

CORRIGENDUM

1.0 Amendment No. 3 dated 06.04.2017 to **Tender No. CJG3622P17** has been issued to amend some of the clauses under BEC, SOW , SCC & GCC and also to extend the Bid Closing/Technical Bid Opening Date and Tender Document Sale Date against Tender No. CJG3622P17 as under :

Bid Closing Date & Time : 27.04.2017 at 11-00 hrs. (IST)

Technical Bid Opening Date & Time : 27.04.2017 at 15-00 hrs. (IST)

Tender Sale Date extended to : 20.04.2017

2.0 The amended clauses are as under -

Srl. No.	Existing Clause	Amended Clause
1.	<p>Part-2 (BEC)</p> <p>I. <u>TECHNICAL CRITERIA :</u></p> <p>1.1 <u>(A) Experience:</u></p> <p>(i) <u>Bidder's Experience:</u> (b) Bidder must have successfully executed at least one similar nature work valuing not less than INR 16.10 crores in last seven(07) years reckoned from the original scheduled Bid Closing Date. Documentary evidence in the form of duly attested copies of contracts/work orders and completion certificates/payment certificates etc. issued by clients to be submitted along with the Technical Bid.</p>	<p>Part-2 (BEC)</p> <p>I. <u>TECHNICAL CRITERIA :</u></p> <p>1.1 <u>(A) Experience:</u></p> <p>(i) <u>Bidder's Experience:</u> (b) Bidder must have successfully executed at least one similar nature work valuing not less than INR 8.50 crores or equivalent in US\$ in last seven(07) years reckoned from the original scheduled Bid Closing Date. Documentary evidence in the form of duly attested copies of contracts/work orders and completion certificates/payment certificates etc. issued by clients to be submitted along with the Technical Bid.</p>
2.	<p>Part-2 (BEC)</p> <p>I. <u>TECHNICAL CRITERIA :</u></p> <p>1.1 <u>(A) Experience:</u></p> <p>(ii) <u>Experience of Bidder's</u></p>	<p>Part-2 (BEC)</p> <p>I. <u>TECHNICAL CRITERIA :</u></p> <p>1.1 <u>(A) Experience:</u></p> <p>(ii) <u>Experience of Bidder's Personnel:</u></p>

	<p>Personnel: The Bidder must confirm to deploy qualified, experienced and competent manpower for carrying out the cementing and other associated operations against the contract as mentioned hereunder :</p> <p>(a) One Cementing Engineer proposed to be engaged on regular basis having independent work experience of minimum five (5) years in oil/gas wells primary and secondary cementing jobs. He should also be well-versed in cementing process execution in thermal completion wells for exploitation of heavy oil with work experience of at least three (3) wells. Bio-data of the personnel proposed to be deployed must be submitted along with the Technical Bid.</p>	<p>The Bidder must confirm to deploy qualified, experienced and competent manpower for carrying out the cementing and other associated operations against the contract as mentioned hereunder :</p> <p>(a) One Cementing Engineer proposed to be engaged on regular basis having independent work experience of minimum five (5) years in oil/gas wells primary and secondary cementing jobs. He should also be well-versed in cementing process execution in completion of wells which are going to be exposed to 300 deg C to 350 deg. C steam circulation during Cyclic Steam Stimulation(CSS) process for exploitation of heavy oil with work experience of at least three (3) wells. Bio-data of the personnel proposed to be deployed must be submitted along with the Technical Bid.</p>
3.	<p>Part-2 (BEC) II. Financial Criteria : 1.0 Annual Financial Turnover of the Bidder during any of preceding three financial/ accounting years from the original bid closing date should be at least INR 1610 Lakhs (or equivalent in US\$).</p>	<p>Part-2 (BEC) II. Financial Criteria : 1.0 Annual Financial Turnover of the Bidder during any of preceding three financial/ accounting years from the original bid closing date should be at least INR 8.50 Crores (or equivalent in US\$).</p>
4.	<p>Part-2 (BEC) Para 1.1(C) (g) MOBILIZATION PERIOD: The Bidder shall mobilize the entire Unit, tools/equipment/chemicals/consumables and personnel within 60 (sixty) days (max.) from the date of issuance of Letter of Award (LOA) of the contract. Company prefers earliest mobilization. Bidders must categorically confirm the same in their Technical Bids. Bids offering mobilization time more than 60 (sixty) days will be summarily rejected.</p>	<p>Part-2 (BEC) Para 1.1(C) (g) MOBILIZATION PERIOD: The Bidder shall mobilize the entire Unit, tools/equipment/chemicals/consumables and personnel within 90 (ninety) days (max.) from the date of issuance of Letter of Award (LOA) of the contract. Company prefers earliest mobilization. Bidders must categorically confirm the same in their Technical Bids. Bids offering mobilization time more than 90 (ninety) days will be summarily rejected.</p>
5.	<p>Part-2 (BEC) 1.1(C) b) Bulk Handling Plant must be equipped with three (03) nos. Pneumatic Silos of capacity 1000 cubic feet each & two (02) nos.</p>	<p>Part-2 (BEC) 1.1(C) b) Bulk Handling Plant must be equipped with three (03) nos. Pneumatic Silos of minimum 1000 cubic feet capacity each, so that total capacity is not less than</p>

