

Note:

Please confirm your interest to participate in this tender through email to Contract@abrajenergy.com and to submit the EOI & confidentiality declaration forms to be duly filled and send to us for our records **within 3 days of receiving this invitation.**

You will receive a link to submit your proposal through SAP Ariba System

The submission deadline is **as per SAP Ariba System**

ABRAJ

Tender Document

Tender No. STC.240123.WS.8000210

Tender Title: Rate Agreement for Purchasing Cementing Units

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1. INVITATION TO TENDER

Abraj Energy Services SAOC “the Company” invites ‘Bidder’ to Tender for the Work or Services in accordance with the terms and conditions set down in the Tender Documents. If you are a successful Bidder you shall be required to enter into a Contract in accordance with the Form of Agreement.

Rate Agreement for Purchasing Cementing Units

There should be no indications or markings on envelopes or the parcel, which may reveal the identity of the Bidder except Tender No and Title. The parcel should be delivered on the date and time as specified in the advertised invitation of this Tender and should be addressed to:

Abraj Energy Services (SAOC)
Al-Mawaleh, PO Box 1156, PC 130, Azaiba,
Sultanate of Oman

Abraj Energy Services SAOC is not bound to accept the lowest Tender or award the full Bidder scope of work and reserves the right to reject any or all Tenders without assigning any reason

2. INSTRUCTIONS TO BIDDERS

2.1 General

Bidders must notify the Company immediately if they find discrepancies omissions or ambiguities in the description of the services or specifications of goods.

Bidders should note the restrictions set out in the Contract regarding the subcontracting and assignment of any part of the Contract to other companies.

Bidders should also note those terms peculiar to the conducting of services in the Sultanate of Oman, including the requirements set out in the Contract for use of Omani supplies, equipment, machinery, consumables, Omani workers and subcontractors, and the importation of materials, equipment and consumables.

By submitting a Tender, the Bidder is deemed to have made the necessary allowances in the Tender Price for adhering to all laws, rules, regulations, Policies, and procedures applicable in the Sultanate of Oman.

Clarification Requests: All questions or communications regarding this Invitation to tender shall be directed by e-mail to Contract@abrajenergy.com before the clarification closing date.

Any addendums, clarifications or any other correspondence will be issued and sent via e-mail to all Bidder during the tendering period.

The Tender Documents and all Tender submissions are to be made in the English language.

2.2 Expression of Interest

The bidder will confirm the Express of Interest (EOI) for the Tender as per Annexure-02 and provide the documents as per following:

To register your interest please complete the forms listed below duly signed by authorized signatory and submitted within three (3) days of reviewing the Invitation to Tender (ITT) to:

Contract@abrajenergy.com

1. Annexure-03 Interest to Participate in Tender and Confidentiality Declaration (Form #AES-03) 2. Annexure-04 Declaration to Comply with Company Requirement (Form # AES-04)

2.3 Confidentiality

All recipients of tender documents (whether they submit Tenders or not) shall treat the details of the documents as private and confidential.

During the tender period, the Bidder shall not communicate with anyone related to or deemed to be related to the owner or custodian of the project unless expressly so directed by the Abraj Contract department or where such communication shall constitute an enquiry as set down in these instructions.

2.4 Clarification Requests

All Clarification Requests regarding this Tender shall be submitted by Bidder in the format as included in Annexure 09.

The request for the extension of Submission Bid will be provided well within 5 days from receipt of the Tender Document and the extension of Bid will be requested in same form of Annexure-09.

Company reserves the right not to entertain any Clarification Request received by Company after the Clarification Request Closing Date stipulated in the Tender schedule.

Addenda to the Tender Documents may be issued prior to the date of delivery of Tenders for the purpose of amending or clarifying the Tender Documents. Should there be any doubt or obscurity as to the meaning of the Tender Documents, or as a request for a site visit, or as to anything to be done under the Contract or concerning these instructions, or any other matter, the Bidder must set forth in writing such doubt or obscurity and deliver the same to Abraj Tender Committee, not later than ten (10) **working days before the date fixed for the submission of Tenders**. If considered appropriate a reply in the form of a Circular Letter or Addendum will be distributed to all Bidders who have obtained the Tender Documents.

Company will endeavor to revert within 2-3 working days from receipt of Clarification submissions as per Tender Schedule below.

2.5 Preparation of Bids

The scope of work has been attached herein in Annexure- 01. The technical Bid should be provide to meet the requirement specified in scope of work.

Any bid exceptions must be attached to the bid. Exceptions to the provisions of the contract will not be accepted by Company for review or negotiation after the bid closing time. Exceptions shall be accompanied by complete information on the nature and extent of the proposed exception and the consequent impacts to the prices, schedule or other aspect of the bid.

Bidders will not be compensated for the cost of preparing a bid, including, without limitation, any travel costs, whether successful or unsuccessful and regardless of whether Company chooses not to award the contract.

Bidders are encouraged to provide any additional information helpful to Company in evaluating their bids.

Bidder shall submit their bid in accordance with Tender documents and provide information as per attached Annexures wherever required.

Bidder shall ensure upon receipt that the copy of the Tender Documents has received in complete and inform if they have not received any of mentioned above to Contract Administration on email address Contract@abrajenergy.com with five (5) days after received of mail.

All copies shall be properly executed, all blank spaces shall be filled in, and any interlineations, alterations, or erasures shall be formally explained and initialed by the Bidder. Failure to comply with these requirements may be cause for rejection of the bid.

Bid may not be considered unless they are in conformity with the Tender Documents. You are specifically advised that evaluation of BID shall include the degree of exceptions taken (if any) to the Body of terms and conditions.

Bidder shall confirm acceptance of the proposed terms and conditions together with any exceptions, clearly shown in the Tender documents. Partial or incomplete BID received after the stated due time may be rejected.

Each Bidder shall give the full legal name, registered number, place of incorporation and registered office address of the Bidder. Where the Bidder operates under any trading name this also shall be stated, as shall be any trading or mailing address if different to the registered office address.

BID shall be written in English and labelled with the name of the part inside.

The Bidders should Submit following documents in the Technical Bid submission:-

- a. Maximum technical information of all the services or equipment covering the Scope of work as per attached Annexure-01.
- b. Specification, brand name, manufacturer name, material detailed, etc. maximum information of each component or part of all equipment or assembly of Equipment.
- c. List of Certificates. If possible, sample of certification.
- d. Country of Origin of Raw Material and Assembly of equipment.
- e. Product drawing or assembly drawing with maximum information.
- f. Part Catalogue or Product catalogue.
- g. Manufacturer experience detailed.
- h. List of Customer to whom you are dealing.
- i. Any other information which can be useful for technical evaluation of scope of work as per attached Annexure- 01
- j. Deviation to our requirement will be marked separately and any change in price will be provided in Commercial BID.
- k. For any additional Item or scope of work should be specified with optional price.
- l. Bidder should provide detailed product specification along with catalogue copy in Technical BID.
- m. All items should be supplied as per latest standard of American Petroleum Institute.
- n. This is general standard of the equipment required in Oil and Gas Industries.
- o. Purchaser should have right to select line item in the bid.

