeps	Sea water and sweeps
17-1/2" hole x casing 13-3/8"	10.3 lb/gal water base mud	10.0 lb/gal water base mud
12-1/4" hole x casing 9-5/8"	12.4 lb/gal water base mud	10.0 lb/gal water base mud
8 1/2" hole x 7" liner	12.5 lb/gal water base mud	N/A

2. Slurry details: Slurry details are provided below for all three wells:

2.1. For 30" Neat slurry for all the 3 wells:

Specifications	**Single slurry**
Mud system	WBM
BHST (°C)	25 DegC
BHCT (°C)	25 DegC
Surface Density, ppg	15.8
Rheology Reading	At 27°C and BHCT
Free Fluid	NIL
API Fluid Loss	<50 ml
Thickening Time at BHCT, hrs	
- 50 Bc	240 +/- 30
UCA	
- 24 hrs	>500 psi at BHST
-48 hr	>1500psi at BHST

2.2. For 20" lead and tail slurries (for all the 3 wells):

Specifications	**Lead**	**Tail**
Mud system	WBM	WBM
BHST (°C)	30	30
BHCT (°C)	25	25
Surface Density, ppg	11.2	15.8
Rheology Reading	At 27°C and BHCT	At 27°C and BHCT
Free Fluid	NIL	NIL
API Fluid Loss at 1000 psi	<50 ML	<50 ML
Sedimentation	NIL	NIL
Solid Volume Fraction	>40%	NA

Thickening Time at BHCT, hrs.		
- 50 Bc	330 +/- 30	330 +/- 30
UCA		
- 24 hrs	1000 psi at BHST	1800 psi at BHST
-48 Hrs	>1100 psi at BHST	>2000 psi at BHST

2.3. For 13-3/8" lead and tail slurries (for all the wells):

Specifications	**Lead**	**Tail**
Mud system	WBM	WBM
BHST (°C)	62	62
BHCT (°C)	50	50
Surface Density, ppg	12.0	15.8
Rheology Reading	At 27°C and BHCT	At 27°C and BHCT
Free Fluid	NIL	NIL
API Fluid Loss at 1000 psi	<50 ML	<50 ML
Sedimentation	NIL	NIL
Solid Volume Fraction	>40%	NA
Thickening Time at BHCT, hrs.		
- 50 Bc	330 +/- 30	330 +/- 30
UCA		
- 24 hrs.	1000 psi at BHST	1800 psi at BHST
-48 Hrs.	>1200 psi at BHST	>2000 psi at BHST

2.4. 9 5/8" Casing single Gas Tight Slurry for OAEA and OAEB:

Specifications	**Single Slurry**
Mud system	WBM
BHST (°C)	85
BHCT (°C)	72
Surface Density, ppg	14.5
Rheology Reading	At 27°C and BHCT
Free Fluid	NIL
API Fluid Loss at 1000 psi	<50 ML
SGSA	<45 min
Gas tight properties required	YES
Permeability	Impermeable. Permeability tests to be performed.
Thickening Time at BHCT, hrs.	
- 50 Bc	300 +/- 30
UCA	
- 24 hrs.	1500 psi at BHST
- 48 hrs.	>1800 psi at BHST

2.5. 9 5/8" Casing single Gas Tight Slurry for OAWB:

Specifications	Single Slurry
Mud system	WBM
BHST (°C)	89
BHCT (°C)	75
Surface Density, ppg	15.8
Rheology Reading	At 27°C and 88 DegC
Free Fluid	NIL
API Fluid Loss at 1000 psi	<50 ML
SGSA	<45 min
Gas tight properties required	YES
Permeability	Impermeable. Permeability tests to be performed.
Thickening Time at BHCT, hrs.	
- 50 Bc	300 +/- 30
UCA	
- 24 hrs.	1500 psi at BHST
- 48 hrs.	> 2000 psi at BHST

Mechanical Properties for 9-5/8" slurries:

Tensile strength	**> 300 psi.**
Young's Modulus	**< $1X10^6$ psi.**
Poisson's ratio	**0.15 to 0.20**

2.6. 7" Liner single Gas Tight Slurry for OAEA and OAEB:

Specifications	Single Slurry
Mud system	WBM
BHST (°C)	108
BHCT (°C)	95
Surface Density, ppg	13.4
Rheology Reading	At 27°C and 88 Deg C
Free Fluid	NIL
API Fluid Loss at 1000 psi	<50 ML
SGSA	<45 min
Gas tight properties required	YES
Permeability	Impermeable. Permeability tests to be performed.
Thickening Time at BHCT, hrs.	
- 50 Bc	300 +/- 30
UCA	
- 24 hrs.	1500 psi at BHST

- 48 hrs.	>1800 psi at BHST

Mechanical Properties:

Tensile strength	**> 300 psi.**
Young's Modulus	**< 1X10^6 psi.**
Poisson's ratio	**0.15 to 0.20**

Bidders to note that volumes for Abandonment plugs are also included as a part of Slurries in **PERFORMA-B** and the bidders to quote accordingly.

Bidders to provide 20 numbers (15 numbers for jobs plus contingency) of foam balls for cleaning of d/pipes for 30", 20" conductor/casing stinger cement jobs in each wells and also considering 9 abandonment plugs in three wells. The cost of foam balls shall be included as a part of cement slurries.

NOTE: Price Performa is modified accordingly to accommodate the price for the cement slurry for 36" hole x 30" conductor and for abandonment plugs.

3. <u>BIDDER shall perform, but not limited to the following laboratory tests:</u>

3.1. Quality control on cement (ISO/API, Company sedimentation test).
3.2. Fluid density (pressurized mud balance).
3.3. Well simulation thickening test in hot conditions (pressure & temperature control, chart - Test temperature up to 250° C).
3.4. Compressive strength tests (API cubes) and sonic testing of cement (UCA) in hot conditions (test temperature up to 250° C).
3.5. Static Free fluid test. (Capability to run the test with different deviated angle).
3.6. Fluid loss test.
3.7. Sedimentation test for different angle (BP settling test).
3.8. Rheological properties and gel strength measurements (rotational 8 speed rheometer).
3.9. Wellbore fluids compatibility tests (WBM/ wash / Spacer). Ref ISO 10426-2.
3.10. Spacer efficiency, wettability, tile test.
3.11. Basic water analysis.
3.12. Gas Migration tests.
3.13. Cement Hydration Analyzer test; and
3.14. Static Gel Strength Analysis.

4. <u>Testing Facility:</u>

4.1. The Bidder shall have a testing facility (lab) in India, at all times, conforming to requirements under API Specifications & Recommended Practices, viz. API Spec 10A, API RP 10B-2 & API RP 10B-3 for testing of oil well cements with chemicals and additives provided by the Bidder to formulate any treatment, design that may be required in the field. In case of any urgent / critical well requirement, the Bidder agrees to keep the cement test lab operative round the clock for carrying out cement slurry design.

4.2. The Bidder shall also carry out tests which need not necessarily be covered in API Spec 10A, API RP 10B-2 & API RP B-3 specifications for testing but is found to be necessary by the Company.

4.3. At the minimum, the lab should have the following testing equipment:

4.3.1. High Temp High Pressure Cement Slurry Consistometer
4.3.2. Curing Chamber
4.3.3. Atmospheric Consistometer
4.3.4. Fann Viscometer
4.3.5. HTHP Fluid Loss Cell
4.3.6. Waring Blender
4.3.7. Destructive Compressive Strength Tester
4.3.8. Computerized UCA
4.3.9. Gas Migration testing cell (Gas flow module). This test facility should be available at the Bidder's test lab or at the technology centre so as to provide test results within 10 days of request by the Company.
4.3.10. Slurry Stability & Settling Tester.
4.3.11. Hydraulics and other simulations:
4.3.12. Modelling fluid flow regime and behaviours with displacement efficiency simulations (must take into account the following: flow regime in eccentric annulus, friction pressure, rheological modelling factors, at BHCT)
4.3.13. Centralization simulations showing standoff at centralizers and between. Centralizer spacing, running forces, drag, etc.
4.3.14. Temperature simulations for different environments and conditions.
4.3.15. ECD calculations.
4.3.16. Containers for transporting cement, water, and additive samples from rig to base laboratory.
4.3.17. The above list shall be considered as a minimum requirement.
4.3.18. BIDDER shall add base laboratory EQUIPMENT required and available EQUIPMENT not listed by COMPANY.
4.3.19. BIDDER shall describe completely his laboratory's EQUIPMENT. Calibration documents and pictures of EQUIPMENT used in the laboratory are requested.
4.3.20. The laboratory PERSONNEL shall be available 24 hours per day / 7 days per week, including national holidays.

5. DIRECTIONAL SERVICES / MWD/ LWD

1.0 SCOPE OF WORK

The Scope of Work will include but not be limited to as below:

The wells are planned as vertical / directional exploration wells. The intention is to drill the 17-1/2", 12-1/4" and 8-1/2" hole sizes using conventional rotary, directional /performance drilling. There is a plan to jet the 30" conductor string, with the 26" hole interval subsequently drilled by releasing the drill-ahead tool or by drilling 36" hole, lowering and cementing 30" conductor followed by drilling of 26" hole. A mud motor and MWD will be utilized in the jetting BHA.

Well OAEA is planned to be a directional well and in all likelihood the well will be kicked off in the 17-1/2" hole section. The preliminary Standard Directional Plan will be provided to the Contractor by the Company. However, preparation of the detailed directional plan, hydraulics, torque and drag analysis etc will be the responsibility of the Contractor.

There is a high likelihood that performance motors along with MWD will be utilized in the 12-1/4" & 8-1/2" hole interval in the two East Coast wells (OAEA and OAEB) and in the 12-1/4" interval in the West Coast Well (OAWB).

LWD will be used during drilling of 12-1/4" & 8-1/2" hole sections in wells OAEA and OAEB and in 12-1/4" hole sections in well OAWB, and in these intervals, a basic LWD string will be used (GR, resistivity, quadrupole sonic, APWD, and temperature).

While the plan is to drill vertical at OAEB and OAWB, it may be necessary to drill directionally if dictated by geological objectives or hole problems.

Surveying policy will be to either use MWD or drop inclination measuring tools for the 17.1/2" hole interval. MWD surveys will be taken in 12 ¼" and 8 ½" hole.

Contractors are requested to keep the above philosophy in mind when preparing their bids.

The scope of work will include, but not be limited to, providing necessary equipment, materials and personnel for the following:

a) To perform LWD formation evaluation services as required to complete the drilling programme with GR, Resistivity, Sonic, Temperature, and down-hole Annular Pressure as required;

b) To perform all directional drilling planning/BHA selection/torque and drag analysis as required by the Company in order to formulate an efficient, safe and cost-effective drilling programme;

c) To perform all directional drilling operations. This shall include provision of positive displacement motors, MWD survey equipment, including bottom hole temperature measurement and deviation monitoring services, and all personnel required to carry out the service;

d) To plan and perform side track if required on a well;

e) To plan and perform geological side track or drill deviated wells as required;

f) To maintain, monitor and provide status reports of the inventory on a regular basis with the schedule for such reports mutually agreed between the Company and the Contractor prior to the commencement of the operations;

g) To carry out other jobs within the scope of the Contracts as reasonably required by the Company.

2.0 EXPERIENCE:

The Contractor should have minimum five years of experience in providing the Directional Drilling Services (LWD/MWD & RSS/Mud Motor) to Drilling/E&P Companies with at least three (03) years in offshore areas.

The Contractor should also have the experience in providing the Directional Drilling Services (LWD/MWD & RSS/Mud Motor) to at least 2 deep water Wells (WD> 500 meters) and should have executed at least one contract for Directional Drilling Services (LWD/MWD & RSS/Mud Motor) in offshore area in the last 07 years reckoned from original bid closing date.

3.0 Contractor to Provide

Contractor shall be able to provide all equipment, labour and materials and services specified herein or in the Compensation Schedule. Contractor shall be solely responsible for the operation of Contractor's Equipment including but not limited to the rigging up, testing, lowering and rigging down thereof.

Contractor is required to provide without limitation, directional programs and recommendations, coordination of the shipment of tools, maintaining an inventory of supplied tools, writing the end of well reports, and writing summaries of any tool failures.

4.0 Approvals

Contractor shall submit to Company for approval prior to the Commencement Date:

a) Preventive maintenance schedule and plan for all Contractors' Equipment;
b) Contractor's safety manual and procedures.

5.0 TECHNICAL PROPOSAL

5.1 Directional, MWD, and LWD Proposal

Based on the well details provided by the Company, the Contractor will be required to submit a proposal prior to spudding each well.

This proposal should include as a minimum:

a) BHA selection and predictions;
b) directional proposal listing and plots including any anti-collision analysis that may be required;
c) torque and drag analysis;
d) recommended drilling parameters for optimal performance of tool;
e) details of SDMM, MWD and LWD reliability including resolution and accuracy;
f) detailed specifications for all equipment proposed, including any operational limitations that may be imposed by the possible nature of the proposed wells;
g) case histories, MBTF records;
h) to provide a schematic of BHA where in the position of the SDMM, LWD/MWD sensors w.r.t. to bit is marked clearly;
i) data transmission rate for good quality data acceptable to the Company;
j) maximum dog leg severity that can be handled by the tools proposed both in sliding and rotating mode;
k) flow rate configuration of the tool offered.

Contractors may be required to present this proposal in a formal fashion at a pre-spud/planning meeting - as required by the Company.

5.2 PERSONNEL

Contractor shall provide as a minimum the following personnel required to perform the Directional Drilling, MWD and LWD services effectively and efficiently as required by this Contract. Said personnel shall be allocated to the Work, shall be continuously available as and when required from the Commencement Date onward, and any proposed change in personnel shall be approved by Company in advance by submission of CV.

5.3 Supervision (at Contractor's cost)

Contractor shall provide one Base Coordinator. The base coordinator shall be a qualified, skilled and experienced Directional drilling/MWD/LWD coordinator. He should have a minimum of 3 years of experience as a Base Coordinator in similar job. The Contractor to have an additional expert coordinator exclusively for LWD equipment and services at their base for interpretation of data and providing to OIL.

The Base Coordinator will be primarily based in Kakinada or such other location in India as mutually agreed, be available for daily operational morning meetings (online/offline) and consultation at all times throughout the duration of the contract. Contractor will provide detailed resumes for the proposed coordinators and their alternates, which Contractor may wish to use in case the primary coordinator becomes unavailable.

The coordinators as a minimum are to:

a) Ensure that quality control is effectively implemented and maintained throughout the operations from the preparation of the equipment prior to load out, during operations and in all post operational activity.
b) Ensure all equipment is maintained, checked and calibrated in a timely manner prior to load out.
c) Ensure that sufficient backup tools and equipment are on site to safeguard uninterrupted rig operations.
d) Co-ordinate with the Company Drilling Manager on mobilization and de-mobilization of specialists, to and from the well site, to minimize personnel charges whilst ensuring smooth continuity of operations.
e) Provide liaison between Contractor and Company personnel in India and offer the best possible advice to prevent problems, and solve problems encountered.
f) Provide effective communications on a daily basis prior to load out and during operations.
g) Ensure that safety training and policies are in place and adhered to and co-ordinated with Company's safety policy.
h) Provide documentation demonstrating a Comprehensive Health, Safety and Environmental Management System and its performance record over the previous three years that accords with internationally accepted HSE reporting standards including LTIs, MTIs and restricted work cases.
i) Make regular visits to the rig-sites to ensure above.
j) Attend a monthly meeting with the Company to present invoices, sort out problems that may have arisen and liaise with Company concerning future activity.
k) to attend pre-spud and pre-job meetings as instructed by the Company.

In addition, the directional coordinator will be responsible for, without limitation, directional planning and design and other related services like logistics of equipment and personnel related to the Work, administration of the Contractor's Day to day affairs under the Contract and shall be available for consultation at all times for the duration of the Contract.

5.4 Contractor's Directional Drillers and MWD/LWD Engineers on the Drilling Unit

Contractors will be required to provide the following personnel:

a) Qualified, skilled and experienced Directional Drillers (Contractor may propose both Expatriates and Nationals) assigned for the Company's operation.
b) Qualified, skilled and experienced MWD/LWD Company's assigned to the Company's operation (Contractor may propose both Expatriates and Nationals).
c) The proposed MWD engineer shall be capable of handling the LWD equipment. If the proposed MWD Engineer is not capable of handling the LWD equipment, then the Contractor shall clearly mention this and indicate the LWD engineer's requirement exclusively. The costs in this case to be additionally included in the Day rate of the MWD Engineer.
d) Offshore personnel will work on a 28/28-day rotation as a maximum or as per operational requirements at no additional cost to the Company. It is intended to multi-task personnel (where possible) for the directional drilling, MWD and LWD services.
e) The contractor shall submit CVs of the above personnel to the company within 30 days of issue of letter of award or 45 days prior to commencement of contract (whichever later) for-Company's approval. The Contractor shall not deploy its personnel unless cleared by the Company.
f) The expatriate personnel of the Contractor should require all the statutory clearances to work in the field. It is the Contractor's responsibility that the clearance is obtained for every position.

5.5 Experience and Training

Minimum experience required for the Directional Drilling Engineer and the lead MWD/LWD Engineer is minimum 5 years of relevant experience. Company at its option may mobilize a second MWD/LWD Engineer for directional wells. The second MWD/LWD Engineer should have minimum 3 years of relevant experience.

All contractor personnel should have undertaken theoretical contractor courses as appropriate to their position.

The contractor shall submit CVs of the above personnel to the company within 30 days of issue of letter of award or 45 days prior to commencement of contract (whichever later) for-Company's approval. The Contractor shall not deploy its personnel unless cleared by the Company.

6.0 REPORTING

6.1 General

Contractors will be required to adhere to the following reporting requirements while on rig:

a) To provide a Daily Report in a format acceptable to Company or a format provided by Company. This report should detail, as a minimum

i) BHA and drilling assembly used
ii) BHA and drilling assembly performance
iii) BHA Hours (circulating, in hole and on bottom)
iv) In case of directional wells or if required, separate sliding and rotating hours
v) Torque and drag presentation
vi) Survey Data (including QA/QC data)
vii) Full LWD logs and summary sheets as and when requested by Company's representative (on the wellsite or at the base)
viii) Estimated Daily Cost for performed services

b) Directional supervisor should measure and calliper all his tools (subs, stabilizers, non-magnetic drill collars, survey tools) upon arrival at the rig, and also prior to running it in the hole. The Supervisor shall ensure that the tools are available for the forthcoming jobs and inform Company Representative on Board in time in case of shortage or wrong equipment etc.

c) A monthly report shall be submitted to the Company by the Contractor that summarizes all the activities that were carried out during the month, personnel and equipment movements and equipment failures and the costs for the personnel and services rendered.

d) A fault report that explains in detail all the equipment failures and actions taken to prevent repetition with recommendations for the future operations shall be submitted after every event.

6.2 Tools & Equipment Inventory

Contractor shall maintain an up-to-date inventory of all tools and equipment held on the Drilling Unit, Shore Base, work boats or elsewhere. This report shall be submitted on a weekly basis to the Company Representative. Contractor is responsible for ensure that tools are picked up, made-up, and laid down according to Contractor's guidelines.

6.3 End of Well Report

Contractor shall provide the following end of well reports within 14 days of the end of operations on each well.

a) A detailed recap of the drilling operations that utilized motors, MWD, or LWD at the end of each well.
b) A detailed recap for all directional including final definitive survey.
c) An evaluation of any directional work or BHA tendencies.
d) A detailed cost breakdown by section.
e) Schematic and description of each BHA used
f) An equipment performance review
g) A planned vs. Actual well profile
h) All LWD logs and prints (including digital information where appropriate)
i) A detailed discussion on equipment failures or downtime.
j) Necessary changes to be incorporated for the next well program based on the lessons learned from the previous wells
k) Contractor shall prepare a detailed report at the end of the drilling campaign to capture the problems encountered and propose recommendations and mitigation methods for future operations.

6.4 Sample Reports

Contractor's outline example reports of those reports listed above are to be submitted along with the bid.

6.5 Data Reporting for Formation Evaluation

a) Depth of all logs and other data will be recorded in meters.
b) Paper copies of each log; quantities and scales to be defined prior to drilling.
c) Electronic log data should be presented in external hard disk containing graphical log data in PDF or equivalent format (capable of running in Windows 10 operating system) and digital log data in ASCII / LAS / LIS / DLIS format.
d) Data Reporting During Logging.
e) Fully updated LWD logs in paper and digital format should be handed to the Well site Geologist / Company's representative for distribution to the Company's office in time for the 09:00 hrs morning report.
f) An evening report (time to be agreed with the Company's representative) shall be required with updated LWD Logs and digital data (if requested). This will be presented to the Company's Well site Geologist / Company's representative for the afternoon report to the Company's Operations Geologist.

g) LWD logs containing all memory data for the entire hole section/well in paper and digital format should be handed to the Well site Geologist / Company's representative as soon as possible after downloading of memory data.

6.6 post-processing of field data

Post processing of field data at the well site or contractors' base office will consist of:

a) Special processing of data such as resistivity (if array type tools are used).
b) Post job evaluation
c) Contractors to perform a detailed post job evaluation after each operation and to submit to the Company representative within 24 hours.

7.0 EQUIPMENT

7.1 Minimum Requirements

a) All equipment (including surface equipment) required to perform directional drilling and surveying services in the quantities, sizes and specifications as listed in the table later in this document. The list is intended to be for guidance only, and Contractors may add or delete tools which they feel are required for the operations but not included in the scope according to their specialized knowledge. It would be appreciated if the reason for addition or deletion of the tools are also provided by the Contractors.
b) Contractors will be required to provide fishing tools for any 'non-standard' down hole equipment. A list of available and recommended fishing equipment will be provided (Exhibit – 13).
c) Contractor will provide necessary lift subs for their equipment.
d) Contractors will be required to minimize the use of drill string crossovers but will be required to supply these if down hole equipment is not of the specification laid out in the attached schedule.
e) Contractors will be required to supply stocks of equipment consumables and accessories commensurate with a remote area operation.
f) All equipment (including surface equipment) required to perform MWD and LWD services (to include but not be limited to: GR, Resistivity, Sonic, Temperature, and down-hole Annular Pressure) in the quantities, sizes and specifications as specified under the Scope of Work.
g) The COMPANY at its discretion can order the equipment and tools in part or in full as per this Scope of Work. The Company at its discretion can also reduce or increase the quantity of equipment and tools to be ordered.
h) Contractor shall provide a list of all necessary tools and spares that it intends to mobilize for successful completion of the Contract.
i) Contractors shall provide the location of their base facilities available in India with details for maintenance and servicing of the proposed tools.

7.2 Contractor shall specify separate equipment lists and submit them along with the Bid as follows:

a) Contractor's recommended full suite of LWD package including personnel.

7.3 LWD SPECIFICATIONS

7.3.1 8-1/2" Hole section

a) **High Resolution Standard Array Induction Service**

i) Tool Diameter : 6-1/2" or 6-3/4"
ii) Temperature Rating : 250^0 F

iii) Maximum Flow Rate : > 250-600 GPM
iv) Tool should be able to record resistivity in multiple frequencies (minimum 2 frequencies)
v) Bore-hole compensated phase & attenuation measurement systems with multiple depths of investigation (minimum 5)
vi) Resistivity measurement range : 0.2 to 2000 Ohm-m.
vii) Invasion Profile from curve separations

b) **Sonic**

i) Tool Diameter : 6-1/2” or 6-3/4"
ii) Temperature Rating : 250^0 F
iii) Maximum Flow Rate : > 250-600 GPM

c) **Gamma Ray (Natural)**

d) **Temperature log**

e) **Annular Pressure and Annular Circulating Temperature While Drilling**

i) Pressure sensor to identify ECD (Equivalent Circulating Density) and ESD (Equivalent Static Density).
ii) APWD pressure and temperature resolution should be 5 psi or less and 1 deg C or less respectively.
iii) APWD pressure range 0-10000 psi and temperature range should be 250 deg F or more.
iv) Should be able to provide measurements in both OFF and ON conditions of the pumps.
v) Should be able to take multiple pressure measurements during LOT.
vi) Should be able to measure internal and external string pressure and temperature.
vii) APWD should be Combinable or integrated part of MWD & Induction Resistivity tools. If separate combinable tool, then rate is to be included along with the LWD tools as per the Schedule of Rates. APWD data to be provided at no additional cost to the COMPANY.