	Air Compressors (minimum air pressure required for operation - 40 psi).	3000 cubic feet & two (02) nos. Air Compressors (minimum air pressure required for operation - 40 psi).
6.	Part-2 (BEC) 1.1(C) c) Transport Silo (one no) with air manifold system & having a carrying capacity of 1000 bags (minimum) of cement. Weight of one (01) bag should not be less than 50 kg.	Part-2 (BEC) 1.1(C) c) Transport Silo (one no) with air manifold system & having a carrying capacity of 18-25 MT of cement.
7.	Part – 3, Section-II (SOW) Annexure-II, para (10) Table 10.(c)(i) &(ii)	Part – 3, Section-II (SOW) Annexure-II, para (10) Table 10.(c)(i) &(ii) stands revised as enclosed.
8.	Part – 3, Section-II (SOW) Annexure-IV Tables under para 2.2 & 2.3.	Part – 3, Section-II (SOW) Annexure-IV Tables under para 2.2 & 2.3 stands revised as enclosed.
9.	Part – 3, Section-II (SOW) Para 3.7 Casing Policy: Table – 1, 2 & 3.	Part – 3, Section-II (SOW) Para 3.7 Casing Policy: Table – 1, 2 & 3 stands revised as enclosed.
10.	Part-3, Section-II (SOW) Annexure – I 2) To supply cement additives as per PROFORMA -B (Table -1 & Table -2) in Price Schedule Format depending on well requirement in lots under this contract either directly or through tie-up with any one of the following five international reputed cement additives supply companies only – 1. M/s. Halliburton, 2. M/s. BJ Services, 3. M/s. Dowel Schlumberger, 4. M/s. Baker Hughes 5. M/s. Weafri Well Services Co. Ltd. No other makes or cement additives will be acceptable. Necessary supporting documents for tie-up/MOU against this specific tender should be submitted along with the Technical Bid. However, if the Bidder is one of the above-mentioned companies, then such tie-up/MOU is not required.	Part-3, Section-II (SOW) Annexure – I 2) To supply cement additives as per PROFORMA-B (Table -1 & Table -2) in Price Schedule Format depending on well requirement in lots under this contract either directly or through tie-up with any one of the following six international reputed cement additives supply companies only – 1. M/s. Halliburton, 2. M/s. Schlumberger 3. M/s. Baker Hughes 4. M/s. Weatherford 5. M/s. Weafri Well Services Co. Ltd. & 6.M/s.National Oilwell Maintenance Co. No other makes or cement additives will be acceptable. Necessary supporting documents for tie-up/MOU on a legally valid document against this specific tender should be submitted along with the Technical Bid. However, if the Bidder is one of the above-mentioned companies, then such tie-up/MOU is not required.
11.	Part-3, Section-II (SOW) Annexure-II	Part-3, Section-II (SOW) Annexure-II 5)Laboratory Facility:

	<p>5) Laboratory Facility: i) The Bidder should provide adequate Laboratory facilities at base office at Jodhpur for designing cement slurry to meet specific requirement of OIL.</p>	<p>i) The Bidder should provide adequate Laboratory facilities at base office at Jodhpur or Western Region of India for designing cement slurry to meet specific requirement of OIL. However, for any delay in execution of cementing operation due to delay in lab report at site, <u>zero rate will be applicable.</u></p>
12.	<p>Part-3, Section-II (SOW) Annexure-II 3(a) Chiksan Loops: 2" Chiksen loops of 12 feet length each and 10,000 psi rating with adapter and min. 602 FIG hammer union connections – ten (10) nos. or adequate quantities. The chiksan loop with higher-pressure rating will also be acceptable but Contractor will have to provide necessary cross-over to connect to 10,000 psi 602 FIG hammer union.</p>	<p>Part-3, Section-II (SOW) Annexure-II 3(a) Chiksan Loops: 2" Chiksen loops of 12 feet length each and 10,000/15,000 psi rating with adapter and min. 1502 FIG hammer union connections – ten (10) nos. or adequate quantities. The chiksan loop with higher-pressure rating will also be acceptable but Contractor will have to provide necessary cross-over to connect to 10,000 psi 1502 FIG hammer union.</p>
13.	<p>Part-3, Section-II (SOW) Annexure-II 3(b)Circulating Heads: i) 20" bottom buttress pin thread connection : 01 no. Top 2" nipple with valve & min. 602 FIG hammer union. ii) 13.3/8" bottom buttress pin thread connection : 01 no. Top 2" nipple with valve & min. 602 FIG hammer union iii) 9.5/8" bottom buttress pin thread connection : 01 no. Top 2" nipple with valve & min. 602 FIG hammer union iv) 7" bottom buttress pin thread connection : 01 no. Top 2" nipple with valve & min. 602 FIG hammer union v) 5.1/2" bottom buttress pin thread connection : 01 no. Top 2" nipple with valve & 602 FIG hammer union.</p>	<p>Part-3, Section-II (SOW) Annexure-II 3(b) Circulating Heads : i)20" bottom buttress pin thread connection : 01 no. Top 2" nipple with valve & min. 1502 FIG hammer union. ii)13.3/8" bottom buttress pin thread connection : 01 no. Top 2" nipple with valve & min. 1502 FIG hammer union iii)9.5/8" bottom buttress pin thread connection : 01 no. Top 2" nipple with valve & min. 1502 FIG hammer union iv) 7" bottom buttress pin thread connection : 01 no. Top 2" nipple with valve & min. 1502 FIG hammer union v) 5.1/2" bottom buttress pin thread connection : 01 no. Top 2" nipple with valve & 1502 FIG hammer union. Adequate spares for the above tools /equipment should be kept at well-site.</p>