- p. The Technical Tender shall not contain any pricing information.

The Bidders should Submit following documents in the Commercial Bid submission:-

- a. Submit your price for the equipment as per attached Price Schedule Annexure -10. The total price need to be carried to the Form of Tender and complete all blanks applicable in the Appendix of Form of Tender.
- b. Price of each equipment or group of equipment as per scope of supply as per attached Annexure –10.
- c. Provide Delivery period. - Abraj expects to get better delivery and the delivery is one of the criteria of commercial evaluation.
- d. Provide clear delivery term.
- e. Packing charges if any required.
- f. Manufacturer of each item of Equipment or assembly of Equipment.
- g. Country of origin of each item of Equipment or assembly of Equipment.
- h. Provide additional information which can be useful for commercial evaluation of scope of supply as per attached Annexure-01.
- i. Commercial Part shall be submitted with prices and rates in US \$/OMR taking into account the Works to be executed with terms and conditions included herein.
- j. Technical and Contractual Part shall be submitted with the format and content specified hereinafter. No prices shall be indicated in the technical and contractual part.

2.6 Visit to the Site (If Required)

The Bidder must visit the Site and obtain, at his own expense, all information necessary for preparing a Tender. He must carefully examine the Tender Documents and satisfying himself as to the tasks, risks, obligations and responsibilities to be undertaken in the Contract, form and nature of the entire areas in which the Works are to be carried out, the means of access to the Site and in general all other matters which may affect his tender.

Any neglect or failure on the part of the Bidder to obtain reliable information at Site or elsewhere or on any other matters affecting the execution and completion of the Works of this Contract shall not relieve the accepted Bidder from any risks or liabilities or from the responsibilities of completing and handing over the works.

Abraj Energy Services will arrange a guided Site Visit and a notice to this effect will be issued during the tendering period. The Bidder shall contact Contract Administrator/ Contract Engineer through Email regarding the time and date of the guided Site Visit.

Any of the employees, servants or agents of the Bidder will be allowed by Abraj to enter the site and his premises and land for the purposes of inspection and examination strictly on condition that such persons, firms or companies will indemnify the Company and his servants and agents from and against all liability arising out of any personal injury, fatal

or otherwise, loss or damage to property and any other loss directly or indirectly attributable to the said inspection and examination.

2.7 Submission of Bids

The Tender shall be submitted in two parts: one comprising a Technical Tender and one containing the Commercial Tender. The Technical Tender shall contain all the required documents requested in the Tender Documents excluding any financial references. The Commercial Tender shall contain all financial documents and information. Bidders who fail to adhere to this requirement will result in the disqualification of their Tender.

The Bid Form together with all information and documentation shall be completed and submitted by email only.

The bidder must affix its initialed company stamp to every page of its original Tender submission which should include all parts of the Tender Documents. The original shall be clearly marked "ORIGINAL"

Bidders not complying with the requirements of the Bid Form and the submission and delivery of the bids may be deemed non-responsive to the Invitation to Tender and their bids may be excluded from further consideration.

The Bidders should submit the bids which should be signed by Authorized person of the company and company may verify if it is required from CEO or Owner of bidder or any other Agencies e.g. Chamber of Commerce. .

No deletions or erasures may be made in the list of prices and the schedule of categories. Any correction in the prices etc. shall be re-written in numbers and words and signed by the authorized person.

The bidder may not delete or modify any clauses or technical specifications irrespective of the nature of such modification.

Any special conditions or modifications shall be sent in or attached with a separate letter kept in the tender envelope. A reference shall be made to this letter in the bid itself. No other alternative shall be acceptable.

The price schedule shall specify whether the item is manufactured in the Sultanate of Oman or abroad. Inaccuracy of the information submitted, partly or fully, shall lead to the rejection of the item without prejudice to the Abraj Tender Committee's right to deprive the bidder of the facility to deal with other tenders of the Company within a period specified by the relevant Abraj Tender Committee (ATC), depending on the situation of each case.

The prices quoted by the bidder in the schedule of categories shall include and cover all the expenses and liabilities, irrespective of their nature, to be incurred or met in respect of each clause and shall also include those involved in the completion, delivery and maintenance if required, of all the works during the period of guarantee and maintenance.

The final calculation shall be done on the basis of these prices irrespective of fluctuations in the market, the customs duty and other duties and taxes.

The bidder shall, in case of the submission of one or more alternative offer, ensure that these offers are clear and detailed and referred to in the list of contents.

If the bidder fails to specify the price of an item required to be supplied in the price list, this

shall be considered as abstention from participation in the tender in respect of such item.

The prices specified in words shall be accepted. As an exception, the relevant may accept the offer specified in numbers only in the Company's interest.

A bid based on a reduction in the lowest bid by a specified percentage shall also not be acceptable.

To submit the Commercial bid, the following shall be taken into account:

- a. If the goods are required to be delivered on board the ship, the price given in the bid shall include the price of the items, adding thereto the expenses for mobilization, transportation and loading in accordance with the FOB system.
- b. If the goods are required to be delivered at the port of arrival, the price given in the bid shall include the price of the items, adding thereto the expenses for mobilization, transportation, loading and shipping in accordance with the C & F system.
- c. If the goods are required to be delivered at the port of arrival, the price given in the bid shall include the price of the items, adding thereto the expenses for mobilization, transportation, loading, shipping, insurance and unloading in accordance with the CIF system.
- d. If the goods are required to be delivered at the stores of the purchaser or the work sites, the price given in the bid shall include the price of the items, adding thereto the expenses for mobilization, transportation and loading, the shipment charges, the insurance cost and expenses on unloading, customs duties, internal transportation and other additional charges.
- e. In all cases, the contractor shall bear all the expenses for getting the letter of credit from the Company pertaining to their banker while the Company shall bear the letter of credit opening charges pertaining to its banker in Oman.
- f. The data or information for Commercial Bid submission will be as per attached Annexure-10.

Bidders accept full responsibility for ensuring their bids are delivered or submitted to the correct email address by the specified deadline. Bids submitted to any other address or later than the deadline may not be considered.

Bidders forwarding their bids by courier should advise by email to Contract@abrajenergy.com, when the bid has been sent by courier, naming the courier and tracing number.

Bids received after the final bid submission deadline will be returned unopened to the bidder.

Company expressly reserves the right to extend the bid submission deadline.

2.8 Currency of Contract

The currency of the contract will be in Omani Rials (OMR) or US Dollar. In the case of a tender submitted by an individual or companies abroad, it is permitted to write the prices in foreign currency provided the equivalent Oman currency must be mentioned. Tender in foreign currency without the equivalent Oman currency will be rejected.

2.9 Validity of Tenders

The Bid Proposal shall remain valid and irrevocable for a period of Ninety (90) days from the closing date for the submission of Tenders. Company intends to notify all Bidder of the result of their Tender submission during this period. If Bidder retracts or withdraws its Tender during the period of its validity without receiving authorization from Company, Company may, at its sole discretion, without the need for summons, notice or other legal formalities or exercise any other rights stipulated in the Tender Documents.