7.3.2 12-1/4” hole

a) **High Resolution Standard Array Induction Service**

i) Tool Diameter : 7-5/8” or 8" or 8.1/4” or 9.1/2”
ii) Temperature Rating : 250^0 F
iii) Maximum Flow Rate : > 450-1200 GPM
iv) Tool should be able to record resistivity in multiple frequencies (minimum 2 frequencies)
v) Bore-hole compensated phase & attenuation measurement systems with multiple depths of investigation (minimum 5)
vi) Resistivity measurement range: 0.2 to 2000 Ohm-m
vii) Invasion Profile from curve separations

b) **Sonic**

i) Tool Diameter : 7-5/8” or 8" or 8.1/4” or 9.1/2”
ii) Temperature Rating : 250^0 F
iii) Maximum Flow Rate : > 450-1200 GPM

c) **Annular Pressure and Annular Circulating Temperature While Drilling**

i) Pressure sensor to identify ECD (Equivalent Circulating Density) and ESD (Equivalent Static Density)
ii) APWD pressure and temperature resolution should be 5 psi or less and 1 deg.C or less respectively.

iii) APWD pressure range 0-10000 psi and temperature range should be 250 deg F or more.
iv) Should be able to provide measurements in both OFF and ON conditions of the pumps.
v) Should be able to take multiple pressure measurements during LOT.
vi) Should be able to measure internal and external string pressure and temperature.

d) **Gamma Ray (Natural)**

e) **Temperature log**

7.4 MWD tools specifications (for 26", 17-1/2", 12-1/4" and 8-1/2" hole) -

Contractor To specify whether Collar OR Probe based (retrievable or non-retrievable) and Positive Pulse.

Measurement while drilling electronic package consisting of hole inclination, direction and gamma ray measurement, with API quality continuous Gamma Ray measurement in real time, directional survey response in less than 120 seconds. The system to complete with pulser, electronic sensors, power source etc. for transmitting down-hole data in real time with tool face update every 20 second or less.

a) Tool curvature: Minimum 7° / 100' (Rotary) and minimum 12° / 100' (Sliding) or better.
b) Mud flow rates: 250-900 gpm or better for 12-1/4" and 8-1.2" hole. For 9-5/8" / 9-1/2" basic MWD tool flow rates: 600-1200 gpm.
c) Data transmission rate 5 bits/sec. or more and should be suitable to transmit data of various tools quoted in different segments of the tender
d) Gamma ray, inclination and azimuth measurements.
e) Combinable with LWD tools.
f) Measurement accuracy: TF+/- 3.0 deg, AZ +/- 1.5 deg, INC +/- 0.2 deg
g) MTF/GTF switch: Programmable at surface.
h) The distance from bit for directional measurement should not be more than 19.0 Mtrs.

7.5 SDMM motors

Contractor to provide stabilized positive displacement steerable down hole mud motors, and other equipment along with services of the Company as detailed below on rental basis for drilling 26", 17-1/2", 12-1/4" and 8-1/2" hole. The tools for 26" hole would be used for jetting the 30" conductor and then drilling the 26" hole interval. The smaller tools would be used for drilling vertical/directional wells. Contractor should have necessary standby and back up tools for the set to meet situations like tool failure/ loss of equipment down hole for uninterrupted operation.

a) 9-5/8" / 9-1/2" OD low torque, medium speed, stabilized positive displacement steerable multi-lobe mud motor capable of drilling vertical and deviated wells to be used for drilling in 26" and 17-1/2 hole with bearing housing stabilizer and adjustable kick off sub (Adjustable Bend Housing) with 7-5/8" API Regular Box down (bit box) and 7-5/8" API Regular Box up, complete with lifting sub and having following specifications. Flow rate 600-1200 gpm, RPM 65-135 (indicative).
b) 7-5/8" / 8" / 8-1/4" OD high torque, low to medium speed stabilized positive displacement steerable multi-lobe mud motor capable of drilling vertical and deviated wells to be used for drilling in 12-1/4" hole with bearing housing stabilizer and adjustable kick off sub (Adjustable Bend Housing) with 6-5/8" API Regular Box down (bit box) and 6-5/8" API Regular Box up, complete with lifting sub and having following specifications. Flow rate 300-900 gpm, RPM 45-225 (indicative).

c) 6 ½" / 6 ¾" OD high torque low to medium speed stabilized positive displacement steerable multi-lobe mud motor capable of drilling vertical and highly deviated wells to be used for drilling in 8 1/2" hole with bearing housing stabilizer and adjustable kick off sub with 4-1/2" API regular box down (bit box) and 4" or 4-1/2" API IF Box up, complete with lifting sub and having following specifications. Flow rate - 300- 600 gpm, RPM 85 – 230 (indicative).

7.6 NOT USED

7.7 MWD/ LWD Unit

Skid-Mounted pressurized MWD/LWD surface unit with all necessary computers, monitors, printers, equipment and spares for the logs listed above. It should include all slings which are certified and pad eyes for lifting of the Unit. Contractor will be responsible to provide fire /explosion proof monitors (as per API standards and suitable for rig floor installation) which are required to be rigged up at drillers panel for taking survey and performing deviation work. These should be connected to the MWD / LWD units as required and Contractor shall be responsible to provide enough length of cables for same. Contractor shall also provide the requisite monitor for Company's Well Site Geologist, Company-Man, Drilling Supervisor etc.

7.8 Additional Equipment

Any other equipment that not mentioned in the scope and is felt required for smooth functioning of the work by the Contractors should be mentioned as "Additional Items".

7.9 Maintenance

Upon request by Company, Contractor shall provide proof of maintenance and service history of all items of equipment supplied.

Contractor shall maintain adequate stocks of consumables and accessories to manage the operation of the Work in a remote location.

Contractors shall maintain all equipment in a fit for purpose condition and shall supply all relevant certification including, but not limited to calibration certificates, inspection certificates, magnetization certificates, as required.

a) Drill string tubular should conform to specifications laid down in DS-1 Category 4 standards.

b) No directional tools shall be accepted at Company's Shore Base unless accompanied by latest 3rd party inspection reports.

Contractor shall replace or repair whole or part of an item at his cost which shows injurious defects on tests and inspections after delivery at base.

7.10 Equipment to be Operational

Contractor shall always maintain all equipment in operating condition to prevent downtime or waiting on equipment time. Contractor shall be responsible to provide all relevant certification for all tools and equipment.

8.0 Inspection

Contractor acknowledges that Company may inspect Contractor's Equipment using a third-party inspection company as per Clause No: 8.0 of SCC and at any time during the duration of the contract.

Note:

The Contractor shall provide sufficient back up tools on rig to meet the workload and for situations such as tool failure/lost in hole etc and ensure uninterrupted operations (Minimum 01 in use + 01 back-up, except surface unit for MWD/LWD).

a) All crossover subs required from Company's drill string to Contractor's part of drill string or any other special crossover etc would be identified and furnished by the contractor.

b) Contractor shall ensure that the equipment is delivered and maintained in a fit condition for the intended work and shall, at its cost and expense, man, operate, replace, supply, repair and maintain the equipment as per the contract.

c) The Steerable Downhole Mud Motor (SDMM) and all other tools (motors, subs, stabilizers, etc) should be measured and callipered upon arrival at the rig, and prior to running it in the hole.

d) Contractor shall provide suitable stabilizers for the drill string if required for drilling vertical/directional wells with SDMM during the period of the contract.

e) Placement of stabilizers at different positions in the rotary assemblies should not be a constraint while running with the LWD tool.

f) The tools should have provision to pump LCM material in case of any mud loss in the course of drilling (at least 40 ppb of fine to medium nut plug).

9.0 REAL TIME DATA TRANSMISSION

Contractor will provide details of its real time data transmission capability to the Company. This should include capability of integrating data from third party (viz. Mud logging). Also details about Contractor's capability to provide data to third party (viz. Mud logging) in WITS or similar standard format on real time and/or batch mode basis is required. Company's third-party Contractor shall provide communications facilities between the Drilling Unit and the Company's Base Office at Kakinada.

10.0 LOGISTICS

10.1 Shore Base

Company's main point of Shore base shall be Port Blair, Andaman & Nicobar Islands.

The contractor is required to mobilize all its equipment, spares etc to the Company's Shore Base at Port Blair, Andaman & Nicobar Islands, India. All the equipment, spares etc. supplied by the Contractor to the Company under the contract, shall be stored in Contractor's facilities at Port Blair and shall be delivered at Company's Shore Base at Port Blair as per operational requirement and when instructed by the Company.

The Contractor is required to maintain adequate equipment / spares and supply as required.

All materials, supplies, tools and equipment are required to be labelled and packaged or containerized in a pre-slung condition (including lifting lugs, etc.).

10.2 MWD / LWD Unit

Company shall instruct the Contractor to mobilize or demobilize the unit as per contract to the Company's Shore Base. Installation of the unit on the Drilling Rig is Contractor responsibility.

10.3 Spares

a) The Contractor shall maintain adequate equipment/spares at its facilities at Port Blair, Andaman & Nicobar Islands.

b) Contractor shall also provide, at its cost, any items of equipment, spare parts, supplies and materials which are not specifically detailed in the contract but are required for normal operations according to good oilfield practice and are related to items already furnished by the contractor and/or are normally Contractor supplied.

c) All materials, supplies, tools and equipment are required to be labelled and packaged or containerized in a pre-slung condition (including lifting lugs, etc.)

10.4 Load Testing

All lifting and load bearing equipment of the Contractor shall be certified prior to use and all relevant certifications shall be available for inspection. All toolboxes and containers must be sent with certified slings and a copy of the certification should be sent with the equipment. The slings should be clearly identifiable as belonging to the Contractor. Periodical testing of all the lifting equipment shall be responsibility of the Contractor.

11.0 TECHNICAL SUPPORT

11.1 Logistical Support

Contractor will arrange appropriate logistics for the supply of all the consumable items required for the equipment supplied to carry out the Scope of Work.

11.1 New Developments

Contractor shall make available to Company in as much as it is not constrained by agreements of confidentiality, details of any ongoing research and development activities that it is undertaking, and which may be relevant to the Company's operation.

12.0 EQUIPMENT

Table 1: Drilling Motor and MWD tools

Sl. No.	Description	Specifications	Quantity (each)
1	9-5/8" / 9-1/2" SDMM motor w/ adjustable bent housing, 7-5/8" Reg B x B conn, with required sleeve stabilisers (2 under-gauge, 1 slick sleeve/blanking sleeve) for 17-1/2" and 26" hole each		2
2	7-5/8" or 8" or 8-1/4" SDMM motor w/ adjustable bent housing, 6-5/8" Reg B x B conn, with required sleeve stabilisers (2 under gauge, 1 full gauge, 1 slick sleeve/blanking sleeve) for 12 ¼" hole		2

3	6-1/2" or 6-3/4" SDMM motor w/ adjustable bent housing, 4-1/2" Reg Bottom x 4-1/2" IF top conn with required sleeve stabilisers (2-under-gauge, 1 full gauge, 1 slick sleeve/Blanking Sleeve) for 8-1/2" hole		2
4	9-5/8" or 9-1/2" Basic MWD tool with all necessary spares for deviation monitoring and control		2
5	7-5/8" or 8" or 8-1/4" Basic MWD tool with all necessary spares for deviation monitoring and control		2
6	6-1/2" or 6-3/4" Basic MWD tool with all necessary spares for deviation monitoring and control		2
7	9-5/8" or 9-1/2" MWD collars with 7-5/8" Reg connections		
8	7-5/8" or 8" or 8-1/4" MWD collars with 6-5/8" Reg connections		2
9	6-1/2" or 6-3/4" MWD collars with 4-1/2" IF connections		2
10	Skid-Mounted pressurized MWD and LWD surface unit with all necessary computers, monitors, printers, equipment and spares for the logs listed above. Sent with certified slings and pad eyes.		1
11	All necessary tool baskets and containers to transport the tools and equipment required. Pad eyes and slings must be certified, and a copy of the certification sent with the equipment.		Lot

Note: Contractors shall provide (where applicable), the details of the recommended operating hours and regional MTBF for tools proposed in the bid.

Table 3: LWD Equipment

Sl. No.	Description	Specifications	Quantity (each)
A	**12-1/4" Hole**		
A.1	GR-Resistivity-Sonic, Temperature		2
A.2	Annular Pressure While Drilling		2
B	**8-1/2" Hole**		
B.1	GR-Resistivity-Sonic, Temperature		2
B.2	Annular Pressure While Drilling		2

C	**Real Time Display**		
C.1	Real time resistivity modeling software		1 lot

Note: Contractors shall provide (where applicable), the details of the recommended operating hours and regional MTBF for tools proposed in the bid.

Table 4: NOT USED

Table 5: Personnel

Sl. No.	Description	Qty
1	Directional Driller	01 on rotation basis
2	Directional Driller	01 on callout basis
3	Lead LWD/MWD Engineer	01 on rotation basis
4	LWD/MWD Engineer	01 on rotation basis

6.0 MUD ENGINEERING SERVICES

1.0 EXPERIENCE

The Contractor should have minimum of five years of experience in providing Mud Engineering Services to Drilling/E&P Companies with at least three (03) years in offshore areas.

The Contractor should also have executed at least one contract of Mud Engineering Services using proposed mud systems i.e. Water Base Mud System in Deep-water Wells (water depth>500Mtr) in the last 07 years reckoned from the original bid closing date.

The Contractor should submit a laboratory test report (issued by ONGC, IDT-Dehradun or Bidder's own laboratory) of the formulations conforming to OIL's recommended parameters as per scope of work along with the technical bid. Bids not accompanied by a valid test report shall be rejected. Test report as above received after date opening of tender will not be accepted.

2.0 PLANNED MUD SYSTEMS

The following is a description of the planned mud types and mud properties for the various hole sections. Refer to the introductory section for well locations, depths of casing points and other well data.

Contractors are required to submit mud programs that are along the lines of the planned mud program outlined below, to include product concentrations and total estimated consumption.

(i) 8-1/2" Investigative Hole

This hole section will be drilled with an 8-1/2" bit to the planned depth of the 26" hole interval, in order to determine the absence or presence of shallow gas. The drilling fluid will be seawater and high viscosity sweeps. The sweeps may be composed of HEC in seawater or of pre-hydrated bentonite slightly diluted with seawater. A pit of 10.0 lb/gal kill mud should be available to kill the well if shallow gas is encountered.

After the hole is drilled it will be displaced to 10 lb/gal high vis mud prepared with PHG prior to pulling out of the hole.

(ii) 36" Hole / 30" Conductor

This hole section may be either jetted down with a 26" bit or drilled with a 26" bit / 36" Hole opener. In either case the drilling fluid will be seawater and high viscosity sweeps. The sweeps may be composed of HEC in seawater or of pre-hydrated bentonite slightly diluted with seawater. If the conductor is jetted, it may be necessary to pump some high vis sweeps weighted up to 9 – 10.5 lb/gal.

If the hole is drilled rather than jetted, after reaching the casing point the hole will be swept with a 200 bbl high vis pill, and the hole will be filled with 10 lb/gal high vis mud prepared with PHG.

(iii) 26" Hole / 20" Casing

The drilling fluid will be seawater and high viscosity sweeps composed of either HEC in seawater or PHG (pre-hydrated bentonite) slightly diluted with seawater. After reaching the casing point the hole will be swept with a 200 bbl high vis pill, and the hole will be filled with 11 lb/gal high vis mud.

(iv) 17-1/2" Hole / 13-3/8" Casing

The mud system will be seawater / pre-hydrated bentonite, with PAC for filtration control.

The proposed pre-hydrated bentonite / PAC fluid should be designed for good hole cleaning and reasonable fluid loss control and should be able to drill a reasonably gauged hole at an optimum rate of penetration. A pit of 10.5 lb/gal kill mud should be kept onboard the rig during this interval in case a kick is taken in the lower portion of the interval.

(v) 12-1/4" Hole / 9-5/8" Casing

A review of the offset data for wells OAEA and OAEB reveals the following points:

- Drilling fluids used were typically seawater with some pre-hydrated bentonite and fluid loss control additives, weighted to the required density with barite.
- Based on the reported quantities of materials consumed, the drilling fluids contained large amounts of low-gravity solids obtained from drilled solids.
- Mud weights ranged from 9.0 lb/gal to more than 15 lb/gal, despite which caving and tight hole persisted, particularly in the Oligocene interval.
- Mud weights much higher than the estimated formation pressures were used in attempts to reduce the severe hole problems that were experienced (caving, pack-offs, tight hole, stuck pipe).
- It is anticipated that with the use of a saline, inhibitive, clean drilling fluid, that the mud weight required to minimize these hole problems will be less than that required in the offset wells.

Accordingly, the mud system will be Potassium Chloride, Xanthan Gum, PHPA with a polyamine clay inhibitor in the range 5-7 lb/bbl. For the wells OAEA and OAEB, the anticipated mud weight will be in the range 11.0 – 11.7 lb/gal, salinity around 50,000 mg/l chloride ion. Maximum mud weights will be 12.2 lb/gal and 12.0 lb/gal respectively, based on the expected fracture gradients at the 13-3/8" casing shoes. For well OAWB, pore pressure is expected to be normal, and no stress related problems are expected. Mud weight for this well will be in the range 9.5 – 10.0 lb/gal.

The use of potassium sulphate rather than potassium chloride is permissible.

(vi) 8-1/2" Hole / 7" Liner

This interval will be drilled only in wells OAEA and OAEB. The OAWB is expected to reach total depth in 12-1/4" hole size.

Drilling fluid for this interval will be a continuation of the KCl / XC polymer / PHPA / polyamine fluid used in the previous hole interval.

3.0 GENERAL SCOPE OF WORK:

Scope of work for the Mud Engineering services are as defined below but not limited to the following:

3.1 The Contractor shall execute the work with professional competence and in an efficient and workmanlike manner.

3.2 Perform all other obligations, work and services which are required by the terms of this Contract and are necessary for the successful and timely completion of the work.

3.3 Comply with all applicable statutory obligations specified in the Contract.

3.4 Contractor shall give or provide all necessary supervision during the performance of the services and as long thereafter within the contract period as Company may consider necessary for the proper fulfilment of Contractor's obligations under the Contract.

4.0 TECHNICAL SCOPE OF WORK:

The Technical Scope of Work is defined and described by the following parameters:

(A) Drilling Fluid Engineering Services,
(B) Drilling Fluid Design
(C) Drilling Fluid Management services,
(D) Drilling Fluid material and Additives Supply.
(E) Completion of Fluid services including chemicals.

Each of the above services is defined in detail in the following sections.

4.1 DRILLING FLUID ENGINEERING SERVICES

i. The Contractor shall carry out Drilling Fluid Engineering Planning and Designing; Mud preparation and maintenance required for drilling and completing all the phases of the wells by using the rig equipment and in accordance with the detailed drilling operations planned by OIL.

ii. The Contractor shall provide round-the-clock Drilling Fluid engineering services by deploying two mud engineers on the rig in 12 hours duty pattern.

iii. The Drilling Fluid Engineer shall have an experience of minimum of five years as a drilling fluids Engineer (in offshore area) and should have completed minimum three offshore wells a using a water-based KCl/K2SO4-PHPA-POLYAMINE-Polymer Mud system in the last 07 years reckoned from original bid closing date.

iv. The Contractor shall mobilize the Drilling Fluid Engineering Services including men and material so as to commence the job prior to the commencement of drilling.

v. The on-site Drilling Fluid Engineer shall provide OIL the daily drilling fluid reports as per standard industry practices.

vi. The on-site Drilling Fluid engineer shall communicate with Company on a daily basis as per operational requirements.

vii. OIL reserves the right to modify its drilling program as per operational requirements.

viii. The drilling fluid engineer shall also collect samples on the rigs as and when required.

4.2 DRILLING FLUID DESIGN

The contractor shall submit detailed Drilling Fluid engineering programs for each well at least 14 days prior to the commencement of the well. Depending upon the given geological data, Contractor shall design phase-wise Drilling Fluid program, detailed Drilling Fluid composition, recommended doses, total volume usage for each hole section. For each phase, the Contractor shall provide the drilling fluid composition to achieve the required parameters.

The Drilling Fluid design shall include but not limited to the following:

(i) Drilling Fluid systems proposed for different sections.
(ii) Detailed mud system formulation for each section.
(iii) Drilling Fluid parameters for each section.
(iv) Expected chemical consumption and volumes in each section.
(iv) Complete cost estimates of building and maintaining the mud system as well as unit cost for each chemical used for each section and all standby chemicals.
(v) Chemicals proposed for curing losses and release of stuck pipe and to liquidate other drilling fluid related down hole complications with detailed procedures.
(vi) Based on the performance of the mud systems, the Contractor shall undertake suitable studies for improving the performance of the mud system and shall submit the recommendations time to time to Drilling Fluid In charge of Company.

Software and Technical Support:

The Contractor shall provide technical support for customer and on-site engineering along with a suitable software product; the range to include data base program to proprietary packages for drilling fluid data management, advanced drilling fluid engineering, environmental programme and reference databases containing latest technical literature and product summaries.

Contractors shall supply details of their QA/QC procedures as they pertain to the supply of chemicals.

4.3 DRILLING FLUID MANAGEMENT SERVICES

Drilling Fluid management service encompasses all the functions and requirements contained in the previous section on Mud engineering services plus:

(i) Inventory control both at the rig and at the Supply Base.
(ii) The Contractor shall also provide actual delivery verification of chemicals and additives.
(iii) The Contractor shall provide complete software package-based services for mud hydraulics, hole cleaning and engineering and also literature on all the types of drilling fluids to be used.
(iv) The Contractor shall maintain and provide Inventory Report fortnightly basis. Well Completion Report shall be submitted after the completion of services on each well within 15 days of completion of the well with full details of complications encountered and remedial measures undertaken to mitigate the complications and remedial measures proposed to be undertaken in future wells. Downhole Complication reports encountered should be submitted within 24 hours of mitigating of the complication in the standard proforma of Company. Company will provide the complication report template to the Mud Engineer at site.

4.4 DRILLING FLUID MATERIAL AND CHEMICALS SUPPLY

(i) The Contractor shall submit detailed specifications along with the Material Specification Data Sheet (MSDS) of all the offered chemicals along with their bid. The specifications of each chemical should reflect the relevant parameters of that additive and indicate its performance required in the test report.

(ii) Contractor shall submit a complete list of chemicals and additives including Barites (4.10 S.G.-Minimum) required for the preparation and maintenance of the specified mud systems.

(iii) Contractor shall ensure a sufficient quantity of chemicals and additives that shall be made available to allow for smooth and uninterrupted operations.

(iv) The contractor shall furnish to OIL the test reports as per specifications prior to the delivery of the material at Port Blair Supply Base. All the test reports must reflect the brand name and manufacturer as

quoted in the bid and the chemicals used in the well shall be of the same brand and manufacturer and shall be of same specification as submitted with the bid document.

(v) Contractors shall provide the complete chemical product data sheet including the brand name and manufacturer's name of the chemical, specifications of the chemical and Material Safety Data Sheets (MSDS) in respect of all the chemicals proposed to be used at the time of delivery as quoted in the bid.

(vi) Company reserves the right to check the quality of the Mud chemicals at random as per test reports/specification submitted by the Contractor at any point during the duration of Contract.

(vii) Contractor shall arrange for storage of the chemicals and additives at its facilities at Port Blair during the period of the Contract and shall deliver the chemical and additives to Company's shore-base facility at Port Blair as per operational requirement and when instructed by the Company at his own cost.

(viii) The chemicals shall be in the original packaging of the manufacturer. The packing of the chemicals shall be seaworthy, in bags of 25 Kgs/50 Kgs or Pounds in pallets and in drums of not more than 210 Lts capacity which shall withstand the rigorous sea transportation. Chemicals susceptible to moisture shall be packed in moisture proof multiwalled paper bags with polythene lining. Each pallet shall have clearly legible identification marks including the name of the chemical, name and address of the manufacturer, date of manufacture, and address of consignee. All chemicals / drums shall be delivered to OIL's shore-based facility at Port Blair as per operational requirement in proper pallets / containers for safe and smooth transportation to Rig.

Barite: Barite of API specifications (min 4.10 S.G. or above) shall be supplied by the Contractor to OIL's shore-based facility at Port Blair as per operational requirement in 1MT/ 1.5MT Jumbo bags which shall be loaded into silos and transported to rigs by OIL's third-party supply vessels**.** The Contractor shall maintain storage facility at Port Blair and shall deliver barites to OIL's shore-based facility at Port Blair as per operational requirement.

(ix) Chemicals received in torn packaging and broken drums will not be accepted by Oil India Limited.

(x) OIL shall provide drill water/seawater for mud preparation and maintenance.