	Adequate spares for the above tools/equipment should be kept at well-site.	
14.	<p>Part-3, Section-II (SOW) Annexure-II 4) BULK-HANDLING PLANT SERVICES: Contractor shall provide one complete set of Bulk Handling Plant (BHP) with all surface equipment, tools, necessary fittings & accessories. BHP unit should be installed at well-site adjacent to Cementing Unit & Batch Mixer. The BHP Unit shall be moved from drilling site to site along with Cementing Unit.</p> <p><u>Materials for Bulk-Handling Plant -</u></p> <ol style="list-style-type: none"> 1. 03 nos. Pneumatic Storage Silos with capacity of 1000 cft each. 2. 02 nos. Air-compressor, powered by Diesel engine(minimum air pressure - 40 psi) 3. 02 nos. Cutting Pot with table and platform 4. 01 no. Air drying unit. 5. 02 nos. Dust collector or Cyclone separator. 6. 01 no. Air regulator with filtrating element & pressure gauge and having Hammer union connection in vice-versa. 7. 01 no. Weigh Pot with weight indicator. 8. 01 no. Transport Silo with air manifold system and having a carrying capacity of 1000 (one thousand) bags of cement (each bag weighing 50 kg). 	<p>Part-3, Section-II (SOW) Annexure-II 4) BULK-HANDLING PLANT SERVICES: Contractor shall provide one complete set of Bulk Handling Plant (BHP) with all surface equipment, tools, necessary fittings & accessories. BHP unit should be installed at well-site adjacent to Cementing Unit & Batch Mixer. The BHP Unit shall be moved from drilling site to site along with Cementing Unit.</p> <p><u>Materials for Bulk-Handling Plant -</u></p> <ol style="list-style-type: none"> 1. 03 nos. Pneumatic Storage Silos with minimum 1000 cft. capacity each or 02 nos. Pneumatic Storage Silos with minimum 1500 cft. capacity each, so that total capacity is not less than 3000 cft. 2. 02 nos. Air-compressor, powered by Diesel engine(minimum air pressure - 40 psi) 3. 02 nos. Cutting Pot with table and platform 4. 01 no. Air drying unit. 5. 02 nos. Dust collector or Cyclone separator. 6. 01 no. Air regulator with filtrating element & pressure gauge and having Hammer union connection in vice-versa. 7. Deleted 8. 01 no. Transport Silo with air manifold system and having a carrying capacity of 18-25 MT of cement.
15.	<p>Part-3, Section-II (SOW) Annexure-I 20) To provide necessary services in case of severe loss circulation, acidizing and well testing, if required. Pumping in of water through annulus during blind drilling or hole-filling in case of complete mud loss.</p>	<p>Part-3, Section-II (SOW) Annexure-I 20) To provide necessary services in case of severe loss circulation, if required. Pumping in of water through annulus during blind drilling or hole-filling in case of complete mud loss.</p>
16.	<p>Part-3, Section-II (SOW) Annexure-II 2. Cementing Unit :</p>	<p>Part-3, Section-II (SOW) Annexure-II 2. Cementing Unit :</p>

	<p><u>SPECIFICATIONS:</u> The Cementing unit should be a twin-pump high pressure pumping unit suitable for all types of pressure pumping services including but not limited to cementing, stimulation, gravel packing and general pumping services. The unit should be mobile, self-driven or trailer-mounted with stand-by horse unit, having self contained centrifugal supercharger pumps, circulating mixing pump & system, hoppers with hopper manifold and feed water pump.</p> <p><u>The Cementing Unit should be complete with but not limited to the following:</u></p> <p>a) <u>Twin-pumping Unit:</u> Must be capable of achieving a maximum pumping pressure of 10,000 psi and maximum pumping rate of 10 barrels (US) per minute. The pumps should have safety valves which can be set at any pressure as desired.</p>	<p><u>SPECIFICATIONS:</u> The Cementing unit should be a twin-pump high pressure pumping unit suitable for all types of pressure pumping services including but not limited to cementing and general pumping services. The unit should be mobile, self-driven or trailer- mounted with stand-by horse unit, having self contained centrifugal supercharger pumps, circulating mixing pump & system, hoppers with hopper manifold and feed water pump.</p> <p><u>The Cementing Unit should be complete with but not limited to the following:</u></p> <p>a)<u>Twin-pumping Unit:</u> Must be capable of achieving a maximum pumping pressure of 10,000 psi and maximum pumping rate of 10 barrels (US) per minute. Out of twin pumps, one pump should be of minimum 10,000 psi & 10 bpm. The second pump should be of minimum 5,000 psi rating. The pumps should have safety valves which can be set at any pressure as desired.</p> <p>b)</p>
17.	<p>Part-3, Section-II (SOW) Annexure-II 3(c)(i) 20” standard double plug cementing head (2000/3000 psi) with quick change adapter having bottom buttress pin thread connection along with double manifold for 20” casing - 01 no.</p>	<p>Part-3, Section-II (SOW) Annexure-II 3(c)(i) 20” standard Single/Double plug cementing head (2000/3000 psi) with quick change adapter having bottom buttress pin thread connection along with double manifold for 20” casing - 01 no.</p>
18.	<p>Part-3, Section-II (SOW) Annexure-II 9) REQUIREMENT OF PERSONNEL: (a) The Bidder shall deploy 01 (one) number competent, qualified (min. Diploma in Engineering) and trained Cementing Engineer with minimum five (05) years independent experience in oil/gas well cementing and stimulation jobs on continuous 24 hours basis at rig site and work on 21 days On & Off system as per standard oilfield practice under the law. However, if Bidder deploys more personnel for assisting the Cementing Engineer towards performance of any specific job at well-site during the execution of the</p>	<p>Part-3, Section-II (SOW) Annexure-II 9)REQUIREMENT OF PERSONNEL: (a) The Bidder shall deploy 01 (one) number competent, qualified (min. Diploma in Engineering) and trained Cementing Engineer with minimum five (05) years independent experience in oil/gas well cementing and stimulation jobs on either continuous 24 hours or 12 hrs. day shift duty basis at rig site and work on 21 days On & Off system as per standard oilfield practice under the law. However, if Bidder deploys more personnel for assisting the Cementing Engineer towards performance of any specific job at well-site during the execution of the contract, Company shall not pay for such additional man-power.</p>