In exceptional circumstances, prior to expiry of the original, the procuring agency may request the bidders to extend the period of validity for a specified additional period, which shall not be for more than one third of the original period of bid validity. The request and the responses thereto, shall be made in writing. A bidder may refuse the request without the forfeiture of the bid security. In case, a bidder agreed to the request, shall not be required or permitted to modify the bid, but will be required to extend the validity of the bid security for the period of the extension

2.10 Language of Contract

All correspondence with the Company or the Company' representative shall be in the English Language. Original documents or copies submitted by Tenders, which are not in Arabic or English, should be accompanied by English translation.

2.11 No Alterations

No Alterations to the text of the Tender Documents shall be made except for filling in blanks intended to be filled-in. Failure to fully comply with this instruction may result in the rejection of the Tender.

Any alteration to a unit rate or amount made by the Bidder to correct clerical errors entered by him in the Schedule of Prices and Schedule of Rates during the preparation of the tender must be initialed by the person authorized to sign the Tender prior to the submission of tender.

2.12 QHSE Requirements

The Supplier shall comply with all the HSE requirements of Abraj Energy Services (S.A.O.C). As specified while executing the required supply works. Bidder shall fully describe its HSE record for the last three years. This shall include details of accidents and incidents involving Bidder's personnel and third parties for the activities undertaken by Bidder.

2.13 Bidder Registration Requirements

The successful bidder(s), who are not already registered, will be sent a supplier

registration form and will have up to 30 days to register with Abraj Energy Services. The request need to be send to following email address to get the necessary documents required to complete registration process:

Email Address: Contract@abrajenergy.com

2.14 Opening of Tenders

Both Technical & Financial Offers submitted will be opened at the time and day specified in the advertised invitation to Tender at the offices of Abraj Energy Services. Any Tender received after the time and date fixed for submission of Tenders will be rejected.

2.15 Tender Bond

The Bidder must furnish, as part of his Tender, a Tender Bond in the value of not less than 1% of the Tender Value. If the Bidder submits an alternative Tender, the one percent shall be calculated based on the highest Tender Value. The wording of the Tender Bond shall be as per the prescribed Form of Tender Bond included within the Tender Document. See Annexure-12.

The Tender Bond shall be denominated in Omani currency and shall be obtained from a bank located and registered in the Sultanate of Oman and valid for ninety (90) days from the latest date fixed for the submission of Tenders. Any Tender not accompanied by a Tender Bond will be rejected.

The Tender Bond of unsuccessful Bidders will be returned on its expiration or after the award of the Contract to the successful Bidder.

The Tender Bond will be forfeited:

- i) If a Bidder withdraws his Tender during the period of Tender validity specified in the Tender Documents; or
- ii) In the case of a successful Bidder, if the Bidder fails:
 - a) to sign the Contract; and/or
 - b) To furnish the Performance Bond.

2.16 Performance Bond

For the due performance of the Contract, The Supplier will be required to provide a Performance Bond within (7) calendar days from the date of the Letter of Acceptance to the value of five percent (5%) of the Contract Value, obtained from a Bank registered in the Sultanate of Oman, and valid for the whole of the Contract and Defects Liability Period. The Performance Bond will be retained by the Company during the Contract and Defects Liability Period and will be returned to the Supplier upon the satisfactory completion of the Defects Liability Period. The Performance Bond shall be as per the prescribed "Form of Performance Bond" included in the Tender Document.

2.17 Evaluation of Tenders

After received of Bids, Abraj evaluation Team will conduct evaluation of Bid. Technical and Commercial bids will be evaluated separately by different Evaluation Team. Tender evaluation Strategy of bids will be conducted as per Annexure-11.

2.18 Award contract

Abraj reserves the right to reject all of the bids for any reason and not award the Contract to any Bidder.

Abraj reserves the right to award the Contract to a Bidder other than the lowest Bidder and to negotiate any amendment to the terms of the contract with the successful Bidder.

Abraj reserves the right to seek clarification from bidders during the evaluation process.

Bids will be evaluated by Company to determine the best qualified and most competitive.

Bidder taking into consideration all aspects of the bid, including but not limited to:

- a. The bidder's technical ability to perform the job to Company specifications and the suitability of the proposed equipment, tools, goods, processes and programs.
- b. The rates offered.
- c. Bidder's financial integrity, past performance, reputation within the industry.

In the event that Company estimates that the bid price exceeds competitive limits, it may request the bidder to reconsider the bid price with the aim to lower the price, and such a request shall not be considered as a rejection or acceptance by the Company until the validity period specified herein.

Notification of Acceptance: By way of a Letter of Intent to Award, Company shall notify the successful Bidder of Company acceptance of its Tender subject to the following conditions precedent: Signing of the Contract.

For the purpose of determining the start dates of the Performance Bond and the Insurances, the date of the Letter of Intent to Award shall be used unless another date is otherwise stipulated in the Letter of Intent to Award. If the successful Bidder fails to submit the documentation per (a) and (b) above within the time period stipulated in the Letter of Intent to Award, Company may, at its sole discretion, without the need for summons or notice or other legal formalities, exercise any rights stipulated in the Tender Documents, and notify the successful Bidder that the Contract is, ipso facto, terminated. The Effective Date, as entered in the Agreement, shall be determined at the sole discretion of Company.

3. ABRAJ STANDARD TERMS & CONDITIONS

Abraj's standard terms and conditions are attached as per Annexure 12 and any deviation to terms and conditions should be specifying in Commercial Bid.

Company expressly reserves the right to extend the bid submission deadline. Bidders not complying with the requirements of the Bid Form and the submission and delivery of the bids may be deemed non-responsive to the Invitation to Tender and their bids may be excluded from further consideration.

Bidders accept full responsibility for ensuring their Bids are delivered to the email addresses by the specified deadline. Bids submitted to any other email address or later than the deadline may not be considered.

FORM OF TENDER

STC.240123.WS.8000210,Rate Agreement for Purchasing Cementing Units

To:

Abraj Energy Services (SAOC)
Al-Mawaleh, PO Box 1156, PC 130, Azaiba,
Sultanate of Oman

Sir/Madam,

1. We have examined the Conditions of Contract, Company’s Requirements, and Addenda listed hereunder for the above named Works. We have examined, understood and checked these documents and have ascertained that they contain no errors or other defects. We, the undersigned accordingly, offer to execute and completely maintain the whole of the said Works for the prices set out in our Tender.

Rials Omani

(R.O.) or such other sum or currency*

(.....)

2. We undertake if our Tender is accepted to commence the work in accordance within Days of the Contract Conditions and to complete the Works in accordance with the above documents within the time for Completion stated in the Appendix to the Form of Tender. We guarantee that the Works will then conform to the Performance Guarantees included in this Tender.
3. We undertake that if our Tender is accepted we will provide the specified Performance Bond from a locally registered Insurance Company or Bank in accordance with SubClause 2.16 of the above instruction to Bidder to be jointly and severally bound with us in the sum of five percent (5%) of the Contract Price for the due performance of the Contract under the terms of a Performance Bond to be approved by you.
4. We agree to abide by this Tender for a period of 90 days from the date fixed for receiving same and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
5. Until the Contract is prepared and executed this Letter of Tender, together with your written acceptance thereof, shall constitute a binding obligation upon us.
6. We understand that you are not bound to accept the lowest or any tender you may receive.
7. We acknowledge the receipt of the following Circular Letter and Addenda:

Reference number of Addenda:	Date
.....
.....
.....