(xi) Contractor shall deliver all chemicals, packed in waterproof pallets only ready for loading onto Offshore supply Vessels (OSV).

4.5 COMPLETION FLUID SERVICES INCLUDING CHEMICALS

The Contractor is required to provide completion fluids (Brine) and Brine-Chemicals (In case of CaBr2 or Blended CaCl2-CaBr2 brine, bidder shall supply the brine in IBC) within 45 days' notice period given by OIL in writing prior to commencement of well testing. The selection of following brines/Brine Chemicals shall be required based upon formation pressure and temperature.

- KCl salt for preparing brine upto 9.5 ppg
- Sodium Chloride Salt for preparing brine upto 10 ppg.
- Calcium Chloride Salt for preparing brine upto 11.4 ppg.
- Sodium Chloride&Sodium Bromide Salt for making blended Brine up to 12ppg
- Sodium&Potassium formate salt for preparing blended brine up to 13.1 ppg
- Calcium Bromide Brine in IBC of density14.2 ppg
- Calcium Chloride-Calcium Bromide blended brine in IBC of density 15ppg

5.0 TESTING OF DRILLING FLUID SYSTEMS

5.1 The mud system proposed must be supported by the test reports from ONGC, IDT-Dehradun or any other laboratory of international repute. The Bidder shall design the Phase wise mud systems as per the Mud Weight and dosages (fixed / variable) components and obtain the parameters as stated elsewhere in the tender document. A test report to that effect must be submitted along with the technical bid by the Bidder.

5.2 The Bidder must submit the sequence of mixing of the chemicals and the duration of mixing time after each addition for the above testing. The above testing should be carried out using Distilled water and following Standard Test procedures.

5.3 The Mud Weights & pH of the Muds will be measured prior to hot rolling. Other parameters will be measured at the stated temperature after hot rolling wherever hot rolling is there.

5.4 After hot rolling the pH of the mud will be adjusted to the pH stated in the particular mud system.

5.5 An additional quantity of Barites in excess of the quantity suggested in the formulation to be added if required to achieve the specified Mud weight of the formulation.

5.6 Successful bidder shall submit one set of chemicals under sealed condition to OIL for preparing 5 Liters of Mud which were used at the time of making Mud Formulation in their Laboratory for each Mud System prior to initial mobilization of chemicals to Port Blair for future reference.

5.7 The Bidder can submit the Test Reports not older than 06 months from the date of submission of Bid as per Mud parameters of SOW.

5.8 The Contractor shall provide the same brand of chemicals during the contract as stated in the test report submitted along with the bid for various drilling fluid systems as well as stated in the price bid. During execution stage, if contractor wants to switch over to alternative manufacture which should be mentioned in the bid itself for a particular chemical, it has to be approved through test report of formulation from the authorized lab.

5.9 The different testing conditions and hot rolling time are as placed below for all the mud systems:

Sl. No.	Hole size inch	Mud System	Interval	Testing Conditions
1	36” / 26”	Sea Water with Pre-Hydrated Bentonite Sweeps intermittently	Spud Section	The Spud mud shall be Sea Water. No hot rolling is required
2	17 ½”	BENTONITE GEL-POLYMER -DRILLING FLUID	Intermediate Section	No hot rolling is required
3	12 ¼ ”	KCL-PHPA-XC POLYMER-POLYAMINE DRILLING FLUID	Intermediate Section	The Rheology to be measured at 115^0 F ± 3.5 ^{0} F (46 ± 2^0 C) after hot rolling for 16 hours at 194 ^{0} F± 3.5 ^{0} F (90 ± 2^0 C)
4	8 ½”	KCL-XC POLYMER-POLYAMINE with NDDF CHEMICALS WITHOUT PHPA	Final Pay zone Section	The Rheology to be measured at 150^0F± 3.5 0 F / 66^0± 2 ^{0} C after hot rolling for 16 hours at 212 ^{0} F± 3.5 ^{0} F (100 ± 2^0 C)

5	6"	KCL-XC POLYMER-POLYAMINE-with NDDF CHEMICALS WITHOUT PHPA	Final Pay zone Section	The Rheology to be measured at 150^0F± 3.5 0 F / 66^0± 2 ^{0} C after hot rolling for 16 hours at 212 ^{0} F± 3.5 ^{0} F (100 ± 2^0 C)

5.10 LC-50 toxicity reports to be submitted by the Bidder:

a) The Bidder must provide LC-50 toxicity reports of both KCl-PHPA-XC-POLYMER-PLOYAMINE **(One system)**. The test reports are required to be submitted after testing from any one of the following labs:

1. ***NATIONAL INSTITUTE OF OCEANOGRAPHY (NIO), GOA***
2. ***NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE (NEERI), NAGPUR***
3. ***INDIAN INSTITUTE OF TOXICOLOGY RESEARCH (IITR), LUCKNOW***
4. ***ANY GOVT. APPROVED LABORATORY***

b) The Contractor must submit the Test report indicating the shale inhibition efficiency such as CST, Swelling Test, and Dispersion Test as per Industry standards. Tests to be done using standard Bentonite pallets on KCl-PHPA-PLOYAMINE mud system.

6.0 SAFETY AND ENVIRONMENT

6.1 Contractors shall provide the Material Safety Data Sheets (MSDS) with respect to all the chemicals proposed to be used in the contract.

6.2 Contractor shall ensure safe conditions and methods of work and maintain the same throughout the period of Contract.

6.3 Contractor shall comply with the applicable environmental laws, regulations and practices, and is required to perform work so as to minimize the generation of hazardous waste to the extent technically feasible.

6.4 The Contractor shall:

(a) Make available for inspection by OIL upon request all registers, records and any other documentation on environmental aspects of the activities being carried out or on the environmental management system implemented by the Contractor.

(b) Responsible for disposing of left over mud/brine etc at Mainland India (Kakinada/Karaikal) in accordance with all local requirements as per respective State / UT Pollution Control Board and for activities conducted offshore as per MOEF&CC guideline. OIL will support the bidders by providing vessels as per availability.

6.5 Contractor is required to maintain a logbook wherein waste generated for the mud systems and subsequent disposal is recorded.

7.0 LEFTOVER CHEMICALS AND ADDITIVES

7.1 At the end of the contract period, Contractor must take back the left over/unused chemicals and additives after completion of Contract from Company's Shore Base at Port Blair within 15 days from date of intimation about the same at its cost. If due to any reason leftover/unused chemicals and additives are not lifted from OIL's Shore Base at Port Blair, the contractor will be liable to pay penalty charges @Rs10,000/day.

7.2 Containers belonging to the Contractor used to transport material to the rig shall be returned to the Contractor. All unused / leftover chemicals and additives on rigs shall be transported back from the rig to Company's Shore Base at Port Blair by OIL.

7.3 It would be the responsibility of the Contractor to re-export or dispose of as deemed fit, as per existing regulations, the leftover chemicals and additives within 60 days after the completion / expiry of the Contract under intimation to OIL.

7.4 It would be the responsibility of the Contractor to dispose of all the empty barrels/empty chemical bags/Carboys/empty IBC/used filter cartridges brought from the site.

"NOTE": Once Barite is being taken into Silos after cutting the bags, Barite will be treated as consumed. All opened bags and Drums for chemicals and additives will also be treated as consumed.

8.0 TECHNICAL DATA:

8.1 PLANNED MUD PROGRAMME:

Casing and Hole Size	Mud program, Wells OAEA	Mud program, Wells OAEB	Mud program, Well OAWB
30" hole jetting with 26" drill ahead tool	Sea water and sweeps	Sea water and sweeps	Sea water and sweeps
26" hole x 20" casing	Sea water and sweeps	Sea water and sweeps	Sea water and sweeps
17-1/2" hole x casing 13-3/8"	10 lb/gal water base gel-Polymer mud	10 lb/gal water base gel-polymer mud	10 lb/gal water base gel polymer mud
12-1/4" hole x casing 9-5/8"	11lb/gal water base KCl-PHPA-Poly Amine-Polymer mud	11 lb/gal water base KCl-PHPA-Poly Amine-Polymer mud	11 lb/gal water base KCl-PHPA-Poly Amine-Polymer mud mud
8 1/2" hole x 7" liner	12lb/gal water base KCl-Poly Amine-Polymer mud with NDDF chemicals	12 lb/gal water base KCl-Poly Amine-Polymer mud with NDDF chemicals	N/A

8.2 GEOLOGICAL DATA (All depths are in meters)

8.2.1 SUB SURFACE GEOLOGICAL DATA: WELL # OAEA)

a. Formation Top (Well # OAEA)

Formation Description	Formation top depth (TVDSS)(m)	Formation top TWT (ms)	Formation top depth (TVD)(m)
Upper Miocene	531	747	561
Middle Miocene	876	1248	906
Oligocene	893	1284	923
Middle Oligocene	1406	1537	1436
Eocene	2104	2132	2134
TD	4250	-	4280

b. Expected Formation Pressure Data (Well# OAEA)

Depth in m (TVD)	Pore Pressure in MWE (ppg)	Formation PP (psi)
500	8.35	731.04
1000	8.95	1546.75

1500	10.62	2741.56
2000	10.55	3623.01
2500	10.35	4432.78
3000	10.49	5386.08
3500	10.49	6279.59
4000	10.42	7125.37
4250	10.42	7569.16

8.2.2 SUB SURFACE GEOLOGICAL DATA: WELL # OAEB)

a. Expected Formation Tops (Well# OAEB)

Formation Description	Formation top depth(TVDSS)(m)	Formation top TWT (ms)	Formation top depth(TVD)(m)
Upper Miocene	587	843	617
Middle Miocene	698	1064	728
Oligocene	701	1121	731
Middle Oligocene	1275	1411	1305
Eocene	1936	1946	1966
TD	4250	-	

b. Expected Formation Pressure Data (Well# OAEB)

Depth in m (TVD)	Pore Pressure in MWE (ppg)	Formation PP (psi)
500	8.35	731.05
1000	10.03	1733.75
1500	10.62	2740.065
2000	10.62	3644.975
2500	10.62	4549.005

8.2.3 SUB SURFACE GEOLOGICAL DATA: WELL# OAWB)

a. Expected Formation tops (Well# OAWB)

Formation Description	Formation top depth(TVDSS)(m)	Formation top TWT (ms)	Formation top depth(TVD) (m)
YOUNGER FORMATIONS	Seabed	—	—
Plio-Pliestocene Unconformity	518.8	569.2	548.8
Pliocene	522.6	571.5	552.6
Miocene	564.3	609.7	594.3
Oligocene	1629.6	1399	1659.6
TD	3000		3030

b. Expected Formation Pressure Data (Well# OAWB)

Depth in m (TVD)	Pore Pressure in MWE (ppg)	Formation PP (psi)
500	8.71	837.5829
1000	8.82	1524.926
1500	8.88	2291.325
2000	8.88	3048.138
2500	9.02	3865.164
3000	8.94	4590.55
3500	8.98	5375.907

8.3 GENERAL DRILLING FLUID POLICY:

Wells /Section	36"/ 26"	17 ½"	12 ¼"	8 ½"	6"
Exploratory Wells	Sea Water/ with Mod Guar gum sweeps/ HEC sweeps	Conventional Bentonite-Gel polymer Mud system	KCL-PHPA Polyamine-polymer mud system <12.5 ppg KCL-PHPA Polyamine mud system >12.5 ppg HTHP polymer mud system	KCL-Polyamine-polymer mud system with NDDF chemicals <12.5 ppg KCL-Polyamine Mud system >12.5 ppg and/or >120^{0}C HPHT polymer mud system	KCL- Polyamine-polymer mud system with NDDF chemicals <12.5 ppg KCL-Poly Amine Mud System >12.5 ppg and/or >120^{0}C HPHT Polymer mud system

Drilling Fluid policy indicated is provisional only. Suitable Drilling Fluid policy / Drilling Fluid density will be decided as per well programme.

8.4 GENERALISED DRILLING FLUID FORMULATION FOR LOC: OAEA, OAEB & OAWB

8.4.1 COMPOSITION OF DRILLING FLUIDS FOR LOC: OAEA

(a) 36"/26" Phase: Please refer Clause 8.8 (sub-Clause 8.8.1)

(b) 17 ½" Phase: Please refer Clause 8.8 (sub-Clause 8.8.2)

(c) 12 1/4" Phase: BHT: Below120DegC: Please refer Clause 8.8 (sub-Clause 8.8.3)

(d) 12 1/4" Phase: BHT: more than 120 deg C: Please refer Clause 8.8 (sub-Clause 8.8.4)

(e) 8½" Phase: Please refer Clause 8.8 (sub-Clause 8.8.5)

(f) 6" Drain hole Phase: As like 8 ½" Phase: Please refer Clause 8.8 (sub-Clause 8.8.6)

8.4.2 COMPOSITION OF DRILLING FLUIDS FOR LOC: OAEB

(a) 36"/26" Phase: Please refer Clause 8.8 (sub-Clause 8.8.1)

(b) 17 ½" Phase: - Please refer Clause 8.8 (sub-Clause 8.8.2)

(c) 12 1/4" Phase: BHT: Below120DegC: Please refer Clause 8.8 (sub-Clause 8.8.3)

(d) 12 1/4" Phase: BHT: more than 120 deg C: Please refer Clause 8.8 (sub-Clause 8.8.4)

(e) 8½" Phase: Please refer Clause 8.8 (sub-Clause 8.8.5)

(f) 6" Drain hole Phase: Please refer Clause 8.8 (sub-Clause 8.8.6)

8.4.3 COMPOSITION OF DRILLING FLUIDS FOR Loc: OAWB

(a) 36"/26" Phase: Please refer Clause 8.8 (sub-Clause 8.8.1

(b) 17 ½" Phase: Please refer Clause 8.8 (sub-Clause 8.8.2)

(c) 12 ¼" Phase: BHT less than 120DegC: Please refer Clause 8.8 (sub-Clause 8.8.3)

(d) 12 1/4" Phase: BHT: more than 120 deg C: Please refer Clause 8.8 (sub-Clause 8.8.4)

8.5 DRILLING FLUID WEIGHT (PPG) SECTION WISE (OAEA, OAEB & OAWB)

Depending on the formation pressure and well bore conditions, the mud weight may be changed. However, the generalized mud weight may be maintained as per the following section.

Section	36"/26"	17 ½"	12 ¼"	8 ½"	Drain Hole * (6" / 8½")	Well Name
Mud Wt. (ppg)	Sea Water	10	11	12	12	**OAEA & OAEB**
Mud Wt. (ppg)	Sea Water	10	11	N/A	N/A	**OAWB**

8.6 PROPERTIES OF DRILLING FLUID SECTION WISE – (OAEA, OAEB & OAWB)

WELL NAME	36"/26"	17 ½"	12 ¼"	8 ½"	Drain Hole (6")
OAEA OAEB	HIVIS SWEEP 40-50 sec	MF Visc:50-60sec, pH:9-9.5, W/Loss: In Clay:20cc (max) In shale:08–12 cc.	MF Visc:45 - 55 sec; pH – 9 – 9.0 W/Loss: 6-10 cc; PV: 12 -22, YP: 20 - 40, Solid: 9- 16% and Gels: 8-12 / 15-30 KCl & Polyamine: As per well requirement	MF Visc :50-55sec; pH: 9-9.5 W/Loss: 6 –8 cc; PV: 8 -12, YP:15-20, Solid: 6-8% and Gels: 8-12 / 15-20. KCl & Polyamine with NDDF Chemicals as per well requirement	MF Visc: 50-60sec; pH: 8.5 – 9.0 W/Loss: 4 –6 cc; PV: 8– 12, YP: 20 -25, Solid: 2-4% and Gels: 8-12 / 15-20 KCl & Polyamine with NDDF chemicals as per well requirement

OAWB	HIVIS SWEEP 40-50 sec	MF Visc:50-60sec, pH:9-9.5, W/Loss: In Clay:20cc (max) In shale:08–12 cc.	MF Visc:45 - 55 sec; pH – 9 – 9.0 W/Loss: 6-10 cc ; PV: 12 -22, YP: 20 - 40, Solid: 9- 16% and Gels: 8-12 / 15-30 KCl & Polyamine: As per well requirement	N/A	N/A

8.7 VOLUME OF DRILLING FLUID SECTION WISE (US BBLS)

8.7.1 DRILLING FLUID VOLUME (OAEA)

Hole Section	Depth from (M)	Depth up to (M)	Calculated Hole volume (US BBL)	Margin%	Total Section Volume (US BBL)	Surface Volume (US BBL)	Total Section Volume (US BBL)
36” hole	330	380	206	400	824	1000	1824
26 " hole	330	800	1009	400	4036	1000	5036
17-1/2” hole	0	1300	1280	50	1920	1000	2920
12-1/4” hole	0	3020	1440	50	2161	1000	3161
8 1/2” hole	0	4280	1027	20	1233	800	2033

8.7.2 DRILLING FLUID VOLUME (OAEB)

Hole Section	Depth from (M)	Depth up to (M)	Calculated Hole volume (US BBL)	Margin %	Total Section Volume (US BBL)	Surface Volume (US BBL)	Total Section Volume (US BBL)
36” hole	400	450	329	400	1316	1000	2316
26 " hole	400	920	966	400	3864	1000	4864
17-1/2” hole	0	1220	1280	50	1920	1000	2920
12-1/4” hole	0	3020	1440	50	2160	1000	3160
8 1/2” hole	0	4280	1027	20	1233	800	2033

8.7.3 DRILLING FLUID VOLUME (OAWB)

Hole Section	Depth from (M)	Depth up to (M)	Calculated Hole volume (US BBL)	Margin%	Total Section Volume (US BBL)	Surface Volume (US BBL)	Total Section Volume (US BBL)
36” hole	123	173	206	400	824	1000	1824
26 " hole	123	620	1067	400	4268	1000	5268
17-1/2” hole	0	1520	1628	50	2442	1000	3442
12-1/4” hole	0	3030	1436	50	2154	800	2954

Note:

(i) The section wise drilling fluid volume is purely hole volume with respective %age margin + surface tank volume (No losses have been taken into consideration).

(ii) The Drilling Fluid parameters are only indicative and shall be maintained as per requirement of down hole conditions for the drilling of a good quality well bore.

(iii) Contractor shall also indicate treatment for cement contaminated mud, carvings, hole pack off, differential sticking, hole erosion and any other drilling fluid related problems.

8.8 COMPANY'S PREFERRED MUD PARAMETERS

(a) Mud parameters given below are for the performance of the system in the laboratory and for evaluation purpose of various Bidders.

(b) Doses of chemicals in various mud formulations have been defined below to avoid any misinterpretation.

(c) Minimum doses of chemicals which affect the desired parameters are specified, however, there is freedom to use higher dose to achieve the parameters.

(d) Doses of chemicals which do not affect specified mud parameters in lab evaluation, but have an affect in field for hole stability, lubricity etc. may be incorporated in mud design and formulation.

(e) Use of Starch / Modified starch and any other chemicals listed in the NIT can be used in mud system.

(f) KCl-PHPA-POLYAMINE-POLYMER mud system for 12.25" hole sections should be a clay free mud system.

(g) KCl-POLYAMINE-POLYMER mud system with NDDF chemicals for 8 ½" hole & 6" slim hole sections should be a clay free mud system without PHPA.

(h) Laboratory doses may differ from field due to nature of formation & drill water quality.

8.8.1 SPUD MUD/HIGH VIS SWEEP FOR 36" / 26" HOLE SECTION : FOR Loc: OAEA, OAEB & OAWB

Tentative Chemicals required for Spud Mud		
Bentonite	35 ppb	
Caustic soda	0.05 ppb	
Soda ash	0.05 ppb	
HEC-Sweep/Guargum Sweep/CMC(HVG)sweep	1.5ppb	

8.8.2 17½" Hole Section: FOR Loc: OAEA, OAEB & OAWB
BENTONITE GEL - POLYMER MUD SYSTEM

Fluid Properties	Parameters	
Mud Weight(ppg)	10±0.1	
API F/Loss ml	10ml (MAX)	
PV (cps)	25(MAX)	
YP (lbs/100^{2}ft)	20-40	
Gel $_{0/10}$(lbs/100^{2}ft)	5-10/8-16	
pH	8.5-9.5	
Tentative Chemicals required for BENTONITE GEL- POLYMER MUD SYSTEM for 17½" Hole Section		
PAC –LVG	0.5 ppb (Min.)	

PAC-RG	0.4 ppb (Min.)	
Bentonite	35ppb(max.)	
Xanthan Gum	0.5 ppb (min)	
Barite (API Grade.4.10 density or above)	As per requirement	
Caustic soda	As per requirement	
Soda Ash	As per requirement	
Drilling Detergent	As per requirement	
Linseed Oil	As per requirement	
Biocide	As per requirement	
Any other Chemical	As per requirement	

8.8.3 12¼" Hole Section: FOR Loc: OAEA, OAEB & OAWB
KCl-PHPA–POLY AMINE - POLYMER MUD SYSTEM When BHT≤ 120DegC

Fluid Properties	Parameters	
Mud Weight(ppg)	11±0.1	
API F/Loss ml	10.0 ml (Max)	
PV (cps)	25(Max)	
YP (lbs/100^{2}ft)	20-35	
Gel $_{0/10}$(lbs/100^{2}ft)	5-10/8-16	
pH	8.5-9.5	
Tentative Chemicals required for KCl-PHPA–POLY AMINE- POLYMER MUD SYSTEM (clay free) for 12¼" Hole Section (BHT≤ 120DegC)		
KCl	35 ppb (Fixed)	
Polyamine	7-8ppb	
PHPA	1.2 ppb (Min)	
PAC -LVG	1.0 ppb (Min.)	
PAC-RG	0.5 ppb (Min)	
Xanthan Gum	0.5 ppb (min.)	
Barite	As per requirement	
Caustic soda	As per requirement	
Soda Ash	As per requirement	
Sulphonated Asphalt	3.5 ppb (Min.)	
Oxygen Scavenger	0.1 ppb (Min.)	
Biocide	As per requirement	
Caustic Potash	As per requirement	
Drilling Detergent	As per requirement	
Linseed Oil	As per requirement	
Any other Chemical	As per requirement	

8.8.4 12¼" Hole Section: FOR Loc: OAEA, OAEB & OAWB

KCl-PHPA–POLY AMINE - POLYMER MUD SYSTEM When BHT≥ 120DegC.

Fluid Properties	Parameters	
Mud Weight(ppg)	11±0.1	
API F/Loss ml	10ml(Max)	
PV (cps)	25(Max)	
YP (lbs/100^{2}ft)	20-35	

Gel $_{0/10}$(lbs/100^{2}ft)	5-10/8-16	
pH	8.5-9.5	
Tentative Chemicals required for KCl-PHPA–POLY AMINE- POLYMER MUD SYSTEM (clay free) for 12¼" Hole Section (BHT ≥ 120DegC)		
KCl	35 ppb (Fixed)	
Polyamine	7-8ppb	
PHPA	1.2 ppb (Min)	
HPHT Polymeric Deflocculant	0.1ppb (Min)	
PAC-RG	0.5 ppb (Min)	
Calcium carbonate	20 ppb	
Xanthan Gum XC Polymer	0.5 ppb (min.)	
Barite (API grade 4.10 density or above)	As per requirement	
Caustic soda	As per requirement	
Soda Ash	As per requirement	
Sulphonated Asphalt	3.5 ppb (Min.)	
Oxygen Scavenger	0.2ppb (Min.)	
Biocide	As per requirement	
Caustic Potash	As per requirement	
EP-Lubricant	As per requirement	
Linseed Oil	As per requirement	
Any other Chemical	As per requirement	

8.8.5 8½"/6" Hole Section: FOR Loc: OAEA & OAEB

Fluid Properties	Parameters
Mud Weight(ppg)	12±0.1
API F/Loss ml	≤8.0 ml
PV (cps)	25(Max)
YP (lbs/100^{2}ft)	20-35
Gel $_{0/10}$(lbs/100^{2}ft)	5-10/8-16
pH	8.5-9.0
Tentative Chemical required for KCl-POLY AMINE - POLYMER MUD SYSTEM (clay free) for 8½"/6" Hole Section	
KCl	35 ppb (Fixed)
Polyamine	7-8ppb
PAC-RG	0.5 ppb (Min)
Calcium carbonate	30 ppb (Max)
Xanthan Gum Bio Polymer	0.5 ppb (min.)
Barite (API Gd. 4.10 density or above)	As per requirement
Caustic soda	As per requirement
Soda Ash	As per requirement
Sulphonated Asphalt	3.5 ppb (Min.)
Oxygen Scavenger	0.2 ppb (Min.)
Corrosion Inhibitor	As per requirement
Biocide	As per requirement
Caustic Potash	As per requirement
FLC-2000	As per requirement

Any other Chemical	As per requirement

(KCl-POLY AMINE - POLYMER MUD SYSTEM WITH NDDF CHEMICALS) when BHT ≤ 120DegC

8.8.6. 8½"/6" Hole Section: FOR Loc: OAEA & OAEB

(KCl-POLY AMINE - POLYMER MUD SYSTEM WITH NDDF CHEMICALS) when BHT ≥120DegC

Fluid Properties	Parameters
Mud Weight(ppg)	12±0.1
HPHT F/Loss @100degc/500psi (ml)	10.0 ml (Max)
PV (cps)	ALAP
Gel $_{0/10}$(lbs/100^{2}ft)	6-12/10-25
pH	8.5-9.0
Tentative Chemical required for KCl-POLY AMINE - POLYMER MUD SYSTEM (clay free) for 8½"/6" Hole Section	
KCl	35 ppb(Fixed)
HT SHALE STABILIZER I. Key additive II. Optional additive	Total 3.5 ppb (Min)
HT VISCOSIFIER I. Key additive II. Optional additive	3.5 ppb (Min.)
HT Polymeric Deflocculant I. Key additive II. Optional additive	3.5 ppb (Min.)
HT Polymeric Fluid Loss Additive I. Key additive II. Optional additive	3.5 ppb (Min.)
HT Lubricant I. Key additive/ re-silent Graphite II. Optional additive	0.5 ppb (Min.)
Caustic Soda	As per requirement
Soda Ash	As per requirement
Barite (API Gd. 4.10 density or above)	As per requirement
HT oxygen Scavenger	0.2 ppb (Minimum)
Corrosion inhibitor	As per requirement
Micronized Calcium Carbonate (Bridging agent)	30 ppb (max)
FLC-2000	As per requirement
Any other Chemical	As per requirement

NOTES:

(i) Formulation should be free from Natural Lignite/Chrome Lignite/Chrome lignosulphonate.