	contract, Company shall not pay for such additional man-power.	
19.	<p>Part-3, Section-II (SOW) Annexure-II</p> <p>1.(h) Density to be recorded by Radioactive Densitometer utilizing a low capacity cesium 137 or equivalent source.</p>	<p>Part-3, Section-II (SOW) Annexure-II</p> <p>1.(h) Density to be recorded by Radioactive/Non-Radioactive Densitometer utilizing a low capacity cesium 137 or equivalent source.</p>
20.	<p>Part-3, Section-II (SOW) Annexure-II</p> <p>1.(j) 2", 10,000 psi high pressure line with necessary adaptors/connectors to connect Cementing Unit to circulating/cementing head at derrick floor/cellar.</p>	<p>Part-3, Section-II (SOW) Annexure-II</p> <p>1.(j) 2", 15,000 psi high pressure line with necessary adaptors/connectors to connect Cementing Unit to circulating/cementing head at derrick floor/cellar.</p>
21.	<p>Part-3, Section-IV Schedule of Services /Schedule of Rates</p> <p>1.4 Mobilization charges shall be payable when all equipment/tools /consumables & crew are positioned to undertake/commence the work assigned under the Contract at the first location (approximately 300 km from Jodhpur, connected with State Highways) and duly certified by the Company Representative.</p>	<p>Part-3, Section-IV Schedule of Services /Schedule of Rates</p> <p>1.4 Mobilization charges shall be payable when all equipment/tools/crew & consumables sufficient for the 1st well are positioned to undertake/commence the work assigned under the Contract at the first location (approximately 300 km from Jodhpur, connected with State Highways) and duly certified by the Company Representative.</p>
22.	<p>Part - 3, Section-I (GCC)</p> <p>2.2 MOBILISATION/ De-MOBILISATION TIME OF THE CONTRACT: The mobilization of equipment, personnel etc. should be completed by Contractor within 60 days from the effective date of the contract. Mobilization shall be deemed to be completed when Contractor's equipment and manpower are placed at the nominated location in readiness to commence Work as envisaged under the Contract duly certified by the Company's authorized representative.</p>	<p>Part - 3, Section-I (GCC)</p> <p>2.2 MOBILISATION/ De- MOBILISATION TIME OF THE CONTRACT: The mobilization of equipment, personnel etc. should be completed by Contractor within 90 days from the effective date of the contract. Mobilization shall be deemed to be completed when Contractor's equipment and manpower are placed at the nominated location in readiness to commence Work as envisaged under the Contract duly certified by the Company's authorized representative.</p>
23.	<p>Part-3, Section-III (SCC)</p> <p>12.0 MOBILIZATION PERIOD:</p> <p>12.1 The successful Bidder must be able to mobilize their Personnel, Cementing unit, all other equipment, tools, spares, and all other necessary materials required for carrying out cementing operations within</p>	<p>Part-3, Section-III (SCC)</p> <p>12.0 MOBILIZATION PERIOD:</p> <p>12.1 The successful Bidder must be able to mobilize their Personnel, Cementing unit, all other equipment, tools, spares, and all other necessary materials required for carrying out cementing operations within ninety (90) days from the date of issuance of LOA by the Company.</p>