.....

And confirm that we have taken account of same in our Tender.

8. We confirm that we have an Agent/s for the provision of Spare Parts, Maintenance Services and repair who are:

Name _____

Address _____

And whose Agency Registration Number is _____

Dated _____

Name _____

Address _____

And whose Agency Registration Number is _____

Dated _____

Annexure- 01 Scope of Work

Scope of work:

To manufacture Eight cement units on rate agreement without any commitment and depends on scope award to Abraj from existing opportunities

Below are the required technical specifications:

1. General Specifications

ITEM	QTY	DESCRIPTION
Carrier	1	Tandem Axle fixed gooseneck, "single drop" trailer
Deck Engine	2	Caterpillar C15 rated 540 BHP @ 2,100
Deck Transmission	2	Allison 4700 OFS
Cooling System	2	Vertical radiator with Mechanical Fan
Triplex Pumps	2	SPM TWS600S (Short/Compact
High Pressure Piping	1	2" Fig 1502, 15,000 PSI (103 MPa)
Low Pressure Piping	1	150 PSI (1.03 MPa)
Displacement Tank	1	20BBL (3.2 m3) Total Capacity, 2 Compartments.
Mix Water Pump	2	TSC 4" x 3" x 13" Centrifugal
Boost Pump	1	TSC 6" x 5" x 11" Centrifugal
Recirculation Pump	1	TSC 6" x 5" x 11" Centrifugal
Cement Slurry Mixing System	1	Automatic Mixing System
		Automatic/Manual Control High Energy Recirculation Mixing System
Mass Flow Meter	2	Coriolis Type Non-Radioactive
Flowmeter	1	Turbine Type
Slurry Tank	1	25 BBL (3.97 m3) Twin Tank (9 bbl. mixing tub + 16 bbl. downhole average tank) with Diffuser, Tub Level Indicator and Hydraulic Paddles
Fiber feeder		
Controls System		Control Platform and Positive air purging Control Console with Data Acquisition
Solid Fraction Monitor		Software

2. Unit Dimensions

The physical dimensions of this trailer-mounted unit will be as the following:

- Approximate Length: 45' 11" (14.00 m)
- Maximum Width: 9' 0" (2.75 m)

- Maximum Height: 15' 7" (4.75 m)
- Approximate Weight: 70,548 lbs (32,000 kg)
- 3. Carrier

This will be a Tandem (2) axle, fixed gooseneck "single drop" trailer with fifth-wheel towing attachment that will have the following features:

- Heavy-duty type with steel "I" section (outer) beam main rails and cross-member construction. Capable to resist humidity amounts up to 80% and temperatures between 55 degC.
- Tandem, (two) "Air Ride" type suspension (with dump valve located at the trailer rear bumper).
- 16.5 x 7 S Cam style spring-loaded air brakes with ABS
- Double Brake chambers and parking brakes mounted above the axles (Protection to avoid mud intrusion?)
- Quantity eight (8) 12.00R20 radial tires on Hub style steel rim wheels
- Two-speed manually (crank) operated landing gear at the front of the trailer. The size of the landing plate should be at least 300*300 mm. (Dual synchronization)
- 3.5" King Pin assembly to be mounted on the trailer. One additional 2" kingpin to be supplied loosely as a spare part.
- 24 VDC electrical system
- Air/electric QD tractor/trailer connections
- Checker plate/fiber-grate decking where applicable
- Fenders rear and front with mud flaps all round
- Rear bumper with centrally mounted towing loop
- Front centrally mounted towing loop
- The unit must have the full payload detail (in kg) of a cargo or load area visible to persons loading the vehicle. The maximum payload details must be printed on both sides of the unit.
- Have a dual-acting fail-safe braking mechanism fitted to all non-steering axles.
- Have color-coded palm couplings (Red: Emergency, Yellow: Service).
- Have a 7-pin automotive electrical socket for an electrical system compatible with the prime mover.
- Side (amber color) and rear position lights (red color), and registration plate light (white color)
- Brake lights
- Direction indicators
- Reversing lights
- Two high-intensity rear-facing red lights, located as rearward, and as high, and as far apart as practicable, wired from the headlight switch but also with an override switch.
- If the trailer's body is wider than the body of the prime mover, the forwards facing projecting parts of the trailer body must display a white light facing forwards.
- Have landing gear appropriate to the Vehicle Gross Weight, which does not interfere with the swing of the prime mover when stowed.
- Have a manual securing device to lock the trailer brakes while the trailer is not coupled.
- Must be fitted with double-acting fail-safe brakes to all axles.

Tires

- The unit must be fitted with 'All Terrain' tires.
- All tires must be of the same manufacturer, type, profile, and tread pattern.
- Tires shall be fitted in such a manner that the tire manufacturing date and other tire-related data are exposed to the outer side and visible to the driver.
- Tires fitted on the unit shall not be older than six months from the commissioning day
- Two spare wheels are required

Emergency Equipment

- Fire extinguisher, securely mounted dry powder, capacity 1.5 kg
- Securely stowed first aid kit that meets or exceeds Class A first aid kit minimum requirements of ANSI/ISEA Z308.1, 2015. The First aid kit may be located anywhere in the vehicle, providing it is easily located, and if not directly visible, a sticker should be affixed to show its location

- Minimum of one hazard warning triangle.
- Wheel change equipment.
- Minimum of two-wheel chocks, size to match the tire diameter and gross vehicle weight
- Reversing alarm that automatically activates
- The reversing alarm must be audible from 8 meters.
- The unit must have two red high-intensity lights located as high and as far apart as practicable, wired to the headlight switch, but also with an override switch.

4. Engines

Diesel Engines

These shall be Caterpillar C15, turbocharged, 15.2 L (927.6 in³) total displacement, 4-cycle, 6-cylinder inline configuration, turbocharged, high speed, water-cooled, direct fuel injection, electronic type Diesel Engines operating at up to 2100 RPM and rated at 540 HP at 2100 RPM. Each Diesel Engine shall be equipped as per the following:

- Single-stage, dry-type air filters with replaceable cartridges with pre-cleaner; differential pressure indicators are installed to indicate filter element condition.
- Alternator 24 volt
- 24V electric starter
- Air Compressor, 28 CFM (792 LPM)
- Engine water pump
- Engine lube oil system includes an engine-driven lube oil pump.
- Engine coolant-cooled lube oil cooler and replaceable pleated paper type lube oil filter elements
- Internal fuel priming pump
- The exhaust system includes a stainless steel flexible connector and a horizontally mounted Industrial grade silencer with a spark arrestor and rain cap. Heat isolation cover should be supplied together with the silencer.
- Positive emergency kill air shut-off device activated on the engine over-speed or emergency stop.
- Anti-static electricity fan belt and generator belt
- Shutdown system for low oil pressure, high water temp, and engine over speed.
- Electronic governor/engine controller
- Engine throttle to revert to idle in case of pump overpressure
- A diagnostic system and laptop will be supplied for collecting and storing available diesel engine diagnostic data from the diesel engine communication bus.