(ii) Contractor can use two types of Viscosities, Deflocculant & Fluid loss additive to achieve Mud parameters if required.

(iii) Shale stabilizer should be either polymeric or Sulphonated asphalt based.

(iv) The concentration of Calcium carbonate, if required in the formulation, it would be fixed at 20 ppb and maximum concentration would be 30ppb in Polymer mud system in 12.25" and 8.5"/ 6" hole section. The size of Calcium carbonate used would be less than100Micron.

(v) % age of solid will be W/V and liquid will be V/V.

(vi) Formulation of 12.25" hole is based on KCl-PHPA–POLYAMINE MUD SYSTEM and should be bentonite free.

(vii) Formulation of 8.5" hole & 6" slim hole is based on KCl-–POLYAMINE MUD SYSTEM with NDDF Chemicals and should be bentonite free

(vii) The chemical doses mentioned against each section of drilling are indicative only. However, it may vary in actual downhole condition during drilling the wells.

9.0 COMPLETION FLUID:

The Contractor is required to provide selected completion fluids i.e Brine or/and Brine-Chemicals or both (In case of CaBr2 or Blended CaCl2-CaBr2 brine, bidder shall supply the brine in IBC) within 45 days' notice period given by OIL in writing prior to commencement of well testing. The requirement of following brines/Brine Chemicals would be based on the formation pressure and temperature of each well.

- KCl salt for preparing brine upto 9.5 ppg.
- Sodium Chloride Salt for preparing brine upto 10 ppg.
- Calcium Chloride Chemical for preparing brine upto 11.4 ppg.
- Sodium Chloride-Sodium Bromide Brine up to 12ppg
- Sodium/Potassium formate salt for preparing brine up to 13.1 ppg
- Calcium Bromide Brine in IBC of density14.2 ppg
- Calcium Chloride-Calcium Bromide brine in IBC of density 15ppg

10.0 FILTRATION UNIT:

Provision to be kept by the Bidder / Contractor for supply of Dual pod Brine filtration unit (Duplex with cartridge) on call out basis along with personnel. The specification of Dual pod Brine filtration unit (Duplex with cartridge) are as below:

(a) Bag type Filter unit – for upstream coarse filtration.
(b) Cartridge type filter unit for filtration brine up to 2 microns.
(c) Filter Housing- Designed as per ASME Sec VII Division I
(d) Vessel material- Stainless Steel 316 grade
(e) Swing type eye bolts along with davit pipe help easy opening of the filter housing for quick changing of filter cartridge
(f) Filter Media - Polypropylene pleated cartridge
(g) Construction- 304/316 Stainless Steel constructions, 10-18 bbl/min/vessel flow capacity approx., 52 pleated PP cartridges per vessels, 78 Sq. m (840 Sq. ft) filtration area per vessel.
(h) 4" inlet/outlet Series & Parallel piping work suitable for 10 bar operation
(i) **Dimension –** Approx. 2.75m/1.3m/2.35m height/1900 kg

10.1 Tentative Consumable for filtration unit: (bags & cartridge as given below).

The consumables mentioned below are indicative only. Contractor to maintain enough consumables so that operations are not hampered.

(a) Filter bag type 40 Micron - 400 no
(b) Filter Bag type 25 Micron – 400 no.
(c) Filter Cartridge Type 10 Microns – 500 no.
(d) Filter Cartridge Type 5 Microns – 500 no.
(e) Filter Cartridge Type 2 Micron - 200 no.

11.0 TESTING FLUID:

The following brine, brine chemicals or combination of both brine/ Brine Chemicals are provisioned tentatively during well testing in 3 nos. of wells. Therefore, the contractor shall supply selected Brine/Brine Chemicals accordingly based on each well requirement within 45 days' notice period given by OIL in writing prior to commencement of well testing.

Brine/Brine Chemicals with minimum purity %
Potassium Chloride (97% purity)
Sodium Chloride (96%purity)
Sodium Bromide (95%purity)
Calcium Chloride (95% purity)
Sodium Formate (96%purity)
Potassium Formate (95% purity)
Calcium Bromide (91.5% purity)
Calcium Bromide Brine in IBCs (14.2ppg)
Calcium Chloride-Calcium Bromide in IBCs (15 ppg)

12.0 LOSS CIRCULATION MATERIALS (LCM):

The Contractor is required to maintain the following generic lost circulation material to be used at different loss rates. The following chemicals may be used for arresting losses if incurred:

(a) Conventional LCM including Fibrous, granular and flaky material:
(b) Flaky and sized $CaCO_3$
(c) Resilient Graphite
(d) System LCM, FLC-2000 equivalent.

13.0 LIST AND QUANTITIES OF CHEMICALS:

The following chemicals should be stocked in Contractor's Base at Port Blair in staggered manner and transferred to OIL's shore-based facility at Port Blair as per operational requirement at his own cost. The estimated quantities mentioned below will be considered for evaluation. However, the payment will be made on an actual consumption basis. At the end of the contract period, Contractor must take back the left over/unused chemicals and additives after completion of Contract from OIL's Shore Base at Port Blair.

Sl. No.	Name of Chemicals	Brand name of Chemical	Total Quantity of Chemicals projected for Loc# OAEA, Loc# OAEB & Loc# OAWB	Unit
1	Bentonite (1 MT PER Jumbo Bag)		120	MT
2	Caustic Potash (95% purity)		5000	KG
3	Caustic soda (Purity 95% min)		5000	KG
4	Soda ash (Purity 98.5% min)		5000	KG
5	Barite (API Gd. 4.10 density or above) - (1MT/1.5 MT per Jumbo Bag)		1500	MT
6	Polyol		1000	LITRE
7	Poly Amine		100000	LITRE
8	KCl (Purity 97% Min)		325000	KG

9	PHPA		35000	LITRE
10	PAC –LVG		13000	KG
11	PAC-RG		20000	KG
12	Calcium Carbonate (Purity 93% minimum)		230000	KG
13	Xanthan Gum Bio Polymer		15000	KG
14	Sulphonated Asphalt		32000	KG
15	Oxygen Scavenger		3000	KG
16	HT SHALE STABILIZER i. Key additive		7000	KG
17	HT SHALE STABILIZER ii. Optional additive		7000	KG
18	HT VISCOSIFIER i. Key additive		7000	KG
19	HT VISCOSIFIER ii. Optional additive		7000	KG
20	HT Polymeric Deflocculant i. Key additive		7000	KG
21	HT Polymeric Deflocculant ii. Optional additive		7000	KG
22	HT Polymeric Fluid Loss Additive i. Key additive		7000	KG
23	HT Polymeric Fluid Loss Additive ii. Optional additive		7000	KG
24	HT Lubricant (Key Additive/resilient graphite)		10000	KG
25	HT Lubricant ii. EP Lube/Radia Green		7500	LITRE
26	HT oxygen Scavenger		1000	KG
27	Linseed Oil		10000	LITRE
Contingency/Specialty Chemicals				
1	Biocide (Formalin)		5000	LITRE
2	Drilling Detergent		5000	LITRE
3	Resinex/ Resinated Lignite		10000	KG
4	Piplex		5000	LITRE
5	Mica		5000	KG
6	Saw dust		5000	KG
7	Jel Flakes		5000	KG
8	Walnut shell		5000	KG
9	SAPP		1000	KG
10	Teepol		1000	LITRE
11	Lime		4000	KG
12	Defoamer (Octyl alcohol)		3000	LITRE
13	Citric Acid		10000	KG
14	Modified Starch		5000	KG

15	Zinc Carbonate		5000	KG
16	Guargum		5000	KG
17	Starch		5000	KG
18	OXYGEN SCAVENGER		1200	KG
19	Poly Amine		5000	LITRE
20	Hydroxy Ethyl Cellulose (HEC)		10000	KG
21	FLC-2000		10000	KG
22	Well clean up chemical package		500	BBL
23	Defoamer (Silicone based)		3000	KG
24	CMC (Extreme High Viscosity in Sea Water)		2000	KG
25	Monoethylene Glycol		1000	LITRE
26	Sodium Silicate		5000	LITRE
27	Clarified Xanthan Gum (High temperature)		5000	KG
28	Monoethaolamine e.g PTS 200		5000	KG
29	Kwikseal (F,M,C) equivalent		3000	KG
30	Corrosion inhibitor Mud		2000	KG
31	Magnesium Oxide		2000	KG
Completion Chemicals for 6000 (US) BBLS brine				
1	Calcium Chloride (95% Purity-Minimum)		500	MT
2	Sodium Chloride (96%Purity Minimum)		300	MT
3	Sodium Formate (96% Purity minimum)		450	MT
4	Potassium Formate (95%Purity minimum)		1100	MT
5	CaBr2 (91.5% Purity)		50	MT
6	Sodium Bromide (95% Purity minimum)		500	MT
7	KCl (97%Purity -minimum)		230	MT
8	CaBr2 Brine in IBCs(14.2ppg)		6000	BBL(US)
9	CaCl2-CaBr2 Blended Brine in IBCs(15ppg)		6000	BBL(US)
10	Corrosion Inhibitor (Chloride Base)		5000	LITRE
11	Corrosion Inhibitor (Amine Base)		5000	LITRE

14.0 MUD LABORATORY EQUIPMENT ON RIG

Contractor shall provide Mud Laboratory, complete Drilling fluid testing equipment, chemicals / reagents glassware and consumables as per Annexure-1 for testing of mud as per API standards as well as for estimating the concentrations of KCl, Amine and PHPA.

15.0 DUTIES AND POWER / AUTHORITY:

15.1 Company's Site Representative:

The duties and authorities of Company's site representative are to act on behalf of Company for:

i) Overall supervision, co-ordination, and Project Management at site
ii) Proper and optimum utilization of equipment and services.
iii) Monitoring of performance and progress.
iv) Accepting of reports made by the Contractor's representative at site in respect of works, receipts, consumption etc. after satisfying himself with the facts of the respective cases.
v) He shall have the authority, but not obligation always and any time to inspect/test/examine/verify any equipment machinery, instruments, tools, materials, personnel, procedures and reports etc. directly or indirectly pertaining to the execution of the work. However, this shall not construe to imply an acceptance by the inspector. Hence, the overall responsibility of quality of work shall rest solely with the Contractor.
vi) Each and every document emerging from site in support of any claim by the Contractor must have the countersignature/comments of the Company's representative without which it shall not be entertained by Company.

15.2 Contractor's representative:

i) The Contractor's representative shall have all the powers requisite for the performance of the Service/Works, subject to holding due authorization from the Contractor.

ii) Contractor's representative(s) shall liaise with Company's representative for the proper coordination and timely completion of the works and on any matter pertaining to the works.

iii) Contractor's representative(s) shall extend full co-operation to Company's representative/inspector in the manner required by them for supervision/inspection/observation of equipment, material, procedures, performance, reports, and records pertaining to works.

iv) To have complete charge of Contractor's personnel engaged in the performance of the work and to ensure compliance of rules and regulations and safety practice.

16.0 PERSONNEL TO BE DEPLOYED BY CONTRACTOR:

Contractor warrants that it shall provide competent, qualified and sufficiently experienced personnel to perform the work correctly and efficiently.

16.1 The Contractor should ensure that their personnel observe all statutory safety requirements including those prescribed by the Company. Upon Company's written request, Contractor, entirely at its own expense, shall remove immediately any personnel of the Contractor determined by the Company to be unsuitable and shall promptly replace such personnel with personnel acceptable to the Company. The Contractor shall remove and replace such employees at their expense within 15 days if replaced by National Crew and 30 days if replaced by Expatriate from the time of such instruction given by the Company. If no replacement has been provided within this time the Company shall reduce the daily rate by the amount specified for this category under Clause No: 7.0 of SCC (Part-3, Section-III of tender document) until such replacement has been provided.

16.2 The Contractor shall be solely responsible throughout the period of the Contract for providing all requirements of their personnel including but not limited to, their transportation to & fro from helicopter base at Port Blair, enroute/local boarding, lodging, personal protective gear & medical attention etc. Company shall have no responsibility or liability in this regard.

16.3 Contractor's personnel shall be fluent in English language (both writing and speaking).

16.4 The Contractor shall (if required by the Company) provide the following Personnel to perform mud engineering services at the drilling location:

(a) Mud Specialist(s)/Mud Engineer(s), National or Expatriate, who are familiar with the proposed mud systems. The Personnel should also have experience specific to the area or be experienced in deep water drilling areas prone to overpressure, lost circulation and reactive clays.

(b) In addition, the following Personnel shall be provided at the Contractors cost in Port Blair, Andaman & Nicobar Islands to perform various administrative duties and to liaise with the Company:

(i) Operations Co-ordinator.
(ii) Administrative and Logistics Support Staff as needed.

(c) The working schedule of the Contractors personnel at the drilling location shall be on rotational basis unless otherwise agreed by the Company in advance. All Personnel shall be on 24-hour call whilst at the drilling location unless otherwise advised by the company.

(d) The Contractor shall provide appropriate Personal Protective Equipment (PPE) and work clothing for all its Personnel at the drilling location. The Company requires that all personnel at the drilling location should be furnished as a minimum with:

(i) safety helmet
(ii) safety footwear (steel-toecap)
(iii) work clothes (suit or coverall)
(iv) protective gloves
(v) hearing protection
(vi) eye protection

(e) The Contractor shall be solely responsible for all transportation of its personnel to and from the airport or base location designated by Company. Transportation of Contractor's personnel between the drilling location and Company designated airport or base location, shall be the responsibility of the company.

(f) Personnel supplied by the contractor must be approved by the Company in writing prior to the commencement of the contract.

(g) The Contractor shall submit detailed curriculum vitae for all personnel proposed for the contract.

(h) Personnel must be fully experienced in monitoring and maintaining the proposed drilling mud under all the anticipated drilling conditions at the drilling location.

(i) Personnel will continuously monitor MUD CHEMICAL concentrations and discharges and their potential environmental impact.

(j) Personnel will continuously monitor mud properties, treatments, pit and hole volumes, mud losses to hole and at surface, mud losses to solids control equipment, and report these on a Daily Mud Report or when requested by the Company.

(k) Personnel will monitor and endeavour to optimise all solids-control equipment operating efficiencies. They shall also ensure that all necessary and appropriate spares and consumables are available and advise the Company representative(s) of any deficiencies.

(l) The Company shall be entitled to designate a Company representative at the drilling location who shall at all times have access for the purpose of observing mud tests, evaluating the engineering services performed by the Contractor or verifying the record of items furnished by the Contractor. Such Company representative(s) shall be empowered to act for the Company in all matters relating to the Contractors operational performance under the CONTRACT.

16.5 Contractor shall submit to Company the resume of the personnel, for its approval, to be deployed showing the technical qualifications, training and mud engineering related experience as per the format given below. The Company reserves the right to accept or reject any personnel proposed by the Contractor. The contractor shall submit CVs of the above personnel to the company within 30 days of issue of letter of award or 45 days prior to commencement of contract (whichever later) for-Company's approval. The Contractor shall not deploy its personnel unless cleared by the Company.

NAME :
NATIONALITY :
DATE AND PLACE OF BIRTH :
PASSPORT NO AND VALIDITY :
(Wherever applicable)
POSITION :
QUALIFICATIONS :
TRAINING :
WORKING EXPERIENCE* :
*(Experience in KCl/K2SO4-Poly amine mud system in offshore wells):
NUMBER OF WELLS WITH DETAILS:

Note: Indian laws require all foreign nationals to have a Business Visa (work permit) to work in the country. Also, there are restrictions on citizens of certain countries being able to work Offshore. Contractors are advised to check-up with the concerned authorities prior to selecting their crew personnel.

17.0 SERVICES TO BE FURNISHED BY THE COMPANY:

The following services shall be provided by the Company at no cost to the Contractor:

(i) All transportation of the Contractors PERSONNEL between the Company drilling location and Company designated airport or shore base.
(ii) Labour and equipment for loading, unloading and mixing the Contractors MUD CHEMICALS, Equipment and Supplies at the Drilling Location.
(iii) Accommodation, meals, housekeeping services and supplies at the DRILLING LOCATION for the Contractors' PERSONNEL.
(iv) First Aid and other emergency medical aid for the Contractors' PERSONNEL at the DRILLING LOCATION to the same extent as furnished to the COMPANY'S own employees.

18.0 TECHNICAL SUPPORT

The following technical support shall be provided by the Contractor as and when required, free of cost**.** This will include but not be limited to:

(i) Testing and analysis of chemicals and bulk, in line with API and other current specifications and provide detailed results of tests if required.
(ii) Pilot test / fully test mud properties based on suggestions from Company.

(iii) Test clay and other formations samples supplied by the Company against specified mud types and chemicals for compatibility of drilling fluid to formation type.

(iv) Recommend improvements to or to the mud system being proposed or used, based on information gained from Company and other parties. This may include suggestions for the use of additional or alternative products (where approved).

ANNEXURE-1

LISTS OF LABORATORY EQUIPMENT FOR WATER BASED DRILLING FLUID

TABLE-1

Sl. No.	Items	Qty.
1	Fann VG Meter 6 speed	2
2	API Filter Press	1
3	Marsh Funnel with Cup	4
4	API Mud Balance with Mud Cup	4
5	API Sand Content Apparatus	2
6	Hamilton Beach Mixer	2
7	Oil Water Retort Kit	1
8	Mud Filtrate Test Kit	1
9	Methylene Blue Test Kit	1
10	Glass Thermometer (50-500 degrees F.)	3
11	Hot Plate	1
12	pH Meter and pH strips	2pH Meter & 10 packets of pH Strips
13	Lubricity tester	1
14	Pressurized Mud Balance	1
15	Glycol/Polyol testing apparatus for cloud point and concentration determination in mud.	1
16	Polyamine testing Apparatus with reagents for determination of Amine concentration in mud	1
17	PHPA testing apparatus with reagent for determination of PHPA concentration in mud	1
18	Nephelometric Turbidity Unit (NTU) meter for turbidity test of brine	1
19	K+ ion Concentration test apparatus	1
20	Glassware, Reagents, Distilled water	As per Requirement
21	Hatch test apparatus for H2S with accessories	1
22	Glucometer for determination of glycol 5	1
23	Hydrometers (complete set)	1
24	HTHP Filtration Press c/w paper and accessories	1
25	Testing kit for Polyamine	

NOTE:

Contractor shall make available to Company in as much as it is not constrained by agreements of confidentiality, details of any ongoing research and development activities that it is undertaking, and which may be relevant to the company's operation.

LABORATORY EQUIPMENT / REAGENTS / GLASSWARE TO BE MAINTAINED AT RIG

TABLE-2

Chemicals and Reagents	Quantity
Distilled Water	25 litres
Buffer Solution pH 4.0	250 cc
Buffer Solution pH 7.0	250 cc
Buffer Solution pH 10.0	250 cc
Defoamer	100 cc
Sulphuric Acid 0.02N	3 x 500 cc
Sulphuric Acid 0.1N	500 cc
Sulphuric Acid 5N	500 cc
Hydrochloric Acid 0.1N	250 cc
Phenolphthalein Indicator	100 cc
Thymolphthalein Indictor	100 cc
Methyl orange Indicator	100 cc
Silver Nitrate Solution (dark bottles) 0.282N	3 x 500 cc
Silver Nitrate Solution (dark bottles) 0.0282N	3 x 500 cc
Potassium Chromate Indicator	100 cc
EDTA-Solution 0.02N	2 x 250 cc
Sodium Hydroxide Solution 0.1N	2 x 250 cc
Sodium Hydroxide Solution 1N	3 x 500 cc
Calver II Indicator (calcium)	250 g
Cresol Red Indicator	100 cc
Sodium Perchlorate Solution (150g/100cm3 H2O)	500 cc
Standard Potassium Chloride Solution	100 cc
Stannic Chloride 0.5M	100 cc
Hardness Indicator Solution	100 cc
Hardness Buffer Solution	250 cc
Methylene Blue Indicator	2 x 500 cc
Hydrogen Peroxide 3%	2 x 500 cc
Xylene	5 litres
IPA	5 litres
Bromo Cresol Green	100 ml
Any other reagents required during testing for Amine, PHPA and KCl concentration	

LISTS OF GLASSWARES

TABLE-3

Glassware	Quantity
Graduated Cylinders (10 ml & 25 ml)	5 each
Graduated Cylinders (50 ml)	2
Graduated Cylinders (250 ml & 500 ml)	1
Volumetric Pipettes (0.5, 1, 2, 5, 10 ml)	5 each
Graduated Pipettes (1, 2, 5, 10 ml)	5 each
Syringes (1, 2, 5, 10)	10 each
Volumetric Flasks (100, 250, 500 ml)	2 each
Beakers/Erlenmeyer (250, 400, 500 ml)	2 each
Storage Bottles (white)	2 each

Glassware	Quantity
Storage Bottles (Brown)	2 each
Titration Vessel (150 ml)	4
Spray Bottles – for distilled water (500 ml)	3
Dropper Bottles (50 & 100 ml)	4
Winchester bottles	As required
Jerry Cans- 5 lts.	As required

REFERENCE LABORATORY FOR TESTING DRILLING FLUID AND DRILLING FLUID FORMULATION

TABLE-4

S. No	DRILLING FLUID SYSTEM	REFERENCE LABORATORY FOR TESTING DRILLING FLUID AND DRILLING FLUID FORMULATION
1	Lightly Treated Drilling Fluid Mud System	Bidder's own laboratory or IDT,ONGCL,Dehradun
2	KCL-PHPA-POLYAMINE-POLYMER Mud System	
3	HPHT Polymeric Mud System	

ANNEXURE-2

SCHEDULE OF RESPONSIBILITY FOR MATERIALS AND SERVICES

DESCRIPTION	PROVIDED BY		AT COST OF	
	Contractor	Company	Contractor	Company
1. Transportation of chemicals up to OIL's Shore Base at Port Blair	X		X	
2. Transportation of chemicals from OIL's Shore Base at Port Blair to the Drilling Location		X		X
3. Provide access to utilize the Rig equipment required for preparation of drilling fluids.		X		X
4. Manpower required for assisting in preparation and handling of drilling fluids: a) Mud Engineers b) Operations Co-ordinator. c) Administrative and Logistics Support Staff	X		X	
d) Roustabouts		X		X
5. Transportation of Contractor's personnel from Heli base to rig and back		X		X
6. Laboratory equipment Required on rig for Determination of mud Parameters	X		X	
7. Accommodation of Contractor's personnel on Rig		X		X
8. Accommodation of Contractor's personnel on Shore	X		X	

DRILL BITS

1.0 Attached to this document are images that show the days versus depth for the three offset wells, together with the rate of penetration and d-exponent data.