	<p>sixty (60) days from the date of issuance of LOA by the Company. However, early mobilization shall be preferred by the Company</p>	<p>However, early mobilization shall be preferred by the Company</p>
24.	<p>Part-3, Section-III (SCC) 7.8 The Company shall within twenty (20) days of receipt of the invoice notify Contractor of any item under dispute, specifying the reasons thereof, in which event, payment of the disputed amount may be withheld until settlement of the dispute, but payment shall be made of any undisputed portion in due time. This will not prejudice the Company's right to question the validity of the payment at a later date as envisaged in Para 7.3 above.</p>	<p>Part-3, Section-III (SCC) 7.8 The Company shall within thirty (30) days of receipt of the invoice notify Contractor of any item under dispute, specifying the reasons thereof, in which event, payment of the disputed amount may be withheld until settlement of the dispute, but payment shall be made of any undisputed portion in due time. This will not prejudice the Company's right to question the validity of the payment at a later date as envisaged in Para 7.3 above.</p>
25.	<p>Part-3, Section-III (SCC) 2.7 Contractor shall accommodate the Test Laboratory in the premises of Base Office at Jodhpur for better maintenance, functioning and supervision. However, it shall be the responsibility of the Company to supply samples of technical water and cement from well-site for necessary tests well ahead of cementing operation at site.</p>	<p>Part-3, Section-III (SCC) 2.7 Contractor shall accommodate the Test Laboratory in the premises of Base Office at Jodhpur or Western Region of India for better maintenance, functioning and supervision. However, it shall be the responsibility of the Company to supply samples of technical water and cement from well-site for necessary tests well ahead of cementing operation at site. In case of laboratory set up outside Jodhpur, it shall be Contractor's responsibility to collect samples of technical water & cement from OIL office, Jodhpur for necessary tests well ahead of actual execution of cementing job at site.</p>

3.0 All other terms & Conditions remain unchanged.

REVISED TABLES

3.7 Casing Policy: The tentative casing/cementing policies for the proposed exploratory and development drilling program are shown in Table-1, 2 & 3 hereunder -

CASING POLICY/ CEMENTING POLICY

TABLE - 1

For Vertical Non-Thermal Wells

Hole sizes	17.5"	12.25"	8.5"
Casing sizes	13.37" (68ppf/N-80 type)	9.625" (47ppf/N-80 type)	5.5" (20ppf/N-80 type)
Casing setting depth	100 - 150 m	900 m	2200 m
Expected cement rise	Surface	Surface	100 m inside 9.625" casing
Slurry type	Neat slurry	Treated with additives	Treated with additives

TABLE - 2

For Vertical Thermal Completion wells

Hole sizes	17.5"	12.25"	8.5"
Casing sizes	13.37" (68ppf/N-80 type)	9.625" (47 ppf/L-80 type)	7.0" (20 ppf/L-80 type)
Casing setting depth	250 - 300 m	900 m	1300 m
Expected cement rise	Surface	Surface	100 m inside 9.625" casing or up to surface.
Slurry type	Neat slurry	Treated with additives	Treated with thermal additives