Engine Accessories

- Air inlet flame arrester (flame trap) must be fitted in both engines
- A certified spark and flame arrester is included in the exhaust system.
- Air inlet shutdown valve, to prevent over speeding of the unit on gas ingestion; its operation must be independent of the engine.
- An emergency stop easily accessible from the control panel.
- Recommended tire pressure in PSI units must be painted above the wheel on the wheel arch or on the vehicle chassis.

Fuel System

Installed in front of the trailer (Perpendicular to the chassis) will be a 750 liters (200 gallons) round type fuel tank reinforced welding and shock absorbers to be added, total capacity fuel system/fuel circuit.

The Unit fuel circuit will include a fuel water separator with drains, fuel suction, and return lines that will be of adequate size to minimize restriction.

This fuel system shall provide diesel fuel to the two units mounted Diesel Engines. Relevant fuel tank certification documentation must be provided.

Unit Power System

Power for the unit shall be provided by two Power systems that shall be installed at the front of the "low boy" section of the trailer and that shall each include a Caterpillar C15, Diesel Engine, an Allison 4700 OFS Power Shift Transmission, and a hydraulic system.

Racks for the muffler, air cleaner, etc., should be separate types and should not be mounted on the engines assuring reinforced welding and shock absorbers.

5. Transmissions

Installed on the flywheel of each of the above Diesel Engines shall be an Allison 4700 OFS five effective speeds (6Th and 7Th gears blocked) transmission. This transmission shall be equipped as per the following:

- External transmission tube and shell-type engine coolant to the transmission oil cooler.
- Remote transmission oil filter
- PTO's for the hydraulic system and the Triplex Pump Power End Lube Pump 1800 series output flange
- Internal locked output in neutral (brake) feature.
- Pump speed sensor (with a data connection to the Control System).
- Remote electronic shifters
- Neutral start
- Transmission to shift to neutral in case of pump overpressure
- Operational Transmission Ratios:
 - 1st – 7.63:1
 - 2nd – 3.51:1
 - 3rd – 1.91:1
 - 4th – 1.43:1
 - 5th – 1.00:1

Engine/Transmission Mounting

Sub-frame mounted with a Transmission mounting arrangement (Absorbers included for non-grade roads) will allow the transmission to be removed with the engine in place and allow access to the Transmission strainer for servicing.

Drive Shafts

Each transmission shall directly drive a Triplex Pump via a Spicer 1800 series (or equivalent) driveline installed as per the driveline manufacturers recommended installation guidelines. Installed above this driveline shall be a removable expanded metal guard with hinged access openings for access to driveline grease points, Maintenance Free PTO shafts shall be considered where applicable.

Add pneumatic low-pressure grease gun.

Cooling System

Each Diesel Engine cooling shall be accomplished by a vertically mounted radiator with coolant expansion tank, direct drive fan assembly. The Diesel Engine radiator is capable of cooling the Diesel Engine at up to 55° C (131° F) ambient under stationary pumping applications. The Cooling System shall cool the Diesel Engine jacket water and the Diesel Engine charge cooling system.

The Transmission oil will be cooled by Water to Oil heat exchanger located in front of the vertical cooling package. The Transmission torque converter pump circulates the Transmission oil. The Triplex

Pump power end lubrication circuits will be cooled by an Air to Lube Oil Heat exchanger. The hydraulic oil will be cooled by an Air to Fuel heat exchanger mounted in the vertical cooling package.

Include a filtering system

6. Electrical

Battery System

Installed on the unit and installed in two metallic type battery boxes will be a battery system that will include 4 non-explosion proof type batteries with battery disconnect switch, pre wired battery cables to the two Diesel Engine 24 electric power systems. Sufficient Non-metallic material should be placed inside the battery box

Wiring and Lighting

All the required wiring will be installed, routed through appropriate cable trays and will be properly marked and identified.

All the wiring, where applicable, will be properly routed through conduit

All the circuit breakers will be located for easy access.

All the junction boxes will be of stainless steel construction if required.

There will be weatherproof LED work lights positioned to provide light for Unit maintenance and operation

Earthing using earthing straps/rods, all cementing equipment must be connected to ground.

7. Pneumatic System

The pneumatic system will consist of an air compressor mounted on each Diesel Engine, an air reservoir, an air dryer, relief valves, air lubricator/filter/separator assembly, and required pneumatically operated devices. The compressed air reservoir shall be of adequate size and fitted with drains to drain condensed water and will be a carbon steel cylindrical construction. The tank will be fitted with safety valve, tank drain, auxiliary tank fill fitted with quick disconnect and other components.

Add an utility air compressor with quick couplers mounted in the front of the chassis

8. Hydraulic System

The hydraulic system for this Twin Cementing Unit shall be powered from the above Allison Transmission mounted PTO Systems and will consist of hydraulic pumps to provide hydraulic power to the Centrifugal Pumps and other Unit hydraulic systems as follows:

The hydraulic system powered from the two transmissions will be mutual backup as follow:

Powered from the transmission that drives the LH side Triplex Pump shall be the following:

- One (1) Water Mix Centrifugal Pump
- Recirculation Centrifugal Pump
- Booting Centrifugal Pump
- Hydraulic Paddles
- Cement Inlet Valve Control Activator
- Dry additive auger
- LH side Triplex Pump power end lubrication system
- Powered from the transmission that drives the RH side Triplex Pump shall be the following:
- One (1) Mix Water Centrifugal Pump
- Recirculation Centrifugal Pump

- Boost Centrifugal Pump
- Hydraulic Paddles
- Cement Inlet Valve Control Activator
- Dry additive auger
- RH side Triplex Pump power end lubrication system

Required control valves for these hydraulic functions will be installed on the Unit Control Consol. The hydraulic tank will be of adequate size for the operation of the open loop hydraulic systems. The suction ports from the tank will be fitted with minimum 80 mesh screens located inside the tank. The suction lines coming out of the tank will be fitted with ball valves. The hydraulic suction from the tank and return back to the tank will be isolated by a baffle inside the tank. The tank fill port/breather will be of adequate size. This hydraulic system will include all other required accessories including a hydraulic oil cooler, hydraulic temperature and pressure gauges, control valves, relief valve, hydraulic hoses and other components.

9. High Pressure Pumping System

Triplex Pumps

Installed at the rear of the unit in a back to back configuration will be two SPM TWS 600S Short/Compact single-acting Triplex Pumps.
3 ½" 4 ½"

Triplex Pump Power End Lubrication System

Power end lubrication to be provided by a transmission mounted accessory drive PTO hydraulic pump (Note! this lube system will be automatically activated whenever the diesel engine is operating to provide lubrication of the Triplex Pump power end under all operating conditions).

This lubrication system will include all required accessories including steel lubrication tanks that will be of adequate size to hold lube oil for the Triplex Pumps as well as provide cooling of the lube oil and with oil level indicator, valve drain, suction filter, lube oil pressure and temperature gauges, relief valve, lube oil hoses and other components.