The scope of supply will include but not be limited to:

A. Supply bits, nozzles, bit breaker and associated accessories for drilling, suspension, abandonment and/or completion of wells.
B. Provide proposal for bits on consignment basis for each well based on bit engineering and optimisation.

2.0 TECHNICAL PROPOSAL

a. Tenderers are required to submit the complete product range available with full technical specifications and features.
b. Tenderers are required to submit a proposal for bits based on the tentative well plan This will include (but not be limited to):
   i. • Bit and nozzle selection.
   ii. • Hydraulics recommendations.
   iii. • Economics calculations.
c. Tenderers are encouraged to consider carefully the well data provided, and based on their area experience, if any, to make recommendations. Equipment

Note:

(i) Tenderers will be required to supply the bits as indicated under Table-I. The bits will be supplied to the Company on consignment basis with no re-stocking charges if returned unused. Payment will be made on actual consumption.
(ii) However, the Company solely at its discretion may retain maximum two numbers of each size unused bits at the end of the Contract.

Table 1: COMPANY's Preferred Bits List

S.No	Bit Size	Bit Type	Remarks	Qty (each bit type)
A	26"	Roller Cone Milled tooth	IADC Code 1-1-1	3
B	17-1/2"	Roller Cone Milled Tooth and Roller Cone Insert	IADC Codes from 1-1-5 to 1-3-5, and from 4-1-5 to 4-3-7	2+2
	17-1/2"	Fixed Cutter (PDC) Bit (Matrix Body)	Recommended by the Contractor	1
C	12-1/4"	Roller Cone Milled Tooth and Roller Cone Insert	IADC codes 1-1-7 to 2-1-7 from 4-1-5 to 6-1-7	5+5
D	12-1/4"	Fixed Cutter (PDC) Bit (Matrix Body)	Recommended by the Contractor	5

E	8-1/2”	Roller Cone Milled Tooth and Roller Cone Insert	IADC Codes from 1-1-6 to 2-1-7 and 4-1-5 to 6-3-7	5+5
F	8-1/2”	Fixed Cutter (PDC) Bit (Matrix Body)	Recommended by the Contractor	5
G	6”	Roller Cone Milled Tooth	IADC Code 1-1-7, 1-3-5, 2-1-5 for liner cleanout.	2
H	6”	Fixed Cutter (PDC) Bit (Matrix Body)	Recommended by the Contractor	2

Note – Contractor to refer to the following notes for bits;

For the above sizes: Any other recommendations from the Contractor

Nozzles: The complete range of nozzles available for the bit sizes mentioned above. Below is some generic specification of the drill bits.

1) ROLLERCONE BITS – 26”, 17.1/2", 12.1/4", 8.1/2" & 6"

API MONOGRAM AS PER API SPEC.7-1

Minimum Krev of around 800 -1000 for 12.1/4" and 650 - 800 for 8.1/2"

Twin seal or Metallic seal Bearing package - 17.1/2", 12.1/4" & 8.1/2". Premium seal Bearing package for 6".

Centre jet feature to avoid bit balling - 17.1/2", 12.1/4" & 8.1/2".

Full tooth hard facing on each tooth (Cutting structure and gauge) - 17.1/2", 12.1/4", 8.1/2" & 6"

Raised tungsten carbide inserts on shirttail/arm and tungsten carbide inserts leg back protection - 17.1/2", 12.1/4", 8.1/2" & 6"

2) PDC BITS – 17.1/2”, 12.1/4", 8.1/2" & 6"

Matrix Body

Predominantly 19 mm cutters for 17.1/2", 19/16 mm cutters for 12.1/4", 16/13 mm cutters for 8.1/2" and 13mm cutters for 6"

New generation type premium PDC cutters with high thermal mechanical integrity

Gauge protection features (Thermally stable Diamond inserts on the gauge)

Low torque feature (Depth of cut control elements at every blade)

Low exposure cutter

Impact arrestors

Back reaming cutters on gauge pads on each blade

Spiral gauge pad

Sufficient Junk Slot area for proper hole cleaning

3.0 Personnel

Tenderers will be required to provide the following personnel:

A qualified, skilled and experienced Bit engineer in India at no cost to Company. The engineer shall provide bit engineering and optimisation as required by Company for each well in addition to assisting with logistics.

4.0 Reporting

The successful Contractor will be required to adhere to the following reporting requirements:

On receipt of drilling prognosis, to submit a bit proposal for each well including nozzles and hydraulics recommendation.

Availability of the proposed bits and nozzles in stock in India or in Middle East every fortnight.

5.0 Logistics

Company at its discretion may initially order all or in separate lots the bits, as deemed necessary, for the upcoming drilling campaign.

Contractors are required to mobilise all their bits, nozzles etc to the Company's designated Shore Base at Port Blair, Andaman & Nicobar Islands.

Contractor shall provide all necessary import documents for all bits supplied to Company.

Unused Bits of all sizes will be re-exported by the Contractor at the end of the Contract and intimate the Company accordingly.

6.0 Technical Support

The tenderer will be required to demonstrate product suitability by including (if appropriate) a list of current customers and contact names in the region.

The tenderer will be required to demonstrate adequate technical and logistic support to be able to work in India.

The tenderer will be required to demonstrate adequate QA/QC procedures/systems in their manufacturing processes and will be required to present material analysis/mill/test certification (in triplicate) for all material supplied.

The tenderers should supply details and location of their base facilities in the region - as pertains to the Company operation.

The successful Contractor will be required to nominate a contact reference in case of technical problems.

The contractor should be capable of providing technical assistance in selecting the right bit after each bit run. The contractor should also be capable of designing and manufacturing customized drill bits, if required, based on the performance in these formations.

All bits supplied must be new, less than 1 year old (from the date of issue of notice) and have an adequate shelf life for the duration of the project.

7.0 List of Vendors:

1. Smith/SLB
2. Baker Hughes
3. Halliburton
4. NOV
5. Ulterra

8.0 Delivery Point:

For Contractor: At Company's Shore Base, Port Blair, India on DDP (Port Blair) basis.

Delivery Schedule: The Goods covered in this document are to be delivery at the designated delivery point.

10. WELL TESTING SERVICES, SURFACE AND DOWNHOLE TOOLS

A. SCOPE OF WORK:

OIL seeks to hire Surface production testing (SPT), Tubing Conveyed Perforation (TCP), Drill Stem Testing, Well activation services & Slickline Services to undertake operations in 3 (Three) exploratory offshore drilling wells with an optional testing of another one exploratory drilling well in Andaman & Nicobar basin. The quantum of job may vary depending upon the result of wire line logs.

The Bidder shall provide complete Production Testing Surface equipment (along with accessories), Drill Stem Test equipment, Tubing Conveyed Perforation equipment and compatible X-overs suitable for well conditions along with operating crew to carrying out production testing of the offshore wells.

The details of Work / Services to be performed under the Contract are explained in the subsequent paragraphs.

1.0 A. SURFACE PRODUCTION TESTING (SPT) SERVICES:

The surface production testing equipment shall be capable of effectively deal with formation fluids produced during production testing. The production testing service shall consist of following:

a. Service of surface equipment like Flow head, choke manifold, oil and gas separator with oil and gas flow meter, pumps, heat exchangers, vertical surge tank, automatic remote controlled surface safety valves, adequate surface flow lines, flare stack, temperature/pressure and flow measurement, Data acquisition facilities, ESD systems, spares and any other materials required to perform production testing services with an objective to deliver the followings:

i) Flow rate data acquisition.
ii) Reservoir pressure & temperature survey and analysis
iii) Representative reservoir fluid collection and fluid sample analysis, compositional analysis and PVT analysis (Two PVT samples per Zone).
iv) Well deliverability, AOF-for gas wells, skin, permeability, reservoir boundaries (presence of faults, oil-water contacts) etc. Hydrocarbon In-place estimates.
v) Final Well Test Analysis Report preparation & submission.

b. Production Testing Manpower for (i) Pre Job planning and post job management (ii) Hydraulic testing (iii) Flow initialization and testing (iv) Operation and maintenance of surface equipment (v) Relief valve calibration (vi) Sample collection and analysis (vii) Trouble shooting and (viii) System Inspection (ix) Test data interpretation (x) preparation of daily & post operation reports and (xi) Any other services required to ensure standard international practices for Production Testing operation.

c. To rig up setup for Production Testing tool/equipment, piping line-up for flare pit/stack, equipment servicing and testing, spare part stock etc. at Company's well site.

d. Documentation to be provided may include but not limited to equipment certification, inventory report, recent pressure test chart, relief valve calibration report, P&I and lay out drawings, operating procedures and post job report.

e. Details of equipment & manpower to be deployed for well testing are enumerated under Annexure I & II respectively.

f. To flare produced hydrocarbons using burner booms & burner heads.

g. Any water production shall be routed overboard.

1.0 B. WELL ACTIVATION SERVICES

After perforation, if the well does not displace of its own, services of NITROGEN PUMPING UNIT (NPU) will be required to activate the well. The Bidder shall provide NPU services with all necessary equipment for well activation jobs at offshore Floater rig. The NPU service shall consist of the following:

a. Supply of suitable NPU with required spare parts, surface pipe fittings (including high pressure), and any other equipment/tools, materials required to provide unloading/well activation services.

b. Manpower for (i) job planning (ii) Rig up/down, operation & maintenance of the unit etc. (iii) Job evaluation (iv) Preparation of post job report and (iv) any other service required to ensure an efficient operation.

c. Operation & Maintenance of NPU.

1.0 C. TUBING CONVEYED PERFORATION SERVICES & DRILL STEM TESTING SERVICES

All the downhole sub-assemblies of the TCP-DST string should be rated to 10,000 psi WP and 300 deg F and should be NACE certified across all temperature ranges (i.e. 0 to 300° F). The DST tools should have OD 5" and ID 2.25" so as to be able to run in 7" and 9 5/8" liner / casings, tensile strength at min. yield should be 160-320 klbf. The Bidder must demonstrate that the critical sealing components of all tools are manufactured using Corrosion Resistant Material. All tools should have premium end connections without elastomers.

Bidder to provide fishing neck OD size if other than 5" to enable Operator to select the required fishing tool. The quantity per string indicated is the minimum number. If any Bidder indicates requirement of any addition, element / quantity in the string for performing the job the same be indicated which will be considered for evaluation.

Permitted variation in OD of DST +0.5"/-0.25". Packers shall have OD to match the casing size-weight. Permitted variation in ID of DST tools +0.5"/-0.1".

In order to meet the requirement of availability of DST tools all the time for successive tests that Bidder should keep one set of all tools as listed from S. No. 1-14 with mandatory back-ups (1 for 1). However, the payments shall be made for only one set of TCP-DST tool.

All the DST tools should be readily available for use all the time. No extra time shall be provided for redressing / repair of the tools between two successive tests.

2.0 GENERAL NOTES

a. Details of Tools/Equipment and their operational requirement are given in Annexure-I.

b. The Scope of Work under operation and maintenance of the equipment includes all that are required for safe, trouble-free and uninterrupted operation as per sound industry practices. The Bidder shall undertake operation and maintenance (O&M) of the equipment forthwith after supply and shall be responsible for arranging all resources including competent manpower as per requirements, its bye-laws & other legislations in force; employee insurance & benefits and all resources / facilities for continuous twenty four hour operations on shift basis**;** public liability insurance, routine & scheduled maintenance including running repairs and provisioning of relevant spares and consumables in relation thereto.

c. The Bidder shall maintain and preserve all records and documents relating to the performance of the Work mentioned in SOP and anything else that may reasonably be required to preserve for a period of two years from completion of this Contract.

3.0 SPECIAL NOTES

a. Supply of Tool/ Equipment/ Manpower/ Consumables required for ensuring trouble free efficient operation for the assigned services is the sole responsibility of the Bidder.

b. The tubing would be supplied by other vendor.

4-1/2" PH-6 tubing.
3-1/2" PH-6 tubing.

All x-overs required for above string to connect WT tools and equipment would be supplied by WT contractor.

c. The Bidder shall make themselves available for a joint discussion to formulate pre job planning after the award of Contract and prior to mobilization without any extra charge to OIL.

4.0 REFERENCE STANDARDS:

The total design and service shall be governed by the following reference standards wherever applicable –

1	API Spec 5CT	Specifications for tubulars and threads
2	API Spec 6A	Specifications for valves and wellhead equipment
3	API Spec RP 17B	Recommended practice for flexible pipes
4	API RP 44	Recommended practice for sampling petroleum reservoir fluids.
5	API RP 520	Recommended practice for sizing, selection and installation of pressure relieving devices.
6	API RP 521	Recommended practice for pressure relieving and de-pressuring systems
7	ASME-Section-VIII Divn. I and II	Rules for construction of pressure vessels
8	ANSI/ASME B 31.3	Chemical plant and petroleum refinery piping.
9	API RP 54	Recommended practice for Safety and health for oil & gas well drilling and servicing operation.
10	API spec 5L	Specifications for Oil & Gas pipeline
11	IRP-4	Industry Recommended Practices – Volume 4 (2012) for Well Testing and Fluid Handling
12	API RP 19B Section-1/RP-43	Recommended practice for well perforators

All International practices for equipment and personnel with respect to HSE standards needs to be strictly complied for deepwater operations.

5.0 PERSONNEL:

a. The Bidder shall provide competent personnel with requisite experience & qualifications as per the **Annexure-II** on a round-the clock basis. OIL reserves the right to decide for engagement of these personnel on the basis of verification of relevant documents prior to engagement.

b. The Bidder shall confirm along with their bid to submit the detailed biodata and supporting documents regarding academic qualification and experience of all the crew members to be deployed under the Contract as per Annexure-II, if awarded with the contract. The contractor shall submit CV of the personnels to the company within 30 days of issue of letter of award or 45 days prior to commencement of contract (whichever later) for-Company's approval. The Contractor shall not deploy its personnel unless cleared by the Company.

c. Personnel deployed should be conversant with relevant safety practices.

d. Personnel should have good working knowledge in English.

e. If the Bidder is unable to provide the personnel approved by the Company and seek for deployment of alternate personnel having requisite qualification and experience set forth in the Contract, the Bidder may do so by taking prior approval from Company. In the event of change of manpower, the Bidder shall provide proper justification along with supporting document to the satisfaction of Company.

f. The Well Test Coordinator shall head the team of Bidder's crew and shall carry out all the jobs in consultation with Company's representative. The Well Test Coordinator shall be the single point of contact between the Company and the Bidder and shall be responsible for working closely with the Company to apply the appropriate planning, design and execution to benefit both the Company and the Bidder by offering specific solutions to cater to requirements. He must be available at well-site round the clock.

g. DST / TCP Specialist, Testing Supervisor and Well Test coordinator must be available for the entire testing operation at the Drilling Rig.

h. The Bidder may replace their personnel during their due off/ leave provided equivalent category of personnel is deployed and subject to approval from Company on their credentials.

i. The Bidder shall ensure that all the personnel shall have a full medical examination in accordance with accepted medical standard prior to engagement. In Case of any medical emergency/treatment of Bidder's personnel's, the Bidder shall be responsible for their treatment i.e. all such treatment cost has to be borne by the Bidder.

j. Company reserves the right to disqualify a person in case of indiscipline, unfit due to medical reason, incompetence etc. to Work under the Contract.

k. Bidder may deploy additional personnel, if required, by taking prior approval from the Company. Such additional personnel shall be provided by the Bidder at their own cost.

6.0 RESIDUAL LIFE OF EQUIPMENT AND TOOLS:

The residual life of all the PTS, DST, NPU, Slickline and SSTT equipment shall not be less than 5 (Five) years as on the date the equipment were certified after the issue of LOA. The equipment should be certified by third-party certifying agencies like DNV/LLOYDS/BV etc. at the cost of the Contractor. All credentials such as manufacturing documents, linking serial nos. embossed on the equipment offered with detailed specifications, must be submitted at the time of on-hire survey.

7.0 BIDDER'S EXPERIENCE:

7.1 Well Testing Services

(a) The bidder should have minimum 5 years of experience in providing the SSTT and PTS Services to E&P companies/ Drilling companies including 3 years in offshore area and should have experience of at-least 02 deepwater wells (water depth >500m).

(b) Bidder should have executed at least one contract for the above services on a floater rig in the last 07 years to be reckoned from the Original Bid Closing Date.

7.2 TCP, Slickline & DST Services

(a) The bidder should have a minimum of 5 years of experience in providing the TCP, Slickline & DST operation to E&P companies/Drilling companies including 3 years on floater rigs and should have experience of at least 2 Wells on a floater rig.

(b) Bidder should have executed at least one Contract for above services on a floater rig in last 7 years to be reckoned from the Original Bid Closing Date.

Bidder shall provide following data for the offshore wells for which the Bidder has provided services:

1. Client name
2. Project / Field / Block name
3. Contract Duration / Project duration
4. Contract reference number/ well completion certificate

8.0 SAFETY, HEALTH AND ENVIRONMENT:

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

The Bidder is required to provide all its personnel with Personal Protective Equipment as per international practice, which may include, as appropriate, but without limitation the following:

a. Safety Helmet
b. 100% cotton or fireproof overalls
c. Safety Foot ware
d. Safety Goggles
e. Other PPE, including gloves. Safety goggles/visor, hearing protection, safety belts etc.

9.0 SUPPLY BASE:

The Bidder's onshore supply base should be equipped with all the facilities which may be required if the equipment / tools are required to be changed / serviced/ repaired and which cannot be done at the Drilling Unit. This requires good coordination between the Drilling rig and the Bidder base during Well Testing Services. All costs associated with establishing and running such a facility will be to the Bidder's account.

The transportation of their equipment / tools from and to their supply base to OIL's Shore Base at Port Blair is Service Provider's responsibility at their own cost.

10.0 TOOLS/EQUIPMENT/SPARES/CONSUMABLES:

The Bidder shall provide tools/equipment for the complete services. Such equipment & tools shall be safe for operation meeting HSE / Statutory requirements, effective and accurate to measure well test parameters and productivity. The Bidder shall keep sufficient back up tools and equipment, spares,

elastomers, redress kits, etc. in order to ensure uninterrupted services. An indicative list of tools and equipment are given as under. Any additional tools/equipment required to fulfil the scope of work but not covered in the list are also to be supplied by Bidder at no extra charge.

11.0 SUBSEA AND SURFACE EQUIPMENT FOR EACH WELL:

The details of the required Subsea Test Tree (SSTT) and Production Testing Surface (PTS) Equipment and accessories for EACH well OAEA, OAEB & OAWB suitable for 10000 PSI working pressure, sour service as per NACE (National Association of Corrosion Engineers) Specifications MR-01-75 (latest edition) are as under and must be suitable for well conditions. Following mentioned quantity is for one well the same quantity is required for second & third well.

The details of the required SSTT equipment and accessories, suitable for 10,000 psi working pressure, sour service as per NACE MR-0175 (Latest Applicable Edition) are as follows:

A.	**SUBSEA TEST TREE**	
Sl. No.	**Item**	**Qty**
1	SSTT assembly suitable for operation in water depth up to 500 meters	01 set + 01 set (Back up) Details of Back up tools given at clause 1.1 of Annexure I
2	Retainer Valve suitable for operation in water depth up to 500 meters	01 No + 01 No (Back up)
3	Sub Sea Hydraulic control system - Hydraulic control panel -Hose Reeler for Hydraulic system	01 No
4	Lubricator Valve	01 No + 01 No (Back up)
5	All necessary Crossovers required for connecting SSTT, Retainer Valve, Lubricator valve, fluted hanger, slip joints etc. with the production string and landing string.	1+1(back up) = 02 sets
6	Chemical Injection Pump for hydrate prevention	01+01 no

The details of the required Surface Production Testing (STP) Equipment and accessories suitable for 10,000 psi working pressure, sour service as per NACE MR-0175 (Latest Applicable Edition) are as follows.

B.	**SURFACE PRODUCTION TESTING**	
Sr. No.	**Item**	**Qty**
1	Surface Flowhead /Control Head with hydraulic actuator for flow valve, Swivel & Crossovers	01 set
2	Choke Manifold & accessories	01 set
3	Data Header	02 nos.
4	3” 45 ft long Flexible Flowline (Coflexip hose) of suitable length for connecting Flow head with standpipe and choke manifold.	02 no.
5	Steam Heat Exchanger with Steam Generator	01 no.
6	Three Phase Test Separator-1440 psi WP	01 no.
7	Surge Tank	01 no.
8	Transfer Pump	01 no.
9	Piping Package. 3” 1502 for high pressure; 3” hammer unions for downstream, Straight pipes & Swivel/Elbows of suitable length for connecting surface equipment.	01 set
10	Chemical Injection Pump	01 no
11	Surface Pressure & temperature Recorder	01 no.
12	Dead Weight Tester	01 no.

13	ESD Panel for shutdown	01 set
14	Oil Manifold/ Diverter	01 no.
15	Gas Manifold/ Diverter	01 no.
16	Lab Cabin	01 no.
17	Air Compressor	02 nos.
18	Sand Trap / Desander System with electronic sand detection facilities (10K)	01 no.
19	Surface Safety Valve	01 no.
20	Well Test Workshop Container with Accessories	01 no.
21	Surface Testing Data Acquisition Network	01 no.
22	Data Acquisition Computer	01 no.
23	Sample Bottles / Samplers	
	Conventional Gas Samplers,1500 PSIG, 600 CC, IATA confirming	6
	Dead Oil Sample Cans, 1 Ltrs, IATA Confirming	20
	Dead Oil Sample Cans, 5 Ltrs, IATA Confirming	5
	Dead Oil Sample Cans, 10 Ltrs, IATA Confirming	5
	Water Sample Bottles, 1 Ltrs, Plastic or Glass	20
	Lables & Consumables for all the above	1

C.	**WELL ACTIVATION**		
SL No	ITEMS	UNIT	QTY
1.	**Nitrogen Pumping Unit (NPU)** with all accessories. (N2 conversion from liquid to gas will be at Bidder's account but actual liquid nitrogen will be charged to Company for every gallon consumed as per the rate quoted by Bidder.) The unit shall meet the following minimum requirement: 1. Max Working Pressure: 10000 psi 2. Max Flow Rate (SCFH): 90000 SCFH Note: Any other equipment required with Nitrogen pumping Unit for successful well activation services on a floater rig but not mentioned above shall be under Bidder's scope.	Package	01
2.	Surface piping and accessories	Set	01
3.	The minimum capacity of liquid nitrogen tank shall be 2000 gal. The Bidder should ensure continuous delivery of nitrogen during operations.	2000	08

D.	**TUBING CONVEYED PERFORATION**		
Sl. No.	ITEMS	UNIT	QTY
1	Redundant firing head (HDF/HDF) and (HDF/BHF)	No.	1
2	Hydraulic Firing Head Stand Alone	No.	1
3	Mechanical Firing head Stand Alone	No.	1
4	Automatic gun release assembly activated with gun firing action	No.	1
5	Mechanical gun release assembly	No.	1
6	Pressure operated under balance valve for use with hydraulic firing head, actuated by applying pressure through tubing without exposing the casing to applied pressure.	No.	1
7	Portable surface shot detection kit with data acquisition system	No.	1

8	Pup joints and tubing joints for TCP	No.	Min. 2 each
9	Safety spacer for vertical shock absorption	No.	1
10	Bull plug	No.	1
11	Ported Flow Sub with Glass / Ceramic Disk below Ports along with Redress kit.	No.	1

Perforation Guns and Charges **Minimum Charge Performance required as per API 19B Sec-1, RP-43**	
1	Perforating guns for 7" Casing / Liner Casing Gun Size - 4.5" or 4-5/8" or 4.72" Shot Density-12 spf ,135/45 deg or 150/30 deg EHD – 0.34 in Penetration – 30 in
2	Perforating guns for 9 5/8" Casing – Casing Gun Size -7" Shot Density -12 spf , 135/45 EHD – 0.44" to 0.39" Penetration – 43 in

* Surface read-out tools shall be minimum 300^0 F rated.