TABLE -3**For Horizontal Thermal Completion Wells**

Hole sizes	26"	17.50"	12.25"	8.5"
Casing sizes	20" (98ppf/J-55 type)	13.37" (68ppf/L-80 type)	9.625" (47ppf/L-80 type)	7.0" (20ppf/L-80 type)
Expected cement rise	Surface	Surface	150 m inside 13.37" casing.	Drain-hole – no cementation.
Casing setting depth (MWD)	220 m	720 m from surface	1450 m (@ 750 m liner hanged)	1850 m (@450 m liner hanged)
Slurry type	Neat slurry	Treated with thermal additives	Treated with thermal additives	-

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10(c) (i) Slurry Formulation Parameters (Normal Wells):

Basic Parameter	Conductor Casing Cement Job	Intermediate Casing Cement Job (9.5/8")		Production Casing Cement Job (5.1/2")	
	One Slurry	Lead	Tail	Lead	Tail
Density (PPG)	13.5	13.5	15.8	13.5	15.8
Depth (m) (TVD)	100-150		900		2200
Fluid Loss(max)	No control required	No control required	No control required	200 cc	50cc
Thickening Time(max)	4-5 Hrs	5 Hrs	4-5 Hrs	5-6 Hrs	5-7 Hrs
Temp. Gradient	2.0 – 2.2° C per 100 Meter	2.0 – 2.2° C per 100 Meter		2.0 – 2.5° C per 100 Meter	

10 (c) (ii) Slurry Formulation Parameters (Thermal Completion Wells):

Basic Parameter	Conductor Casing Cement Job (20")	Intermediate Casing Cement Job (9.5/8")/(13.3/8")		Production Casing /Build-up Section Liner Cement Job (7")/(9.5/8")
Density (PPG)	One Slurry	Lead	Tail	One slurry
	13.5	13.5	15.8	15.8 – 12.0*
Depth (m) (TVD)	250-300		900	1300
Fluid Loss(max)	No control required	No control required	No control required	50 cc
Thickening Time (max)	4-5 Hrs	5 Hrs	4-5 Hrs	5-7 Hrs
Temp. Gradient	2.0 –2.2° C per 100 Meter	2.0 –2.2° C per 100 Meter		2.0 –2.5° C per 100 Meter

- Slurry density shall be decided as per well evidences/requirement.

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1.0 DESCRIPTION OF ITEMS: CEMENT ADDITIVES

2.0 RECOMMENDED PRESSURE - TEMPERATURE RANGE, TESTING CONDITIONS AND CEMENT SLURRY PROPERTIES:

2.1 Cement slurry for 13.3/8” Casing & 9.5/8” Casing (Normal well): Neat cement slurry of specific gravity 1.62 - 1.90 (13.5 ppg to 15.8 ppg). No additives except defoamer are required for these sections.

2.2 Cement slurry for 5.1/2” Casing (Normal Well): Cement slurry of specific gravity 1.90 (15.8 ppg) treated with additives for temperature range 50- 80 Deg C BHCT.

1.0	SLURRY TYPE	Cement slurry design should consists of API Class ‘G’ HSR type and fresh water having specific gravity 1.90 (15.8 ppg)
2.0	PHYSICAL PROPERTIES	
2.1	PHYSICAL STATE	Additives as received should be free from visible impurities.
2.2	Solubility in water	Additives should be soluble or dispersible in fresh water.
2.3	Moisture content % by mass determined at 60-80 degree C	10.0 (Max)
3.0	SLURRY PROPERTIES	
3.1	Thickening time at HT-HP	300 min.