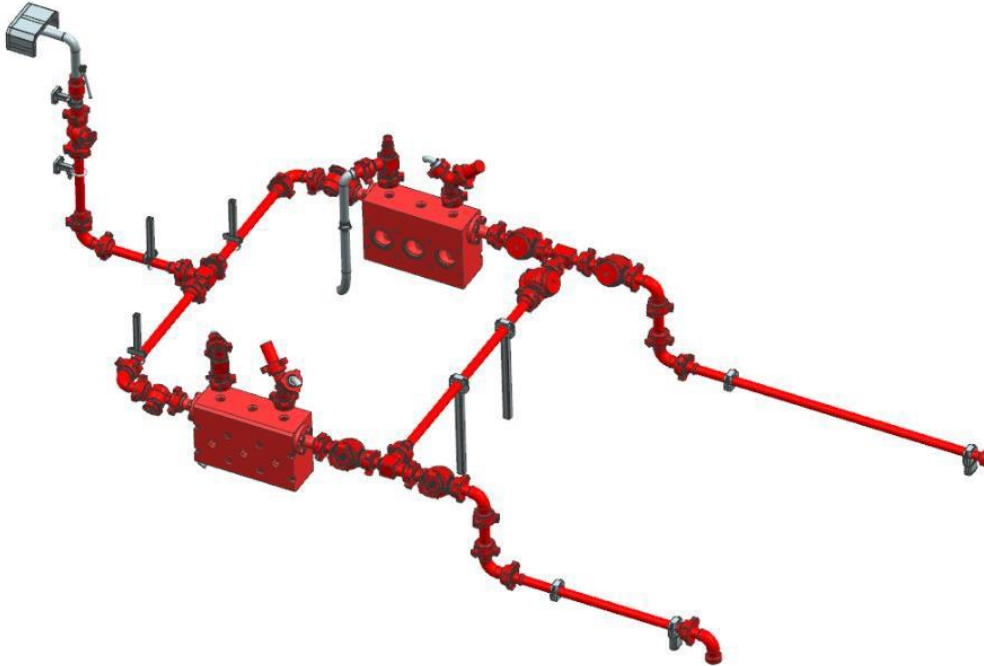
High Pressure Piping System

This High Pressure Piping System will include a Discharge Manifold (facing to the rear of the unit) and a Return Manifold (facing the Displacement Tanks towards the front of the unit) as follows:

Others:

- The cementing units MUST be in compliance with SP-2000 V5 or latest version.
- Add extra 2x1 valve in the bleed-off line as back-up.
- Change the lubrication system for 4x3x13 c-pump to be by oil.
- Extend cement exhaust in the mixing system to avoid dust.
- Change type of rain cap in the engine exhaust as it always getting broken.
- Change quality of exhaust blanket/ cover as it always getting damage.
- Run cement unit using cement unit lab top in case screen is not working.
- Need to have slope in the displacement and mixing tanks for easy wash-up.
- Reinforcement of the roof base, aluminum to be considered to reduce the actual top roof.
- Engines to in an enclosure to reduce the noise.
- Air pressure controller to be fix in proper position.
- Add box for low pressure treating iron connections.
- Add pneumatic grease gun with long hose.
- Reinforcement and shock absorbers for the base of control panel.
- Consider to increase the pathway over the fluid end area (relocate the transducers/PRV?)

TYPICAL ONLY



The Discharge Manifold will be an "H" type manifold, be rated 15,000 PSI and will include 2" Fig 1502

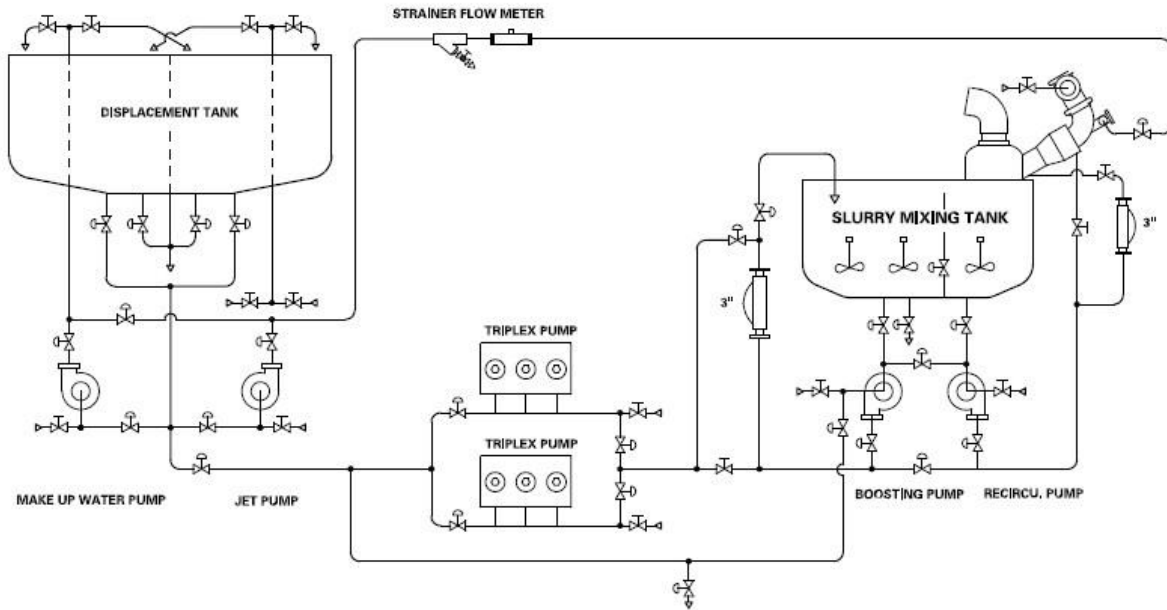
Pipe, Fittings, 2" Swivels and five (5) 2" x 2" Plug Valves. Installed on each High Pressure Pump will be a 2" Fig 1502 Pressure Relief Valve to discharge to the underside of the trailer.

The Return Manifold will include three (2) 2" x 1" Plug Valves, three elbows and the other relevant pipes & joints that will connect to a 2" low pressure pipe manifold (rated 150 PSI) return to either compartment of the Displacement Tank via a manually controlled 2" low pressure (150 PSI) swivel.

10. Low Pressure Pumping and Recirculation Mixing System

This Low Pressure Pumping and Recirculation Type Cement Mixing System will generally be as follows:

TYPICAL ONLY



Piping

This must be rated 150 PSI and will include all required 6", 5", 4", 3" and 2" pipe, fittings, flanges, valves, Victaulic type couplings and valve drain outlets at piping low points.

All external connections will be 4" Fig 206 female (thread half) union connections each with a Fig 206 cap and security chain. Where required valves will be equipped with valve extension handles or air actuators to allow easy remote operator access, air actuator controls will be installed on the Control Console.

Add two manual valves in the fluid end section (going to the displacement tank, besides the existing pneumatic actuators)

Displacement Tank

This will be a two (equal size) compartment open topped rectangular with sloped bottom, carbon steel tank that will be mounted crosswise on the unit over the Allison transmissions.