E.	**DRILL STEM TESTING**		
Sl. No.	ITEMS	UNIT	QTY
1.	Single shot safety circulating valve		1
2.	Down hole safety valve with Pump Through		1
3.	Annulus / Tubing pressure operated, re-closable circulating valve		1
4.	Pressure control tester valve with hold open assembly		1
5.	Pipe tester valve with auto fill flapper		1
6.	Gauge carrier (to carry at least 4 quartz gauges)		1
7.	Quartz gauge (10000 psi and 347° F) with down hole batteries for carrying out 180 hrs tests.		4
8	Radioactive marker sub		1
9	Retrievable packer (with option of hold down for pumping thru tubing) for 7" casing / Liner. -Packer setting should not require rotation which may damage the subsea umbilical -Packer should be able to hang the TCP guns below -Compatible to run with TCP perforation operation Slip joints, x/overs, drill collars with premium connections along with any other accessories to be provided with this item		2
10	Retrievable packer with option of hold down for pumping thru tubing) for 9-5/8" Casing. -Packer setting should not require rotation which may damage the subsea umbilical -Packer should be able to hang the TCP guns below -Compatible to run with TCP perforation operation Slip joints, x/overs, drill collars with premium connections along with any other accessories to be provided with this item.		2

11	Surface read out facility for reading the quartz gauge data at the surface while recording down hole using Wireless system for gauges down hole for pressure data transmission to surface. Additionally, provision for lowering gauges on mono bore cable with LINK system should also be provided		1
12	Tools and Parts		1
13	Subs and all necessary X-overs		1+1 Back up
14	Suitable Jar, safety joint, drill collars with premium connections and slip joints should be provided along with DST string for running above the retrievable packers (as required)		1 each

Note: The Bidder shall provide hydraulic packer setting tools for 9.5/8" (2 each) for items Sl. No. 10 above without any additional cost to Company

F.	**SLICKLINE SERVICES**		
Sl. No.	ITEMS	UNIT	QTY
1	Double Drum Slickline Unit	Set	1
2	10Kpsi Slickline Lubricator	Set	1
3	10K psi Stuffing Box	Each	1
4	10K psi rated Slickline Double RAM Blow Out Preventer with Sinker Bar	Set	1
5	Hydraulic Control Unit	no	1
6	Tool Catcher	no	1
7	Injection Sub	Set	1
8	Slickline Clamps	Set	1
9	Basic Tool Strings	Set	1
10	Other tools (As defined in Scope)	Set	1
Items under Other Tools, Spares and Accessories			
11	02 nos. of Bottom hole PVT samplers, Transfer bench with 04 No. of Shipping bottles.	Set	1
12	02 nos. of Gas sampling cylinders for GC analysis (600 cc) and 02 nos. of Liquid sampling cylinder (600 cc)	Set	1
13	Liquid Level Well Analyzer	Set	1

Notes

1. The bidder shall provide sufficient back up of TCP, DST, SSTT, SPT, NPU & Slickline equipment spares / consumables ('O' rings, elastomers / rubber seals, redressing kits etc.) in order to ensure uninterrupted services.

2. Any additional tools / equipment required to fulfil the scope of work but not covered in the above Table are also to be supplied by the Bidder at no extra cost.

3. The above list of tools / equipment / spares / consumables is indicative and shall be used for evaluation purpose.

ANNEXURE – I

A. SPECIFICATION OF SOME OF THE MAJOR TOOLS AND EQUIPMENT:

General Design Considerations

1. All flow-wetted equipment components shall be manufactured from materials that:

   (i) Comply with NACE standard MR0175 for sulphide stress cracking resistant metallic materials.
   (ii) Can tolerate brief exposure to formation treatment acids and inhibitors, neat methanol, solvents, etc.

2. Unless specified otherwise, all equipment upstream of the test choke shall be rated to the following as a minimum:

   (i) 10,000 PSI working pressure.
   (ii) 250 F working temperature.
   (iii) Sour Service

3. Bidder shall provide crossovers as required to allow make-up of all downhole tools to 4-1/2" PH6 and 3-1/2" PH6 test tubing (connections as in the Drilling Tools section of this Bundled Services Scope of Work). The cost of these crossovers shall be included in the tool rental fees.

4. All tubular goods shall be manufactured in accordance with the latest revision of API Specification 5CT.

5. All equipment shall be equipped with closed-bottom skids with sides to provide spill control.

6. Necessary connections to the flare booms shall be on Contractor's scope. Flare Boom details shall be provided with the successful bidder.

7. Bidder shall be required to provide sea-fastening and grounding materials. Sea fastening design needs to meet or exceed Company, Drilling Bidder and possibly DNV specifications.

8. All equipment that requires personnel to work at heights (surge tanks, etc.) shall be equipped with suitable / certified fall arrestor and harness.

1. Subsurface Test Tree (SSTT) Equipment & Accessories

1.1 Subsurface Test Tree (SSTT)

a) The SSTT should be suitable for operations in water depth up to 500 meters and should have necessary hose length along with hydraulic system required for its operation and control.

b) The SSTT assembly shall be complete with fluted hangers (with ports for fluid by-pass in landed condition) suitable for wear bushings of required size of wellheads, Ported type Slick joint to be compatible with rig BOP ram configuration and spacers, valve assembly, latch and un-latch assembly, centralizer, hose reel with sufficient control line for water depth of 500m, accumulator, control panel etc.

c) The SSTT should be suitable for Sour Service as per NACE Specifications MR-0175 (latest applicable edition).

d) The SSTT should have Acid resistance with suitable acid inhibitor.

e) The Nominal Size of SSTT should be minimum 3.00"

f) The Working and Test pressures of the SSTT should be 10,000 psi and 15,000 psi respectively.

g) The design temperature shall be -4o F to minimum 300o F.

h) The end connections of SSTT assembly should be suitable for connecting 3.½" premium tubing/drill pipe as production string below and premium landing string above. The Bidder has to pre-check the end connection of tubing/drill pipe and mobilize end connections accordingly.

i) The response time for operating SSTT in water depth up to 500 meters shall be as follows:
   - Time to close ball valve - 30 seconds maximum.
   - Total time for complete closure of valves and unlatching of SSTT assembly - 45 seconds maximum.

   Bidder must specify actual response time and the maximum unlatch angle and normal recommended unlatch angle.

1) The SSTT should have either two ball valves or a ball valve and a flapper valve. The valves should be surface controlled, normally closed and pressure to open, with fail-safe closure.
2) The design feature of the valves should be such that in an emergency it is possible to pump and kill the well even when valves are closed or the hydraulic control of valves is ineffective.
3) The ball valve should be capable of cutting 1-1/4" coil tubing and 5/16" wireline cable.
4) Minimum yield strength should be 5,20,000 lbs at zero pressure and 255,000 at 15000 psi.
5) The SSTT should be able to be unlatched both hydraulically and mechanically under down-hole conditions.
6) The length of SSTT shall be sufficiently short to accommodate in standard BOP stack with two pipe rams closed below it and allow the shear rams to close above it (across a shear sub) even in the latched condition. Bidder must provide actual space-out diagram.
7) The SSTT shall be suitable for injection of chemicals such as glycol, Methanol, paraffin inhibitor, PPD, diesel etc. up to maximum pressure of 10,000 psi in between the two valves.
8) The hydraulic control hoses shall be suitable to withstand hydrostatic pressure of the mud column in the riser and complete with suitable riser sealing mandrill in order to protect the control hoses as well as to prevent leakage of hydrocarbon in to the long risers.
9) In addition to the complete set of equipment as specified in the scope of work, following SSTT Back up tools are to be provided by the Bidder:

   Subsea Test Tree along with slotted type fluted hangers compatible with rig BOP wear bushings, slick joints, spacers (if required), valve assembly, latch unlatch assembly and centralizers etc. and any other equipment required for the operation
10) The Bidder shall have testing facility in India to test the entire SSTT under vertical and horizontal conditions for all functionalities including the unlatch.

1.2 RETAINER VALVE:

1) The unit should be suitable for operations in water depth up to 500 meters
2) The unit should be suitable for Sour Service as per NACE specifications MR-0175 (latest edition).
3) The unit should have Acid resistance with suitable acid inhibitor.
4) The Nominal Size of SSTT should be minimum 3.00"
5) The working and test pressures should be 10,000 psi and 15,000 psi respectively.
6) The design temperature shall be -4^0 F to minimum 300^0 F.
7) The bottom of retainer valve should be connected to shear sub and top should be connected to landing string, using suitable cross-overs, if required.
8) The design feature of the valve should be such that in an emergency it is possible to pump, kill and circulate through the retainer valve, even when the hydraulic control lines of the Retainer ball valve is ineffective. Also it should be possible to pressure test the landing string from the surface to the retainer valve up to 10,000 psi.
9) Minimum yield strength should be 5,20,000 lbs at zero pressure.

1.3 LUBRICATOR VALVE

1) The unit should be suitable for Sour Service as per NACE specifications MR-0175 (latest edition).
2) The unit should have Acid resistance with suitable acid inhibitor.
3) The Nominal size should be 3.00”
4) The working and test pressure should be 10,000 and 15,000 psi respectively.
5) The end connections should be suitable for connecting with landing string using suitable crossovers, if required.
6) The ball valve shall be surface controlled, opened and closed by surface pressure. The design should be such that the valve opens or closes when pressurized and remains in the same position when pressure is bled off.
7) The design feature of the valve should be such that in an emergency it is possible to pump, kill and circulate through the lubricator valve, even when the ball valve is closed, and hydraulic control of the ball valve is ineffective. Also, it should be possible to pressure test the string from surface up to lubricator valve at 10,000 psi.
8) The minimum hose length should be as per operational requirement
9) Minimum yield strength should be 5,20,000 lbs at zero pressure.

1.4 CROSS-OVERS

1) All crossovers should be suitable for sour service as per NACE Spec MR-0175 (latest edition).
2) All crossovers should have Acid resistance with suitable acid inhibitor.
3) The minimum ID should be compatible with the Tubing string and as per the API recognized standards
4) The working and test pressure should be as per API-5CT standards
5) The minimum length should be 18 inches.

1.5 SUBSEA TEST TREE SYSTEM CONTROL

1) Company preference is for a direct hydraulic SSTT control system.

2) Bidder shall provide data estimating the time required to effect a full disconnect, and the associated assumptions for umbilical length, etc., with all tendered systems.

3) Subsea Test Tree Controls shall:

   a) Be equipped with HPU and panel.

   b) Be supplied with filtered control line fluid, to be supplied and maintained by Bidder.

   c) Have sufficient hydraulic accumulation to perform a full disconnect without having to wait on the HPU.

   d) Have sufficient surface functions and umbilical cores to control the subsea test tree functions independently, to provide at least one (1) chemical injection lines, and have at least one (1) spare cores.

   e) Have sufficient jumper hose to allow the HPU to be rigged up 100 ft from the reeler.

   f) All fittings shall be high-integrity fittings such as JIC and Autoclave. NPT fittings shall not be used on downhole or high-pressure lines.

   g) Be equipped with at least three (3) Emergency Shut Down (ESD) Stations, to close the test tree valve(s) but NOT to initiate SSTT disconnect.

4) Bidder shall supply an SSTT umbilical that conforms to the following:

a) Be equipped with at least 1.25x the water depth of umbilical on the spooler.

b) Splices are not permitted on any lines that pass below the rotary table.

c) Reels shall be equipped with air-driven motors and auto-winders.

d) Reels shall be equipped with isolation valves and manifolds.

e) As a minimum, reel shall have a hydraulic slip ring to maintain pressure on the SSTT 'latch' circuit at all times and/or two (2) block valves with pressure gauge to maintain and monitor pressure while the reel is in operation. Hydraulic slip rings on all functions are preferred.

f) Umbilical shall have at least one line dedicated to chemical injection at the SSTT. These should be at least 3/8" or ¼" ID. Bidder shall supply a field repair kit that allows for a full re-splice of the umbilical. If sold to Company and not used, this shall be sold back to Bidder at cost at the end of the Work.

Notes:

i) There will not be any chemical injection mandrel below mud line.

ii) Bidder shall provide two air-driven chemical pump(s) capable of pumping oil-based fluids, of a similar design to the SSTT methanol pumps.

5) Bidder shall provide all sheaves and ancillary handling equipment as part of the base SSTT package.

6) Bidder shall provide non-metallic device such as high-strength "Polyken"-type tape and tie-wraps to secure the umbilical(s) to the test tubing.

1.6 CHEMICAL INJECTION

1) High pressure chemical lines shall be equipped with JIC, Autoclave or similar high-integrity connection with metal-to-metal seal. NPT and BSP-type connections shall not be used without written Company approval.

2) All chemical pumps shall be certified for use in Zone 1 areas.

3) All chemical pumps shall be equipped with a suitable relief valve system.

4) Bidder shall provide two air-driven chemical pump(s) capable of pumping methanol to the SSTT at a minimum 1 gallon per minute (GPM) at 5000 PSI SSTT pressure, and ½ GPM at 10,000 PSI SSTT pressure.

5) Bidder shall supply three ea 500 gal closed-top tote tanks for methanol transport and use offshore. A drum is not acceptable. The totes shall comply with Company lifting specifications and shall be equipped with bunding capable of containing the full tote volume.

6) Bidder shall supply four (4) chemical injection pumps and spools for surface chemical injection. Pumps shall be air driven and capable of rates between 0.1 and 1.0 gallons per minute. Possible services include methanol, de-foamer, wax inhibitors, etc. Injection points may be upstream or downstream of the choke.

7) Bidder shall either supply certified tote tanks, for methanol and glycol or a drum carrier for the surface treatment chemicals.

8) Bidder may be required to supply a chemical injection system, to provide oil-based chemicals (wax

inhibitors, etc.) to the landing string at or above the SSTT / Retainer Valve. This shall consist of the following:

a. Either a dedicated port in the SSTT (in addition to the methanol port), or 2 ea (primary and back-up) chemical injection mandrel, c/w dual-check chemical injection valve.
b. 1 ea two hose umbilical, 3/8" or ¼" minimum ID, c/w reel and sheave.
c. 2 ea (primary and back-up) two air-driven chemical pump(s) capable of pumping oil-based fluids, of a similar design to the SSTT methanol pumps above.

2. PRODUCTION TESTING SERVICES

The Flow head, choke manifold and its upstream of all data headers and pressure bleed off points shall each be equipped with double block and bleed needle valves with minimum 10000 psi pressure rating. The details of the required Surface Production Testing (SPT) Equipment and accessories to be deployed by the Bidder are enumerated as under:

2.1. SURFACE FLOW HEAD / CONTROL HEAD / SURFACE TREE

Surface flow head should have heavy duty swivel and hydraulic actuator. The item should have the following specifications:

a) Solid block integral unitized body.
b) Minimum bore 3.1/16"
c) Working pressure 10,000 psi.
d) Test pressure 15,000 psi.
e) Temperature range: 32 Deg F to 250 Deg F
f) Complete unit should be suitable for Sour Service as per NACE Spec MR-0175 (latest edition)
g) Consisting of 04 nos. of 3.1/6" gate valve (1 no. master valve, 1 no. swab valve and 2 nos wing valves with one hydraulic actuator for flow line valve).
h) Acid resistance with suitable acid inhibitor.
i) Tensile strength 490,000 lbs at zero pressure.
j) Complete with lifting sub of suitable length,
k) Wing end connections should be 3", 1502, rated to 10 K Psi
l) Above flow head should be provided with one no. of wing valve hydraulically controlled and actuated with remote control system including pump and hydraulic hose etc. Functioning of the valve should be pressure to open.
m) Suitable crossovers should be provided for connecting flow head bottom with landing string and lifting sub top with wire line BOP/ stuffing box. All the crossovers should have specifications as per clause 1.4 above.

2.2. CHOKE MANIFOLD AND ACCESSORIES

2.2.1 CHOKE MANIFOLD

a) Size 3" dual choke manifold with both positive and adjustable choke.
b) Working pressure 10,000 psi.
c) Test pressure 15,000 psi.
d) Working temp. 32 to 250 Deg F
e) Suitable for sour service as per NACE specs MR 0175 (Latest Edition).
f) Wing end connections should be 3", 1502 , rated to 10 K Psi
g) Choke Manifold should have 2 upstream, 2 downstream 3.1/16" Gate valves with hand wheels.
h) All the valves should be rated for same working pressure and temp as specified above.
i) Positive choke (Tungsten Carbide or Ceramic Lining) from 1/8" to 1½".

2.2.2 ESSENTIAL ACCESSORIES FOR ONE CHOKE MANIFOLD

a) Set of positive chokes (tungsten carbide or ceramic lined) from 1/8" to 1½" in with increment of 1/16" up to 1" and with increment of 1/8" up to 1½".
b) Pressure gauge with ½" NPT Connection
   (i) 0-10000 psi - 2 nos.
   (ii) 0-1000 psi - 2 nos.
   (iii) 0-500 psi - 2 nos.
   (iv) 0-100 psi - 2 nos.

I. Choke bean wrench - 1 no.
II. Hand wheel for valve - 2 nos.
III. Steel braided rubber tube with connection ½" NPT size 10' long suitable for 10,000 psi for sampling purpose - 1 no.

2.3. DATA HEADER

a) End connections 3", 1502 rated up to 10K psi
b) Suitable for Sour service as per NACE Specification MR-0175 (Latest Edition).
c) Minimum 4 nos of NPT ports for pressure and temp recording and chemical injection.
d) Sufficient no. of NPT type needle valves (10000 psi WP) and ½" thermowells or strap-on thermo-transducers.

2.4. 3" FLEXIBLE (COFLEXIP HOSE)

a) Should be of single length, suitable for connecting flow head with stand pipe.
b) Suitable for sour service as per NACE Specification MR-0175 (latest Edition).
c) WP 10,000 psi
d) Working Temp. 32 Deg F to +266 Deg F
e) Inlet and outlet connection should be 3"1502 rated upto 10K psi

2.5. STEAM HEAT EXCHANGER WITH STEAM GENERATOR – 1 No.

a) Skid mounted, suitable for offshore transportation
b) Unit should be suitable for sour service as per NACE Specification MR-0175 (latest Edition)
c) Working temperature – 0 Deg F to + 250 Deg F
d) Working pressure: 10000 psi
e) Minimum heat capacity: 4 MM BTU/hr
f) Unit should be complete with bypass manifold for bypassing exchanger.
g) Inlet and outlets are to be fitted with 3", WECO hammer union.
h) Unit should be complete with adjustable/Fixed choke system.
i) The unit should have suitable temperature sockets with thermometers fitted to indicate actual temperature of fluid at inlet & outlet.
j) Steam generator with following specification :
   - Steam output of 2000KG/hr or 4.5 MMBTU
   - Working pressure – 150 psi
   - Fuel Tank capacity of 1500 liters

2.6. THREE PHASE HORIZONTAL TEST SEPARATOR

a) Nominal WP: 1440 psi
b) Test pressure : 2150 psi
c) Sour service as per NACE Specification MR-0175 (latest Edition)
d) Liquid rate 100 to 10,000 BPD

e) Gas rate: 60 MM SCF/Day
f) Water rate: 100 to 2000 BPD
g) Retention time = 1 Min
h) Fitted with two safety relief valves.
i) Should be fitted with shrinkage tester
j) Complete with Barton flow recorder range 0-400" differential pressure of water or electronic differential pressure measurement device
k) The gas outlet should have a Daniel orifice fitting with a full set of orifice plates or Coriolis gas meter
l) Unit should be as per API Spec 12-J / ASME Section VIII.Div. 1

2.7. SURGE TANK

a) WP 150 psi.
b) Shall have 2 single / 1 dual compartments with total capacity of 100 bbls, minimum. Must have the provision to divert the flow through either of the compartments without disturbing the flow from the well, through a suitable manifold.
c) Sour service as per NACE Specification MR-0175 (latest Edition).
d) Shall have high and low alarm.
e) Complete with level gauge and bypass manifold.

2.8. TRANSFER PUMP

a) Driven by flame proof electric motor.
b) Delivery rate 2,000 BOPD.
c) Should be hooked up in the manifold of surge tank for direct suction and delivery to Burner.

2.9. PIPING PACKAGE

a) 3", Fig 1502 St. Pipes and Elbows for connecting choke manifold to heat exchanger
b) 3", Fig 206 St. Pipes and Elbows for connecting all liquid lines downstream of the separator.
c) 4", Fig 206 St. Pipes and Elbows for connecting all gas lines downstream of the separator.
d) Change overs for end connections, wherever necessary, provided in sufficient quantity.
e) All the above piping package should be suitable for sour service as per NACE MR-0175 (latest Edition) and should have Acid resistance with suitable acid inhibitor.

Note: The upstream lines connecting the flow head to the choke manifold should be in sufficient length to facilitate the string to be picked up by about 40' for stabbing out of the packer, without disconnecting the flowline. Also, the downstream lines should be in sufficient quantity for completing the surface hook-up from choke manifold to the Burner Booms.

2.10. CHEMICAL INJECTION PUMP

a) Pump should be pneumatically driven, positive displacement.
b) Fluid discharge capacity = 85 GPD (minimum) at 10,000 psi.
c) WP 10,000 psi
d) Provided with sufficient length of high pressure hose (10,000 psi WP) with 1/2" NPT connectors
e) Pump to be provided with check valve
f) All necessary chemicals like Methanol, Methanol/ Glycol for hydrate control, Pour Point Depressant (PPD), Defoamer, Demulsifier shall be made available as needed and will be paid as per actual consumption.

2.11. SURFACE PRESSURE & TEMPERATURE RECORDER

a) Recorders should have only mechanical input and operation.
b) Suitable for sour service as per NACE Specification MR-0175 (latest Edition).
c) Pressure to be tapped from 1/2" NPT needle valve box.
d) Temperature to be measured from 1/2" NPT weld neck pocket or strap-on thermotransducer
e) Chart drive mechanical, one revolution in 24 hrs.

2.12. DEAD WEIGHT TESTER

a) Mainly required for accurate measurement of pressure in the pipelines
b) Pressure range 50-10000 psi.
c) Pressure intervals 1 psi.

2.13. ESD PANEL FOR SHUT DOWN

a) Each set should have 3 nos. of high-low pilots
b) One no. high-low pilot each between
    a. Flow head & Choke manifold
    b. Choke Manifold & Heater
    c. Heater & separator
a) To control hydraulic valve on the flow head and the surface safety valve

2.14. OIL MANIFOLD

a) Sour service as per NACE Specification MR-0175 (latest Edition)
b) WP 1440 psi.
c) Should have 3" ball/plug valves.
d) Should have 3" WECO H/U inlet/outlet connections.

2.15. GAS MANIFOLD

a) Sour service as per NACE Specification MR-0175 (latest edition)
b) WP 1440 Psi.
c) Should have 3" ball/plug valves.
d) Should have 3" WECO H/U inlet/outlet connection.

2.16. LAB CABIN

a) Should have lab equipment like gas gravitometer, centrifuges, H_2S detection pump etc.

2.17. AIR COMPRESSOR

a) Should be able to supply sufficient quantity of air (500-600 scft at 100 psi) to burner for complete combustion of well effluents.
b) Rugged enough for offshore use.
c) Electrical/diesel powered, flame proof.
d) Provided with flexible hose and suitable end connection to connect with air line of burner.

2.18. SAND FILTER/ DESANDER SYSTEM

a) Suitable for removing sand from crude oil and / or gas flow.
b) Sour service as per NACE Specification MR-0175 (latest applicable edition).
c) WP 10,000 psi.

d) Should have double isolated accumulation vessel for continuous operation with filter size of 100 microns and 200 microns.
e) Sand hold up volume at least 75 lts.
f) Inlet/outlet connection 3" 1502 connection.
g) Interconnecting piping with by-pass and drain
h) Clampon type electronic sand detection system, which needs to be clamped on upstream elbow.

2.19. SURFACE SAFETY VALVE

a) Line Size 3" to be rigged up between flowhead and choke manifold.
b) Working pressure 10,000 psi.
c) Test pressure 15,000 psi.
d) Working temp. 32 to 250 Deg F
e) Suitable for sour service as per NACE Specification MR 01-75 (Latest Edition).
f) Inlet and outlet to be 3" 1502 rated to 10000 psi
g) Gate valve, hydraulically operated and fail safe configuration – to close in case of hydraulics line failure
h) Remote shut in with the help of ESD control panel

2.20. WELL TEST WORKSHOP CONTAINER WITH ACCESSORIES:

Workshop container should include following minimum items

a) Pressure gauges, ranges to include at minimum 0-10000 psi, 0-5000 psi, 0-2000 psi, 0-200 psi
b) Thermometers
c) Gas gravitometer
d) Centrifuge (manual)
e) Hydrometer set
f) Dead weight tester
g) Gas sniffers
h) Portable H2S (range 10 ppm) and CO2 detection equipment
i) Tests on Oil / Gas samples should include:
    I. Density / Specific gravity
    II. pH
    III. Measurement of the Hydrogen Sulfide (H2S) Carbon Dioxide (CO2) by Draeger tubes.
j) Fittings and needle valves required for the operation
k) All tools required and necessary spares required for PTS operation.
l) Equipment to collect well fluid at surface for PVT analysis

2.21. SURFACE TESTING ACQUISITION NETWORK: 01 No.

a) Means of recording and displaying following minimum parameters
    i) Wellhead Pressure
    ii) Wellhead Temperature
    iii) Annulus Pressure
    iv) Separator Pressure
    v) Upstream & Downstream choke pressure
    vi) Separator temperature
    vii) Separator gas temperature
    viii) Separator liquid temperature
    ix) Separator gas differential pressure

b) Capability of producing real time plots of Pressure vs. Time and of Flow rate vs. Time.
c) Acquisition Computer

2.22. Real Time Data Transmission

The Real Time Data Transmission should have the Software package to properly store, organize and display all the data collected during the well test program in industry standard formats (WITSML) for transmission by RTOC Service Provider using Rig V-SAT connection so that the same can be downloaded or viewed online in real time at base.