	Consistometer at 50-80 ° C and 5500 psi (pressure to be raised in 44 minutes).	
3.2	Water loss as per API	50ml/30 min (Max)
3.3	Free water as per API	1.4% (Max)
3.4	Initial consistency	10-20 BC (Max)
3.5	24hrs.Compressive Strength at BHST 50-85 ° C & 5500 psi.	2000 psi (Min) at 85 ° C BHST
4.0	TESTING PARAMETER	
4.1	BHST and BOTTOM HOLE PRESSURE	50-80 degree C to test at 85 ° C and 5500 psi
4.2	Time to raise temp & pressure and Slurry specific Gravity	44 minutes & 1.90 (15.8 ppg)

2.3 Cement slurry for 5.1/2” Casing, 13.3/8” Casing and 9.5/8” Liner (Thermal Completion Well): Cement slurry of specific gravity 1.44 - 1.90 (12.0-15.8 ppg) treated with suitable additives for temperature range up to 110 deg C. (As per DBM of M/s BOGC)

1.0	SLURRY TYPE	Cement slurry design should consists of API Class ‘G’ HSR type and fresh water having specific gravity 1.44-1.90 (12.0-15.8 ppg)**
2.1	PHYSICAL STATE	Additives as received should be free from visible impurities.
2.2	Solubility in water	Additives should be soluble or dispersible in fresh water.
2.3	Moisture content % by mass determined at 60-80 Degree C	10.0 (Max)
3.0	SLURRY PROPERTIES	
3.1	Thickening time at HT-HP Consistometer at 90-110 ° C and 5500 psi (pressure to be raised in 44 minutes).	300 min.
3.2	Water loss as per API	50 ml/30 min (Max)
3.3	Free water as per API	1.4% (Max)
3.4	Initial consistency	10-20 BC (Max)
3.5	24hrs.Compressive Strength at BHST 90-110 ° C & 5500 psi.	2000 psi (Min) at 100 ° C BHST
4.0	TESTING PARAMETER	
4.1	BHST and BOTTOM HOLE PRESSURE	90-110 ° C to test at 100 ° C and 5500 psi
4.2	Time to raise temp. and pressure & Slurry specific Gravity	44 minutes & 1.90 (15.8 ppg)
2.1	PHYSICAL STATE	Additives as received should be free from visible impurities.

**Cement density shall be decided as per well evidences or requirement.

PRICE BID FORMAT**(C) PRICE SCHEDULE FORMAT FOR CEMENT ADDITIVES:**

Bidders should quote for cement additives as per Price Schedule Format given below-

Table – 1**(Additives requirement for Normal Cementing)**

Srl. No.	Description of Additives	Unit	Quantity (a)	Unit Rate (b) (Currency)	Total FOR Destination/Site Value (c = a x b) (Currency)
1	Fluid Loss Reducer	Kg	4000		
2	Friction Reducer	Kg	1500		
3	Low Temp Retarder	Kg	1000		
4	Defoamer	Kg/Lit	500		
5	Gas Block Additives	Kg/Lit	6500		
				Total FOR Destination/Site Value	

Conversion Factor : 1 KG = 2.2046 lbs. ; 1 Lit = 0.2642 Gallons

Total FOR Destination/Site value inclusive of all taxes, duties and levies but excluding custom duties: C1 = Sum Total of (1 + 2 + 3+4+5) above.

Table – 2**(Additives requirement for Thermal Completion wells)**

Srl. No.	Description of Additives	Unit	Quantity (a)	Unit Rate (b) (Currency)	Total FOR Destination/Site Value (c = a x b) (Currency)
1	Fluid Loss Reducer	Kg	2000		
2	Friction Reducer	Kg	500		
3	Low Temp Retarder	Kg	1000		
4	High Temp Retarder	Kg	500		
5	Defoamer	Kg/Lit	500		
6	Light Weight Additives (Hollow Glass Microsphere of crush strength of minimum 6000 psi)	Kg	79000		
7	Strength Stabilizer	Kg	59250		
				Total FOR Destination/Site Value	

Conversion Factor : 1 KG = 2.2046 lbs. ; 1 Lit = 0.2642 Gallons

Total FOR Destination/Site value inclusive of all taxes, duties & levies but excluding custom duty : C2 = Sum Total of (1 + 2 + 3+4+5+6+7) above.

TOTAL VALUE OF CEMENT ADDITIVES : C = C1 + C2

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