This tank will have a total minimum capacity of 25 BBL (3.2 m3) and will include steel gauge sticks (marked in 100 liter increments on one side and in 0.5 barrels the other side) valve overflow lines and valve drains.

There should be a drainage port for each of the two sectors of the tank respectively with pneumatically operated butterfly valves.

Filter screen for drainage of the tank and the relevant installation nuts, bolts etc will made of be SS.

Overflow pipe of the displacement tank will be extended to the external driver side with a 4" FIG 206 Union with a Fig 206 cap and security chain.

Mix Water Centrifugal Pumps

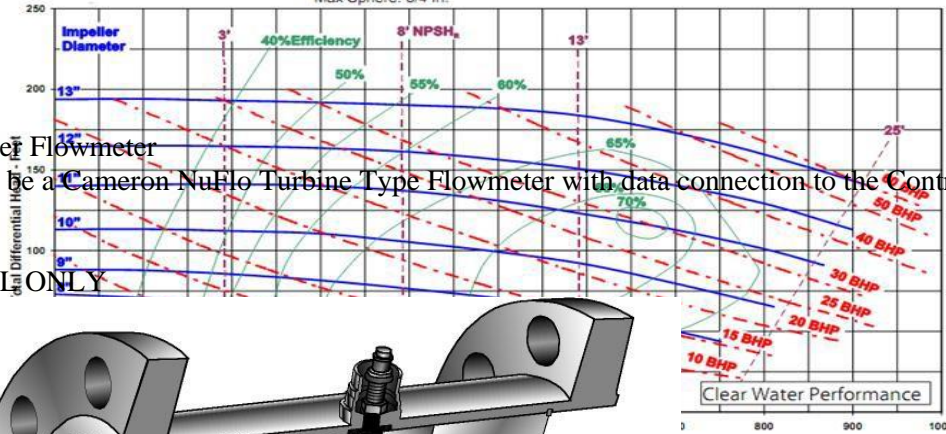
Installed on the unit will be two hydraulically driven, TSC 4" x 3" x 13" Mix water Centrifugal Pumps each with a discharge mounted Pressure Gauge as follows:

TYPICAL ONLY



4X3X13
Speed: 1750 RPM

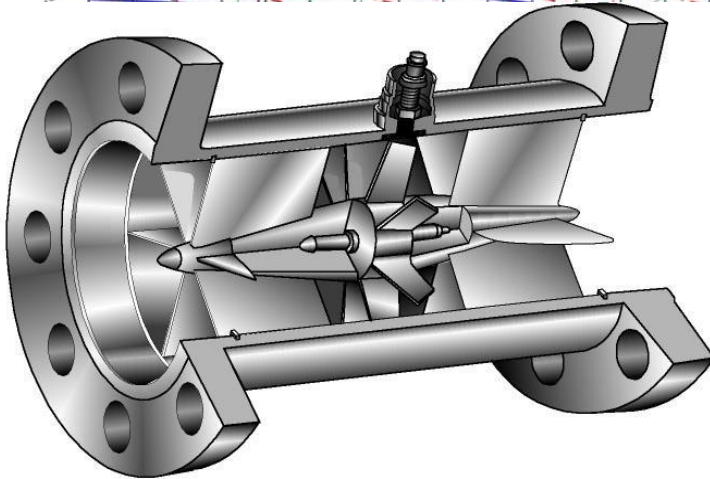
Open Impeller
Dia: 7" to 13"
Eye Area: 12.5 Sq. In.
Max Sphere: 3/4 In.



Mix Water Flowmeter

This will be a Cameron NuFlo Turbine Type Flowmeter with data connection to the Control System.

TYPICAL ONLY

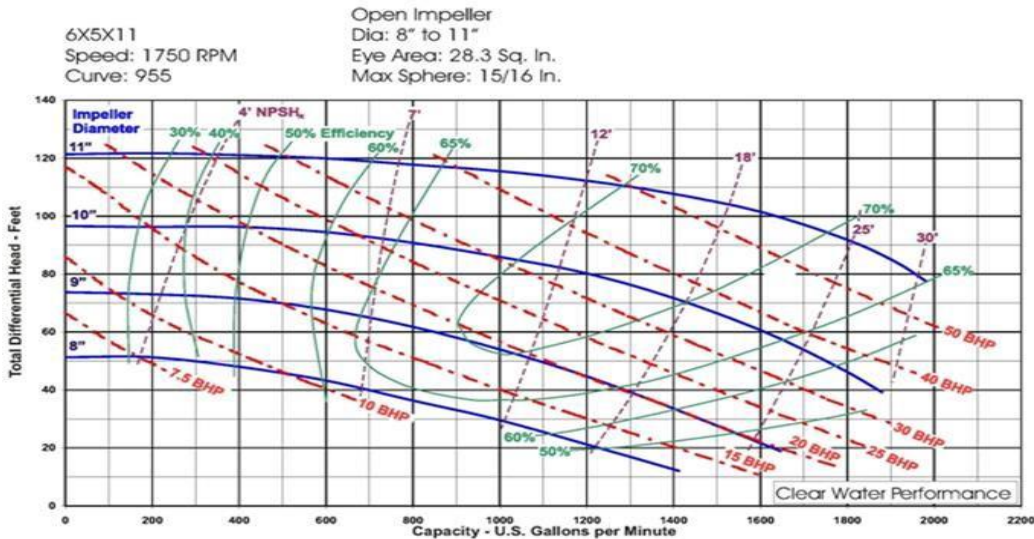


Recirculation Centrifugal Pump

This will be a hydraulically driven , TSC 6" x 5" x 11" Centrifugal Pump mounted with discharge mounted Pressure Gauge operated through a liquid filled diaphragm type sensor as follows:

TYPICAL ONLY





Mass Flow Meters

Installed on the unit will be two non-radioactive, 3" Micromotion Coriolis type mass flow meter each with a 2700 transmitter. These meters will have data connections to the Control System.

The discharge port of first meter will flow into the Slurry mixing Tub (1) while that of the second meter will flow into the downhole Averaging tank (2).

Boost Centrifugal Pump

This will be a hydraulically driven ,TSC 6" x 5" x 11" Centrifugal Pump mounted with discharge mounted Pressure Gauge operated through a liquid filled diaphragm type sensor with specifications the same as the Recirculation Centrifugal Pump.

Slurry Tank

Installed at the rear of the unit will be a 25 BBL (3.97 m3) capacity carbon steel rectangular open topped with sloped bottom cement Slurry Mixing Tank with a removable rock/debris screen/strainer and drain openings. This Slurry Mixing Tank will have two sections, a slurry mixing tub with capacity of 9 BBL (1.43 m3) and a downhole average tub with capacity of 16 BBL (2.54 m3); hydraulically driven Paddles (to homogenize the cement slurry) will be installed in each of these sections (one (1) in the slurry mixing tub and two (2) in the downhole average tub). Installed in each section will be a steel gauge stick (marked in 100 liter increments on one side and in 0.5 barrels the other side). Installed on each tub will be a guide wave type level meter .