Bidder is responsible for providing transmittable data to Company.

Data is to be transmitted through V-SAT connection to the base.

2.23. SAMPLE BOTTLES

a) Conventional Gas Samplers, 1500 psi, 600 cc, IATA confirming, Qty. 6
b) Dead oil sample cans, 1 litre, IATA conforming, qty. 20
c) Dead oil sample cans, 5 litre, IATA conforming, qty. 5
d) Dead oil sample cans, 10 litre, IATA conforming, qty. 5
e) Water sample bottles, 1 litre, plastic or glass, qty. 20
f) Labels and consumables for all the above

2.24. SAFETY EQUIPMENT

g) Fire extinguishers
h) Portable H_2S (Level-10 ppm and beyond) and CO_2 detection/measurement equipment
i) Portable explosimeter
j) Personnel protective equipment

2.25. TOOLS, CROSS-OVERS & SPARES

a) Containerized workshop / store with power and lighting
b) Includes all hand tools, all types of cross-overs, spare parts etc. required for surface testing operations
c) Hose baskets, pipe racks and baskets etc.

2.26. FITTINGS AND NEEDLE VALVES

Needle valves and fittings to supply for all pressure, temperature and sampling point upstream of the heater with double block and bleed.

3. WELL ACTIVATION SERVICE

The job will involve unloading and activation of newly drilled wells using Nitrogen Pumping Unit (NPU). It involves displace the well fluid with nitrogen to the desired volume/ depth and make the well displace on its own. The job will also be applicable for unloading and lowering of fluid levels of wells prior to perforations.

The services of NPU shall be mobilized together or alone as per the job requirements.

NITROGEN PUMPING UNIT (NPU)

The bidder shall provide Nitrogen pumping Unit (NPU), skid mounted, capable of pumping and vaporizing 180000 / 90000 (MAX) along with a minimum storage tank of capacity 2000 US gallons liquid nitrogen tank. The bidder should provide all the necessary surface connections/fittings for smooth and successful operation of the job. The unit shall have nitrogen pumping vaporizing system capable of pumping up to 180000 / 90000 SCFH of gaseous nitrogen and pressure up to 10000 psi.

The bidder shall provide any other equipment / tools/ spares required for successful well activation service, but not mentioned above.

4. DRILL STEM TESTING SERVICE

Cased Hole DST Service for 7" and 9-5/8" casing

The tools should have the following specifications:

a) Maximum OD: 5.5"
b) Minimum ID: 2.25"
c) Minimum tensile strength: 110 K lbs
d) Maximum differential pressure: 10000 psi
e) Maximum temperature rating: 300 ℉

4.1. Single Shot Circulating Valve

a) Annulus pressure activated rupture disc by applying predetermined annulus pressure
b) The flow ports shall have sufficient area and resistance to erosion to permit circulation at an efficient rate with a pressure that does not cause operation of other tools.

4.2. Downhole Safety Valve With pump through

a) The full opening downhole safety valve should be run in open position and should be able to close permanently with a flapper/ball valve once rupture disc is activated by applying pressure in the annulus.
b) Once the valve is closed, there should be provision to pump through this valve from the top to allow well kill operations through the tubing / annulus.
c) Can be of either ball or flapper type.

4.3. Annulus / Tubing pressure operated, multi-cycle circulating valve

a) The multi-cycle circulating valve is a re-closable valve operated by tubing pressure and is used to spot fluids and nitrogen.
b) The tool should be able to be run in lock open position during run-in-hole.
c) Once tool is at depth, the tool should be activated by differential pressure between tubing and annulus.
d) The tool should be able to operate by a pre-set number of pressure cycles in the tubing / annulus.
e) Able to accommodate forward circulating and reverse circulating operations
f) The flow ports shall have sufficient area and resistance to erosion to permit circulation at an efficient rate with a pressure that does not interfere with the operation of other tools.

4.4. Pressure control tester valve with hold open assembly

a) The pressure control tester valve should be operated by annulus pressure.
b) It is the primary downhole valve used to control downhole formation flows and shut-ins.

c) The tool should have a hold-open module to allow run in hole either in open or ball valve in closed.

4.5. Pipe tester valve with auto fill flapper

a) This tool should be used for pressure testing the DST string above the valve while running in hole.
b) The tool should have a flapper valve run normally closed and should open permanently on application of annulus pressure to rupture the disc.
c) While running in hole, the flapper valve should allow automatic filling up of cushion from below or it shall be possible to open the tester valve with a pressure differential of 50% of working pressure from below.
d) Should be annulus pressure operated to lock fully open upon completion of pressure testing

4.6. Gauge Carrier

a) Gauge carrier shall be internally concentric
b) Externally mounted gauge housing
c) Gauges shall be installed in the carrier while on deck and pressure integrity tested. It must be possible to connect the gauge carrier to the string without breaking tested seals
d) Outside of carrier shall not have any sharp edges that can get hung up
e) To be run between packer and tester valve.
f) Shall be able to carry up to four (4) gauges
g) Three gauges to sense tubing pressure and one gauge to sense annulus pressure.

4.7. Quartz Gauge with battery

a) Minimum requirements are as follows:
b) Accuracy $\pm$ 5 psi and $\pm$ 1 °C
c) Resolution 0.01 psi and 0.01 °C
d) Pressure range 0 – 15,000 psi minimum
e) Temperature range including battery pack 0 – 180 deg C
f) Scanning rate 0.1 sec to 10 minutes
g) Quartz type
h) Temperature rating inc battery pack, 150°C
i) 100,000 datasets minimum capacity
j) Calibration certificate not older than 1 year.

4.8. Radioactive Marker Sub

a) Should have high visibility on gamma ray log compared to natural gamma ray response from the formation.

4.9. 7” Retrievable Packer

The packer used shall comply with the following:

a) The packer shall be capable of holding pressure differential 10000 psi from above as well below and temperature rating: 300 F
b) Packer setting should not require rotation which may damage the subsea umbilical -Packer should be able to hang the TCP guns below -Compatible with TCP perforation operation
c) Shall have Hydraulic hold down
d) Shall be suitable for 7”, casing
e) Compatible with TCP gun operation
f) Able to support tailpipe and TCP gun weight

4.10. 9 5/8" Retrievable Packer

The packer used shall comply with the following:

a) The packer shall be capable of holding pressure differential 10000 psi from above as well below and temperature rating: 300 ₣
b) Packer setting should not require rotation which may damage the subsea umbilical -Packer should be able to hang the TCP guns below -Compatible with TCP perforation operation
c) Shall have Hydraulic hold down
d) Shall be suitable for 9 5/8" casing
e) Compatible with TCP gun operation
f) Able to support tailpipe and TCP gun weight

4.11. Surface Read Out

a) Read the quartz gauges data at surface while recording downhole using Wireless connection to gauges down hole for on-line pressure data transmission to surface.
b) Read the quartz gauges data at surface while recording downhole using Wireline LINK connection to gauges down hole for on-line pressure data transmission to surface.

4.12. INLINE bottom-hole sample chamber

a) Annulus operated tool for collecting bottom hole samples from the tubing, either during flow or shut-in conditions.
b) Min 8 chambers with 300 cc capacity in each / 4 samplers of 600 cc each
c) Single Phase Sample Bottles -16 nos. for transfer of samples from samplers to single phase sample bottles

4.13. Tools and Parts

a) Containerized workshop/store with power and lighting
b) Includes all hand tools, spare parts, test subs, test pump, elastomers for DST tools, handling subs, crossovers etc. required for DST operations
c) Tool racks

4.14. SUBS AND CROSS OVERS

a) The Bidder shall mobilize all subs & cross over required for running in operation.

5. TUBING CONVEYED PERFORATION

5.1 PORTED FLOW SUB WITH GLASS / CERAMIC DISK BELOW PORTS ALONG WITH REDRESSKIT

a) Top Connection: 2.875" 6.5 ppf EUE Box
b) Bottom Connection: 2.875" 6.5 ppf EUE Pin
c) Material: L-80
d) Minimum ID: 2.44"
e) Maximum OD: 3.67"
f) Glass Description: Minimum 0.375" thick
g) Other: The flow area of the ports must be greater than the flow area of the tubing
h) Temperature Rating: 300°F

5.2 Safety spacer for vertical shock absorption

a) Maximum OD: Same as that of loaded gun
b) Top Connection: As required to make up to firing head
c) Bottom Connection: As required to make up to safety spacer and or ERHSC
d) Material: As required to meet the conditions described in Preamble
e) Length: 10 ft minimum
f) Temperature Rating: 300^0 F minimum

5.3 PERFORATING GUN FOR 7" CASING

a) Maximum OD: 4.5" or 4-5/8" or 4.72"
b) Charge Type: HMX or other suitable for use at 300°F.
c) Charge Size: The largest possible that will fit the 4.5" gun
d) Shot Density: 12 spf
e) Shot Phasing: 135/45 deg or 150/30 deg
f) Entry Hole Diameter: 0.34 inches
g) Penetration Depth: 30 inches
h) Prima Cord: HMX or other suitable for use at 300°F.
i) Temperature Rating: 300°F minimum
j) Top Connection: As required to make up to safety spacer and or ERHSC
k) Bottom Connection: As required to make up to safety spacer and or ERHSC
l) Material: As required to meet the conditions described in Preamble

5.4 PERFORATING GUN FOR 9-5/8" CASING

a) Maximum OD: 7"
b) Charge Type: HMX or other suitable for use at 300°F.
c) Charge Size: The largest possible that will fit the 7" gun
d) Shot Density: 12 spf
e) Shot Phasing: 135/45 deg
f) Entry Hole Diameter: 0.44" to 0.39"
g) Penetration Depth: 43 inches
h) Prima Cord: HMX or other suitable for use at 300°F.
i) Temperature Rating: 300°F minimum
j) Top Connection: As required to make up to safety spacer and or ERHSC
k) Bottom Connection: As required to make up to safety spacer and or ERHSC
l) Material: As required to meet the conditions described in Preamble

It is planned to run the TCP guns along with the test string. However, Company may decide to run TCP guns on wireline or Drill Pipes if required. The Bidder shall be responsible for providing all necessary tools/equipment to run the TCP guns on wireline or Drill Pipes.

Bidder should provide separate prices for Perforating guns and accessories for "Shoot and Drop" and "Shoot and Retrieve" scenario as per Table FF in Performa – B. It may be noted that both the scenarios will be considered for price evaluation purposes.

5.5 PRESSURE ACTIVATED FIRING HEAD WITH REDUNDANT HYDRAULIC FIRING HEAD FOR PERFORATING GUN ALONG WITH REDRESS KIT

a)	Maximum OD:	3.68”
b)	Top Connection:	As required to make up to tubing/ ported flow sub above.
c)	Bottom Connection:	As required to make up to safety spacer
d)	Material:	As required to meet the conditions described in Preamble
e)	Temperature Rating:	300°F minimum

f) Charge Type/Percussion Detonator/Booster: HMX or other suitable for 300°F

5.6 SUB ASSEMBLY SPACE OUT TUBING PUP JOINTS

a)	Top Connection:	2.875” 6.5 ppf EUE Box. Equipped with special clearance EUE coupling
b)	Bottom Connection:	2.875” 6.5 ppf EUE Pin.
c)	Material:	L-80
d)	Minimum ID:	2.441”
e)	Maximum OD:	2.875” (Nominal Pipe body OD)
f)	Coupling:	Special clearance with taper ends (3.68” OD)
g)	Length:	4 ft/3ft/1 ft

6. SLICK LINE SERVICES:

6.1 The Slickline service is for well including but not limited to the following jobs:

a) Well Bottom Tagging

The job will involve tagging of well bottom by slickline induced tool in live or shut in wells using slickline unit. It involves lowering of Slick line along with different size tools to the bottom of the well or to the final depth as decided by the Company. For different jobs, different tools need to be run in like Tubing gauge, Tubing swage, Sand bailer, Tubing broach, Impression block, Blind box, Star bit, Locator tool, Hydrates breaking tools etc.

b) Fish Recovery with Slickline unit

Fishing operation involves recovery of downhole fish lying inside the well bore using slickline conveyed fish recovery tools. The fishes are of different types and shapes. Experienced hands and necessary fish recovery tools are required for the job. The depth for fish recovery job may vary from 1 - 5000m.

c) Sub surface and surface Reservoir fluid sampling

This job involves lowering of PDS samplers for collection of reservoir representative bottom hole reservoir fluid samples and transferring them to shipping bottles for further PVT analysis. In case of high GOR wells, surface sampling also to be carried out and contractor has to provide gas & liquid sampling bottles for collection of surface samples.

d) Any other job not covered above

Any other job not spelt out above but involving the use of slickline unit and other equipment (if any) shall have to be carried out by the Contractor as and when necessary.

6.2 Scope of Work:

The work is defined and described by, but not necessarily limited to, any or all of the followings. The Service provider shall -

a) Provide adequate equipment and personnel required to carry out slickline operations in the well.

b) Provide Slickline services for Bottom hole tagging, Fish recovery, collection of reservoir representative bottom hole reservoir fluid samples etc.

c) Provide PDS samplers, transfer bench and shipping bottles along with all relevant accessories for collection of sub surface reservoir fluid samples for PVT analysis. Also provide gas sample collection cylinders and liquid sample collection cylinders for surface reservoir fluid sample collection for PVT analysis.

d) Provide final report and all relevant data gathered at the end of each operation both as soft and hard copies.

e) Arrange and store sufficient spares and consumables for the units along with the manpower so that no interruption occurs on account of non-availability of spares and manpower.

6.3 Specification of accessories:

Double drum hydraulic Slick-line winch with power pack complete with 0.108" (API-9A) X 17,000 ft (min) slickline on one drum and 0.125" (API-9A) X 17,000 ft (min) slickline on the other drum. The detail specification of the unit is as under:

6.3.1 Spooling/Measuring Assembly

- Level wind (spooling) assembly/counterwheel/depth measuring device shall be equipped.
- Type O-measuring meter with minimum 10-inch register wheel, metric calibration.
- Mechanical depth counters with cable and casing at operator's console, metric counters assembly.
- Martin Decker or its equivalent weight indicator along with suitable hose and loadcell (one extra should be present as spare at all times)
- Any other type of measuring device (viz. digital) provided shall be additional to the Mechanical counter.

6.3.2 Line Speed & Pull Desired

The unit shall be preferably of the following specification:

- Max. 2700 FPM (820 M/MIN).
- Max. 7400 Lbs. (3363 KG)- Adjustable by suitable hydraulic valve in the hydraulic circuit.

6.3.3 Other fittings and accessories:

- Slickline (0.108" x 17,000 ft (min) piano slickline and 0.125" X 17,000 ft (min) slickline as per API-9A) - one of each reel fitted with the unit.
- Slickline tool string size: 1.75”

- Measure meter (Remote readout/Veeder counter assembly) metric unit for both the lines - 2 nos.
- Hay pulley assembly (for 0.108" and 0.125" slickline) -1 no.
- Slickline Wire Clamp suitable for 0.108” and 0.125” wire - 2 nos.
- Martin Decker weight indicator along with load cell and suitable hose- 1 no. each per unit. (One extra as spare)
- Hydraulic Stuffing Box with 16" Sheave adaptable to slickline wire size 0.108" and 0.125" along with necessary hoses and handpump - 2 nos. Rating -W.P 10K (Standard) each.
- 4" ID Lubricator assembly for 10,000 psi total length not less than 32 feet complete with Quick Union. (One set with each unit).
  (i) LUB ASSY 4" ID x 8FT - 1 non ported, 1 ported (1/2" NPT) = 24 ft
  (ii) LUB ASSY 4" ID x 4FT - 1 ported (1/2" NPT), 1 non ported = 8 ft
- Wireline BOP, Dual ram hydraulic 10,000 psi, for 0.108" and 0.125" wire, hand pump operated and adoptable to Flow head.
- Quick Test Sub 4" ID - 1 nos. Rating-W.P 10 K (Standard) psi
- Necessary Crossovers/ Adaptor spool to connect Pressure control equipment with Flow Head.
- Suitable Digital Tension measuring system (Line Minder) associated with Slickline Unit in addition to normal load cell (martin Decker' Combi gauge) type along with required accessories - 01 no.
- Slickline Fishing Clamp or T Bar Clamp with suitable inserts of 0.108" and 0.125" wire - 2 (two) nos.
- Digital Weight, Speed, Impact recorder compatible with Slickline unit - 01 no.

ANNEXURE-II

QUALIFICATION AND EXPERIENCE OF PERSONNEL:

1. WELL TEST COORDINATOR

The Well Test Coordinator shall be the single point of contact between the Company and the Bidder and shall be responsible for working closely with the Company to apply the appropriate planning, design and execution to benefit both the Company and the Bidder by offering specific solutions to cater to requirements. He shall be responsible for ensuring the preparation and dispatching of equipment and the execution of services in the field. The Well Test Coordinator shall also be responsible for planning, organizing, leading and controlling the HAZID, HAZOP, and Service Delivery Process, to ensure that the Bidder delivers consistent and superior service quality. The coordinator shall provide draft testing program to the company prior to commencement of operation. Well Test coordinator should have experience of minimum 5 years of deepwater operations. He shall be based at Wellsite and will be required to co-ordinate all the operations (TCP, DST, SSTT, SPT, NPU & Slickline services) during well testing operations.

2. OPERATING PERSONNEL FOR SSTT AND PRODUCTION TESTING SURFACE EQUIPMENT:

The Bidder shall provide a team of technically qualified and experienced personnel as mentioned below:

a) Well Test Supervisor
b) Well Test Specialist
c) Well Test Operator
d) SSTT specialist
e) SSTT Operator
f) Data acquisition & Interpretation specialist

The above personnel will be responsible for operation and maintenance of SSTT and SPT equipment and also for carrying out well testing safely and successfully.
The scope of well testing will include the following points:-

i) To recommend Well testing plan including string design and SPT equipment layout to the Company for approval.
ii) To suggest well testing methodology and string design to do the production testing successfully.
iii) To carry out SSTT and well testing operations, flow studies, data acquisition & Interpretation etc.
iv) To overcome operational complications such as hydrate formation, paraffin problem, sand incursion, high concentration of H_2S etc.
v) To prepare and submit well testing reports.

2.1 WELL TESTING SUPERVISOR

Well testing supervisor shall have a minimum of 5 years' experience in carrying out SSTT and production testing operations in floater rig including 3 years as testing supervisor. CV to be submitted as a part of technical bid.

The testing supervisor shall be able to work as an expert of well testing and shall be able to supervise operations, repair and maintenance of SSTT and PTS equipment during well testing. He shall have tested at least 3 wells in water depth at least 300 metres.

He shall be well versed with the latest testing technology, work procedures, in accordance with internationally recognized safe well testing methodology.

He will also be responsible for preparing the different production testing plans as per the scope of work, for approval of the Company.

2.2 WELL TEST SPECIALIST

Well test specialist shall have a minimum of 5 years' experience in carrying out production testing operations in floater rig including 2 years as well test specialist.

The well test specialist shall be able to carry out all well testing jobs as well as operations, repair and maintenance of SPT equipment'. He shall have the experience of testing at least 3 offshore wells.

2.3 WELL TEST OPERATOR

Well test Operator shall have a minimum of 3 years' experience in operating production testing surface equipment on floater rigs.

2.4 SSTT SPECIALIST

The SSTT Specialist shall have minimum 5 years of experience as SSTT Operator and must have worked on SSTT for 3 wells in locations in water depth at least 300 metres.

2.5 SSTT OPERATOR

The SSTT Operator shall have minimum 3 years' experience as SSTT Operator and must have worked on SSTT for 2 wells in locations in water depth at least 300 metres.

2.6 DATA ACQUISTION, PROCESSING & INTERPRETATION SPECIALIST

Person should have minimum 3 years of experience in Processing and interpretation of offshore wells and shall be responsible for data acquisition, interpretation and well test report.

The person is to report to Well Test Supervisor for any abnormality in the operation.
The bidder shall submit CV of all the personnel along with the technical bid.

3. OPERATING PERSONNEL FOR TCP AND DST EQUIPMENT:

The successful Bidder (Bidder) shall provide a team of technically qualified and experienced personnel as mentioned below.

a) TCP Specialist
b) TCP Operator
c) DST Specialist
d) DST Operator

The above personnel will be responsible for operation and maintenance of SSTT and PTS equipment and also for carrying out well testing safely and successfully.

3.1 TCP SPECIALIST:

TCP specialist should have a minimum of 5 years' experience in carrying out TCP operations including 2 years as TCP specialist in Offshore wells. The TCP specialist should be able to carry out all TCP jobs as well as operations.

3.2 TCP OPERATOR:

TCP Operator should have a minimum of 3 years' experience in operating TCP equipment in offshore wells.

3.3 DST SPECIALIST:

DST specialist should have a minimum of 5 years' experience in carrying out TCP operations including 2 years as DST specialist in offshore wells. The DST specialist should be able to carry out all DST jobs as well as operations.

3.4 DST OPERATOR:

DST Operator should have a minimum of 3 years' experience in operating DST equipment in offshore wells.

4. NITROGEN PUMPING (NPU) SERVICES AND SLICKLINE SERVICES

4.1 NPU SPECIALIST

a) The NPU specialist shall have minimum 5 years of offshore experience in operation and maintenance of well activation service equipment, ie., NPU.
b) The person will be responsible for all the operation and maintenance of NPU service.

4.2 NPU OPERATOR

a) The NPU operator should have minimum 3 years offshore experience in operation and maintenance of NPU.
b) The person will be responsible for all the operation mentioned in well activation service under Scope of work.

4.3 SLICKLINE SPECIALIST

a) The Slickline specialist shall have minimum 5 years offshore experience in operation and maintenance of slickline service equipment.

4.4 SLICKLINE OPERATOR

a) The Slickline operator should have minimum 3 years offshore experience in operation and maintenance of Slickline unit.
b) The person will be responsible for all the operation mentioned in slickline service under Scope of work.

5. OTHER CREW MEMBERS:

Personnel deployed by the Bidder other than the mentioned above, in any operation should have minimum 2 years offshore experience in their relevant field.

Notes:

a. The Bidder shall provide above competent personnel with requisite experiences & qualifications on round the clock basis and deploy accordingly without compromising statutory norms.

b. OIL reserves the right to decide for engagement of these personnel on the basis of verification of relevant documents prior to engagement.

c. The bidder should submit a list of personnel who are likely to be deployed for the subject services to the Company for approval. They should fulfil the above qualifications and experience criteria.

d. The Bidder should agree to maintain the equipment in good operational condition throughout the contract period. The Bidder shall provide and maintain sufficient quantities of spare parts, tools,

consumables etc. that are necessary for maintenance and operation of the equipment at no extra cost to Operator.

e. The Bidder must provide Surface Production Testing, well activation/stimulation/killing, surface sampling services confirming to good oil field practices comparable to international standards.

f. The Bidder shall ensure that the equipment quoted is complete in all respect to carry out the operations successfully, specified in Tender documents. The Bidder shall provide and maintain sufficient quantities of spare parts, tools, consumables etc. that are necessary for maintenance and operation of the equipment at no extra cost to Operator.

g. The Bidder shall also provide any additional item which is not listed in the Tender document but is essential for operation.

h. All the said personnel should be conversant with the Industry Safety Practices and possess valid certificates pertaining to offshore operations from approved agencies in respect of Sea survival, fire prevention and firefighting and first aid in addition to medical fitness certificate etc.

i. The minimum required manpower mentioned in sl no. 1, 2, 3 and 4 is indicative in nature. The Bidder shall provide manpower for round the clock operation and deploy accordingly without compromising statutory norms.

ADDITIONAL SPECIAL CONDITIONS OF CONTRACT
(WELL TESTING SERVICES)

1.0 DEFINITIONS:

Following terms and expression shall have the meaning hereby assigned to them unless the context otherwise requires:

1.1 "Equipment" means all Surface Production Testing Package, NPU, CTU and other accessories as listed in the Contract.

1.2 "Operation" means all operations required to be carried out pursuant to this Contract.

2.0 MOBILIZATION:

2.1 The bidder shall mobilize the TCP, DST, SSTT, Surface Production Testing equipment, NPU and Slickline service to the 1st well within 90 days from the date of mobilization notice.

2.2 Company at its discretion may allow commencing of the operation without complete mobilization; however necessary deduction for short, supplied items will be made as per cost evaluated by Company.

(i) For any items supplied by the Company rental will be calculated after amortizing the cost of the item over a period of 5 years applying 15% PTRR (Post tax rate of return). Similar deductions will also be made for short, supplied items.

(ii) A deduction will be calculated based on the Company's determined cost, which shall be treated as final, the basis of which shall be provided to the Bidder.

(iii) Notwithstanding this provision for partial mobilization, bidder must quote in accordance with relevant clauses for full mobilization.

3.0 BIDDER'S PERSONNEL:

3.1 Except as otherwise hereinafter provided the selection, replacement, and engagement; determining remuneration of Bidder's personnel shall be the responsibility of the Bidder. Such employees shall be solely of Bidder's employees. Bidder shall ensure that its personnel will be competent and efficient. However, the Bidder shall provide details of experience, qualification and other relevant data of the personnel to be deployed for scrutiny and clearance by the Company before the actual deployment. The Bidder shall not deploy its personnel unless cleared by the Company.

3.2 The Bidder shall have a base office at Supply Base camp at Onshore area be manned by competent personnel, who shall act for the Bidder in all matters relating to Bidder's obligations under the Contract.

3.3 Bidder shall provide all manpower for necessary supervision and execution of all Work under this Contract to Company's satisfaction except where otherwise stated. The minimum number of key personnel to be deployed is mentioned in this document.

3.4 **Replacement of Bidder's personnel**: Bidder will immediately remove and replace any Bidder's personnel, who in the opinion of Company, is incompetent, or negligent or of unacceptable behaviour or whose employment is otherwise considered by Company to be undesirable.

3.5 Bidder shall deploy on regular basis, all category of their employee required for economic and efficient Work servicing operations.

4.0 COMPANY'S REQUISITES:

4.1 Bidder shall, prior to mobilization, furnish to Company a list of all personnel who are to perform the Services. The list shall show each person's qualifications, details of Work history and previous employment with dates, training courses attended, and copies of all pertinent certifications. Personnel must be fluent in written and spoken English.

4.2 If the Bidder plans to change any personnel from the list, the Bidder shall notify Company in advance of the intended change and give Company the above-mentioned particulars of the new person.

Company reserves the right to reject any person on such list, and any subsequent changes to the list.

5.0 BIDDER'S ITEMS:

5.1 Bidder shall provide equipment and personnel to perform the services under the Contract as specified in this document.

5.2 Bidder shall be responsible for maintaining at its own cost adequate stock levels of items including spares and replenishing them as necessary.

5.3 Bidder shall be responsible for the maintenance and repair of all equipment and will provide all spare parts, materials, lubricants, consumables etc. during the entire period of the contractual period. Company shall provide Diesel fuel at Drilling unit.

5.4 Bidder will provide all POL for operation of Bidder's equipment at well-site at Bidder's cost. There shall be no escalation in the day rates and others throughout the duration of the Contract including extension, if any, on account of any price increase in fuel / lubricants.

5.5 Zero-day rate will be applicable for shutdown of operations on account of inadequate supply of Bidder's items, including but not limited to, POL, lubricants, personnel etc.

6.0 CONDUCTING OPERATIONS:

6.1 The Bidder shall carry out all operations mentioned hereunder with due diligence in a safe and workman like manner and in accordance with accepted international oilfield practices.

6.2 All the equipment and materials to be provided by Bidder shall be in first class working condition.

6.3 Bidder shall be solely responsible for the operation and maintenance of all the equipment and will provide all spare parts, materials, lubricants, consumables etc. during the entire period of the contractual period. Company shall provide Diesel fuel at Drilling unit.

6.4 Upon completion of an operation in a well, statement stating that the well has been completed in accordance with the terms of this Contract and signed by the representatives of both Bidder and Company, will be made available to Company.

6.5 **Safety:** The Bidder shall observe such safety regulations in accordance with acceptable oil field practice and applicable Indian Laws. Bidder shall take all necessary measures reasonably to provide safe working conditions and shall exercise due care & caution in preventing fire, explosion and blow out and maintain fire-fighting equipment in sound condition at all times during operation. Bidder shall conduct safety drills etc. regularly.

6.6 **Adverse Weather**: Bidder, in consultation with Company, shall decide when, in the face of impending adverse weather conditions, to institute precautionary measures in order to safeguard the well, the equipment and personnel to the fullest possible extent.

6.7 **AMENDMENTS OF COMPLETION PROGRAMME:** It is agreed that Bidder shall carry out Operations in accordance with the program to be furnished by Company, which may be amended from time to time by reasonable modification as Company deems fit, in accordance with good oil field practices.

7.0 BIDDER'S SPECIAL OBLIGATIONS:

7.1 It is expressly understood that Bidder is an independent party and that neither it nor its employees and its sub Bidders are employees or agents of Company provided, however, Company is authorized to designate its representative, who shall at all times have access to all the equipment and materials and all records, for the purposes of observing, inspecting and designating the Work to be performed hereunder by Bidder. The Bidder may treat Company's representative at well site as being in charge of Company's designated personnel at well site. The Company's representative may, amongst other duties, observe, test, check and control implementation of operations, equipment and inspect works performed by Bidder or examine records kept at well site by Bidder.

7.2 The Bidder shall furnish full particulars of crews e.g. name, nationality, passport number, date and place of issue and expiry date of passport, father's name, date and place of birth, designation etc., four (4) weeks before the start of activities.

7.3 The Bidder shall primarily and solely be responsible for obtaining customs clearance for importation, if any, into India of the Bidder's equipment, spare parts, consumables etc. in connection with the execution of the Work. Any demurrage in this process will be at the Bidder's cost. Bidder shall bear all requisite port fees, clearance fees, transit agent fees, inland transportation charges from port of importation/point of origin to Company's Site etc.

7.4 The Bidder will be fully responsible for any unauthorized imports or wrong declaration of goods and will have to pay the penalty and other consequences as levied by the port/customs authorities for such unauthorized imports.

7.5 Subject to clauses in 'Special Conditions of Contract', the Bidder shall bear all expenses on account of repair/ replacement of all their equipment etc. consequent upon any damage/ loss/ non-performance during the course of operation.

7.6 The Bidder shall be bound by laws and regulations of Government of India and other statutory bodies in India in respect of use of wireless sets, maps, charts, entry regulations, security restrictions, foreign exchange, work permits, customs etc.

7.7 The Bidder shall use to the fullest extent all facilities available in India provided they are technically/ operationally acceptable.

7.8 The Bidder shall follow its own safety rules, in addition to rules prescribed under Indian Laws in this respect.

7.9 The Bidder shall arrange for security of their camp sites, fly camps, equipment, establishment etc. while in Bidder's custody at their own cost.

7.10 The equipment/tools to be furnished by the Bidder under this Contract is the Bidder's property and shall always remain in the possession of the Bidder with the exclusive right to use of such equipment/tools by the Bidder for providing services under this Contract.

7.11 The Contract Price shall remain firm and fixed during the execution of the Contract and not subject to variation on any account.

7.12 The Bidder shall be responsible for, and shall provide for all requirements of their personnel, and of their sub-Bidder, if any, including but not limited to their insurance, housing, medical services, messing, transportation (both air and land transportation), vacation, salaries and all amenities, termination payment and all immigration requirement and taxes, if any, payable in India or outside at no charge to the Company.

7.13 The Well Test Supervisor shall have all power requisite for performance of the Work. He shall liaise with the Company's representative for the proper co-ordination and timely completion of the job and on any other matters pertaining to the job.

7.14 **Compliance With Company's Instructions:** The Bidder shall comply with all instructions of Company consistent with the provision of this Contract, but not limited to Work program, safety instructions, confidential nature of information, etc. Such instructions shall, if the Bidder requests, be confirmed in writing by Company's representative.

7.15 **WELL RECORDS:** Bidder shall keep/provide the record of operation on daily basis of each well on to the Company's Representative.

7.16 Bidder shall arrange for all types of transportation of all equipment, etc. from their Supply base/port of import to the Site and back at the end of the Contract at their own expense. Arrangement of Road Permits and payment of Entry Tax for bringing equipment/material to Workplace shall be Bidder's responsibility.

8.0 RIGHTS AND PRIVILEGES OF COMPANY:

Company shall be entitled –

8.1 To check the Equipment and other Bidder's items before the commencement of operation. If they are not found in good order or do not meet specifications as per Annexure-I or in case of non-availability of some of the Bidder's items listed Annexure-I, the Bidder may not be allowed for commencement until the Bidder has remedied such default.

8.2 To approve the choice of sub-Bidders for any essential third-party contract, concerning materials, equipment, personnel and services to be rendered by Bidder.

8.3 To check, at all times, Bidder's stock level, to inspect Bidder's equipment and request for renovation or replacement thereof, if found in unsatisfactory condition or not conforming to regulations or specifications.

8.4 To order suspension of operations while and whenever:

a) Bidder's personnel is deemed by Company to be not satisfactory, and/ or

b) Bidder's equipment does not conform to regulations or to the specifications laid down in the Contract, and/ or

c) Bidder's equipment turns into a danger to personnel on or around the Equipment or to the well, and/ or

d) Bidder's insurance in connection with the operations hereunder is found by Company not to conform to the requirements set forth in the Contract, and/ or

e) Bidder fails to meet any of the provisions in the Contract, and/ or

f) Any shortage in key/additional (compulsory) personnel and inadequacy of other personnel.

9.0 HEADINGS:

The headings of the clauses of the Contract are for convenience only and shall not be used to interpret the provisions hereof.

10.0 PRE-CHECKS AND PRE-TESTS OF EQUIPMENT/ACCESSORIES:

10.1 The Bidder shall test, carry out all necessary pre-checks and pre-tests of the equipment/ accessories to ensure trouble free and safe operation prior to each job or as instructed by the Company's Representative. Bidder shall record results of all such tests in the daily job report.

10.2 **DISCIPLINE:** The Bidder shall maintain strict discipline and good order among their employees and their sub-Bidders, if any, and shall abide by and conform to all rules and regulations promulgated by the Company. Should the Company feel with just cause that the conduct of any of the Bidder's personnel is detrimental to Company's interest; the Company shall notify Bidder in writing the reasons for requesting removal of such personnel. The Bidder shall remove and replace such employees at their expense within 7 days from the time of such instruction given by the Company.

11.0 ASSOCIATION OF COMPANY'S PERSONNEL:

11.1 Company may depute one or more than one representative(s) / engineer(s) to act on its behalf for overall co-ordination and operational management at location. Company's representative will be vested with the authority to order any changes in the Scope of Work to the extent so authorized and notified by the Company in writing. He shall liaise with the Bidder and monitor progress to ensure timely completion of the jobs. He shall also have the authority to oversee the execution of jobs by the Bidder and to ensure compliance of provisions of the Contract.

11.2 Company's representatives shall have free access to all the equipment of the Bidder during operations as well as idle time for the purpose of observing/ inspecting the operations performed by the Bidder in order to judge whether, in Company's opinion, the Bidder is complying with the provisions of the Contract.

11.3 The Bidder should maintain sufficient stock of the critical spare part to avoid any major shut down. Bidder must observe all safety and statutory norms applicable to the Company to prevent surface pollution and injury to personnel working in the area.

11. WELL TESTING SERVICES, SURFACE AND DOWNHOLE TOOLS (11)

11.1 MOBILIZATION

Mobilization charges as lump sum amount against Surface Production Testing Services, SSTT, DST, TCP, NPU & Slickline services, as detailed in the SCOPE OF WORK / TERMS OF REFERENCE PART-3, SECTION-II, will be payable when:

(i) Mobilization charges (excluding manpower) shall become payable after the Services, ready in all respects as per scope of work, including obtaining all statutory clearances (as applicable) are mobilised to the Company's Shore base at Port Blair, Andaman & Nicobar Islands and after on-hire survey by the Company Representative, which shall be no later than 10 working days from the date of arrival/intimation by the contractor & provided it is certified by the Contractor and accepted by Company Representative and/or by Third Party Inspection agency that all items are in good working condition. Date of mobilization will be considered as completed from the date of successful inspection carried out by Company representative and/or by Third Party Inspection agency. However, for the purposes of LD, the mobilisation would be deemed complete from the date and time the equipment, tools, consumables etc. are mobilized in the designated location.

Mobilization will be considered as completed only when all equipment/tools are in good condition and delivered to the company's shore base at Port Blair as follows.

a. All operating Tools/equipment are tested/calibrated to its rated specifications to the satisfaction of Company.

b. Where appropriate all equipment and materials must be delivered on/in suitable skids, tool racks, baskets, containers, pallets, etc as the case may be.

c. Dangerous goods and explosives must be suitably packaged, labelled, and otherwise marked according to all regulations and MSDS sheets should accompany the package.

d. Appropriate packaging must be utilized for all deliveries.

e. If appropriate, material must be suitably coated with a corrosion prevention material and be packed with a dehumidifier, both of which must be suitable for storage at ambient temperatures of 45ºC.

f. Bidder shall supply appropriate lifting gear for all equipment; current load test certificates for all slings, rigging and lifting gear will be required.

(ii) In case, any Service(s) which require mobilization at rig are not sent to rig after on-hire survey due to any reason not attributable to Contractor, then Individual Service Day Rate charges as applicable shall be payable after 7 days onwards from on-hire survey date e.g., in case on-hire survey is done on Day 1, then Individual Service Day Rate shall start from Day 8. However, if any of the Equipment / Tools of the above service(s) are found to be defective or not in operating condition as per its intended operations during hookup or pressure testing or startup / commissioning operations at Offshore Drilling Unit, the ISDR charges shall be revoked from the date of ISDR considered till the Equipment / Tools / Services are brought into operation.

(iii) Mobilization charges are inclusive of transportation, sea/airfreight, loading/unloading, shipping, wharfage/demurrage and harbour fees, port or airport fees, packing and handling charges, permit, import clearance charges and all insurance adequate to cover the shipment from the place of origin until arrival at COMPANY'S Shore Base at Port Blair where equipment is ordered to be mobilized.

(iv) The Company will issue EC as required for custom clearance as the service will be used in PEL/ML area, only on receipt of request from the Contractor and all such requests must be made by the Contractor well in advance, so that the Company can make necessary arrangements for providing the documents in time without causing any delay for the customs/port clearance.

(v) Contractor to ensure sufficient backup tools/spares/consumables /personnel/equipment over and above the minimum quantity specified in the SOW for ensuring uninterrupted drilling operation.

(vi) Company reserves the right to allow operations to start without complete mobilization, provided it is possible to start work with the items mobilized. However, the shortfall items must be mobilized by the Contractor immediately thereafter. If the Company permits the Contractor to start Operations without completing mobilization, only 80% of Mobilization charges will become payable to the Contractor and the remaining 20% of mobilization charges will be paid only after the shortfall items are made available. The Liquidated Damages as set out in the Contract shall be applicable up to the date the shortfall items are made available. However, notwithstanding this provision for partial mobilization, the Contractor must make all effort for mobilization of Contractor's items as per the contractual provisions.

(vii) Each down hole tool/equipment as well as consumable items should have minimum number of back-ups to continue the operation in case of malfunctioning of tool/equipment and consumable items found to be defective or damaged during handling at surface.

11.2 DEMOBILIZATION CHARGES

(i) The Contractor shall arrange for and execute demobilization of the Surface Production Testing Services, SSTT, DST, TCP, NPU & Slickline services upon receipt of notice from the Company. The above services shall be demobilized after issue of Demobilization notice and offloaded at the Company's shore base where it was initially mobilized as per the Contract.

(ii) Demobilization charges for the above services (Surface Production Testing Services, SSTT, DST, TCP, NPU & Slickline services) shall be quoted on lump sum basis and shall include all charges for demobilization of the Services (Surface Production Testing Services, SSTT, DST, TCP, NPU & Slickline services) from the Company's Shore Base at Port Blair, Andaman & Nicobar Islands to Contractor's base in India or abroad.

(iii) All charges on Tools / Equipment / Spare / Accessories etc. shall cease to exist with effect from the day the Contractor is issued de-mobilization notice by the Company and Tools / Equipment / Spare / Accessories etc. are offloaded at the Company's shore base where it was initially mobilized as per the Contract. The contractor will ensure that demobilization is completed, and the Company's Shore Base is cleared-off Contractor's property within 07 days from the date of offloading at the Company's shore base. No day rates will be payable to the crew once they are offloaded from the Drilling Unit.

(iv) The demobilization charge will include all expenses for inland transport, sea-freight/airfreight, loading and unloading, shipping, wharfage and harbour fees, port or airport fees, packing and handling charges, permit or octroi charges (if any), export clearance charges and all insurance adequate to cover the shipment until arrival at Contractor's base in India or abroad.

11.3 INDIVIDUAL SERVICE DAY RATE (ISDR)

(i) Contractor shall be paid ISDR as per conditions stipulated in the scope of work / SCC and respective price formats. Individual Service Day Rate charges will be payable for full day or part thereof on pro-rata basis up to the nearest hour and shall commence after completion of the mobilization and made ready in all respects to start operations.

(ii) Individual Service Day Rate (ISDR) will continue till offloaded at the Company's Shore base in Port Blair after issue of Demobilization notice.

(iii) Break Down clause under Part-3; Section-III; SCC Clause No: 6.0 will be applicable if contractor's tool/equipment fails to perform its intended operations until the tool/equipment is back in operating condition.

(iv) At any point of time, either OCDR or ISDR will be payable.

11.4 OPERATING COMPONENT DAY RATE (OCDR)

Under the contract, the Contractor shall be entitled to Operating Component Day rate (OCDR) charges as detailed below. OCDR will be payable for full day or part thereof on pro-rata basis up to the nearest hour and these rates are inclusive of spares etc., if required for the successful completion of the work.

(i) The OCDR for TCP, DST, and production testing services shall be payable for the period when the equipment are setup and pressure tested at site, ready for well test operation and hooked up with the flow head and the DST tool along with TCP Tool is below the rotary table (BRT) and till it is pulled out of hole.

(ii) The OCDR for DST, and production testing services shall be payable for the period when the equipment are setup and pressure tested at site, ready for well test operation and hooked up with the flow head and the DST tool is below the rotary table (BRT) and till it is pulled out of hole.

(iii) The OCDR will be payable only for the TCP tool when it is run independently for the period the TCP Tool is below the rotary table (BRT) and till it is pulled out of hole.

(iv) The OCDR for NPU shall be payable for the period when the unit is hooked up, pressure tested and is carrying out well activation operation.

(v) The OCDR for Slick line shall be payable for the period when the unit is rigged up with surface flow head and the slick line tool is lowered below the rotary table (BRT) till it is pulled out of hole.

(vi) If the Bidder's tool/equipment fails to perform, for any reason in the duration of operation, then zero rate shall become payable for the entire unit of the service until the equipment/tool is put back into operating condition or evidence by demonstration of operation in actual tests or use to the satisfaction of Company. If the equipment couldn't be brought into operation within 4 hours, then Break Down clause under Part-3; Section-III; SCC Clause No: 6.2 will be applicable.

(vii) At any point of time, either OCDR or ISDR will be payable.

11.5 CONSUMABLES

(i) Liquid nitrogen for well activation using NPU shall be delivered at Company's Shore Base in Port Blair, Andaman & Nicobar Islands on DDP (Port Blair) basis for onward transportation to the Drilling Unit.

(ii) Payment to the Contractor for consumable items shall be made on actual consumption basis as Certified by Company representative against the submission of invoice.

11.6 SERVICE PERSONNEL DAY RATE

Company shall pay the Contractor the quoted DAY RATE to following service personnel.

a. Well Test Coordinator (01 Number)
b. Surface Production Well Test Supervisor (02 Number)

c. Surface Production Well Test Specialist (02 Numbers)
d. Surface Production Well Test Operator (04 Numbers)
e. Data Acquisition & Interpretation Specialist (02 Number)
f. SSTT Specialist (02 Numbers)
g. SSTT Operator (02 Numbers)
h. TCP Specialist (01 Numbers)
i. TCP Operator (01 Numbers)
j. DST Specialist (01 Numbers)
k. DST Operator (01 Numbers)
l. NPU Specialist (01 Number)
m. NPU Operator (01 Number)
n. Slickline Specialist (01 Number)
o. Slickline Operator (02 Number)
p. Roustabouts, (03 Numbers); Bidders may propose additional numbers at no additional cost to the Company.

Notes:

i) The above manpower is for 24 hours operation on shift basis. The quoted day rate of national and expatriate service personnel shall be all-inclusive of their mobilization, local travel, boarding, lodging, and demobilization, including any remobilization. The Company shall provide transportation from Company designated Heli-base to the Drilling Unit, the Company will also provide accommodation and food while the personnel is on the Drilling Unit. Any day rates for personnel will be paid only when on the drilling unit. If any person/personnel are mobilized/remobilized to the Company's Shore Base or offloaded from the Drilling Unit by the Company due to any other reason or contingencies at the Company's request, the Company shall pay only the quoted day rate which will be inclusive of local travel, boarding, lodging, etc.

ii) Personnel charge of Service Personnel shall be 24 hours a day (pro rata basis for part thereof up to the completed full hours only) basis.

iii) Personnel will be required on a call out basis. Company shall give a maximum of 15 days' notice.

iv) Only key personnel are mentioned in the tender. Optimum utilization of the supporting personnel is the responsibility of the bidder and to be quoted accordingly.

INTEGRITY PACT

Between

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

And

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

Preamble:

The Principal intends to award, under laid down organizational procedures, contract/s for ----------. The Principal values full compliance with all relevant laws and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder/s.

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

Section: 1 -Commitments of the Principal

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

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

(ii) The Principal will, during the tender process treat all Bidders with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidders the same information and will not provide to any Bidder confidential/additional information through which the Bidder could obtain an advantage in relation to the tender process.

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

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

Section: 2 -Commitments of the Bidder~~/ Contractor~~

(1) The Bidder commits itself to take all measures necessary to prevent corruption. During his participation in the tender process, the Bidder commits himself to observe the following principles:

(i) The Bidder will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not

legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during subsequent contract execution, if awarded.

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

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

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

(v) Bidders to disclose any transgressions with any other public/government organization that may impinge on the anti-corruption principle. The date of such transgression, for the purpose of disclosure by the bidders in this regard, would be the date on which cognizance of the said transgression was taken by the competent authority. The period for which such transgressions (s) is/are to be reported by the bidders shall be the last **three years** to be reckoned from date of bid submission. The transgression (s), for which cognizance was taken even before the said period of three years, but are pending conclusion, shall also be reported by the bidders.

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

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

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

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

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

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

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

hierarchy of the Bidder and the amount of the damage. The exclusion will be imposed for a minimum of 6 months and maximum of 2 years.

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

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

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

5. Integrity Pact, in respect of a particular contract, shall be operative from the date Integrity Pact is signed by both the parties or as mentioned in Section 9 - Pact Duration whichever is later. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.

Section 4 -Compensation for Damages

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

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

Section 5 -Previous transgression

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

(2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process for such reason.

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

(1) The Principal will enter into Pacts on identical terms with all bidders.

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

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

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

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

Section: 8 -External Independent Monitor/Monitors

(1) The Principal appoints competent and credible Independent External Monitor (IEM) for this Pact.

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

(3) The Bidder accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Bidder. The Bidder will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder/Contractor/Subcontractor with confidentiality.

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

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

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

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

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

(9) In case of any complaints referred under IP Program, the role of IEMs is advisory and the advice of IEM is non-binding on the Organization. However, as IEMs are invariably persons with rich experience who have retired as senior functionaries of the government, their advice would help in proper implementation of the IP.

Section:9 -Pact Duration

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

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

Section:10 -Other provisions

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

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

(3) In case of a joint venture, all the partners of the joint venture should sign the Integrity Pact. In case of sub-contracting, the principal contractor shall take the responsibility of the adoption of IP by the sub-contractor. It is to be ensured that all sub-contractors also sign the IP. In case of sub-contractors, the IP will be a tri-partite arrangement to be signed by the Organization, the contractor, and the sub-contractor.

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

……. **Sd/-** **For the Principal** Date: Place :	**……..** **For the Bidder/Contractor** Witness 1: ..... Witness 2: .....