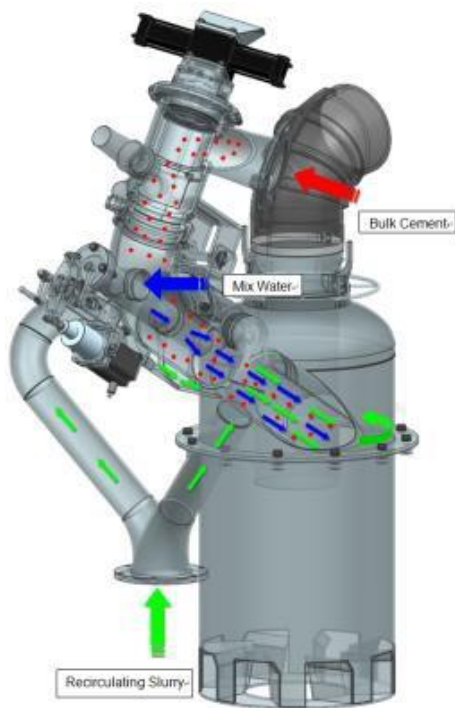
Installed on the top of the downhole average tub will a set of dry additive system and a de-foamer tank .

Also installed in the slurry mixing tub of this Slurry Mixing Tank will be a Cement Slurry Diffuser, this is a passive centrifugal air separator that separates the bulk air from the slurry and diffuses the energy of the slurry entering the Slurry Mixing Tank. It further isolates the bulk air from the mixing tub interior and discharges the bulk air away from the mixing system by way of a pipe and eliminates dust from the mixing tub.

Recirculation Mixer System

Installed on the unit will be a Automatic Mixing System (AMS2.5) with patent as follows:

TYPICAL ONLY



Bulk Cement Metering Valve that controls (meters) the dry bulk cement rate entering the mixer.

It is operated by a rotary actuator (with back up manual control) which incorporates a feedback sensor.

The valve is approximately linear and will provide near equal increases in bulk cement delivery per increment of rotation. This Valve has a 5" Fig 206 female (threaded) hose connection and is directly connected by a Bulk Dry Cement Delivery Hose to the output of a Bulk Cement Storage Unit that will be positioned at the rear of the Twin Cementer Unit.

High Energy Ramp-Flow Recirculating Cement Mixer that mixes and homogenizes dry bulk cement with mix water and Recirculated Cement Slurry.

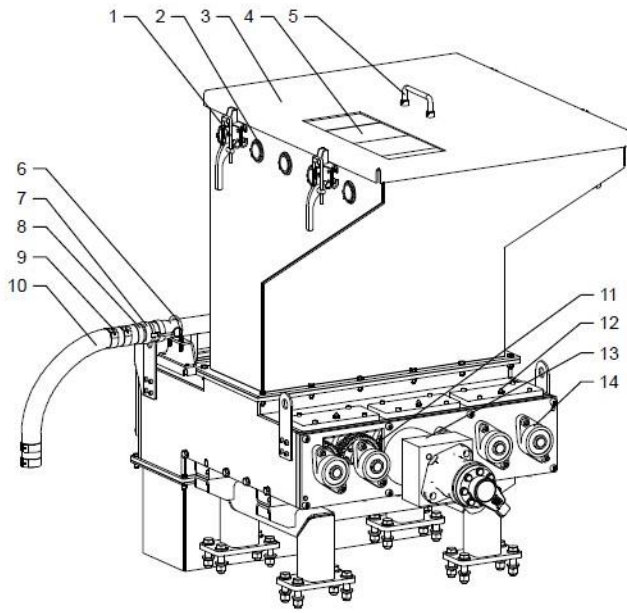
The rate of mix water addition is regulated by an automatically or manually controlled actuated valve (with back up manual control) built within the High Energy Recirculating Cement Mixer.

The inlet mix water may be adjusted automatically or manually by the actuated valve from almost zero to maximum. This valve is linear providing equal increases/ decreases in water flow per increment of displacement.

The Mixing System will be equipped with four (4) Victaulic Couplings and a number of Hammer Unions for ease of maintenance/disassembly/assembly.

A valve sample connection/box will be installed in the Recirculation manifold.

Fiber Feeder



11. Control System

The unit will be controlled locally from a Control Console mounted on a centrally located elevated platform.

Control Platform

A steel Control Platform will be installed behind the Displacement Tank and above the Triplex Pumps drive systems. An operator will be able to fully control the unit from this Control Platform, be able to gauge Displacement Tank, view the Slurry Tank and have an elevated view of the unit and the well site. This Control Platform will have the following features:

- Sunshade for operation in harsh environment

- Reinforced Structural steel framework
- Fiber grate decking
- Safety rails
- Fixed slant access ladder with anti-slip grip handles/ladder rungs
- Steel/fiberglass shade structure installed above the Control Panel
- Two folding type seats where applicable

Control Console

Installed on the Control Platform will be a Positive air purging type steel Control Console with hinged weather cover and fully engraved in English stainless steel Control Panel. This Control Console will be supplied with all necessary hydraulic, pneumatic and electrical controls and indication devices for the full and complete operation of this unit during all phases of cementing operations.

Mounted in this Control Console will be a 12" Siemens or equivalent HMI (Human Machine Interface) touch screen/PLC that will be connected to the various unit mounted sensors that will continuously store up to Job Data and that will contain the following electrical/electronic hardware:

- Electronic Control Module (ECM)
- SD card
- USB Data Port connection
- Circuit Breakers

During Cement Pumping operations the Control/Monitoring software that is installed on the ECM/electronic hardware will allow integral data logging and event/operational data/alarm capture/storage for display on the HMI. At the conclusion of Cement Pumping operations this data may be downloaded to a USB memory stick via the USB Data Port for transfer to the Data Acquisition Computer/System.

The Control software that is installed on the ECM/electronic hardware will control the following Unit functions from the HMI Touch Screen:

- Two (2) Diesel Engine stop/start switches
- Diesel Engine emergency kill switch
- Two (2) Diesel Engine throttles , knob type
- Two (2) Transmission Shifters , push-button type
- Pneumatic Operated valve open/close functions for the Valves with Air Actuators

The Display and Diagnostic software that is installed on the ECM/electronic hardware will enable the HMI Touch Screen to store and display the following unit operating parameters/information:

- Time
- Two (2) Diesel Engine RPM
- Two (2) Diesel Engine oil pressure
- Two (2) Diesel Engine Coolant temperature
- Two (2) Transmission oil pressure/temperature
- Two (2) Transmission lock up status
- Two (2) High Pressure Pump discharge pressure
- Two (2) High Pressure Pump discharge Flow Rate

- Two (2) High Pressure Pump discharge Flow Total with reset
- Two (2) user selectable Over-Pressure Shutdown displays that will activate an instant idle (engine) / instant neutral (Transmission) situation.
- Slurry Density
- Mix Water Flow Rate and Flow Total
- Knob type Pneumatic Operated valve open/close status for the Valves with Air Actuators

Also installed on the Control Console will be the following control devices:

- Main power switch
- Two (2) PTO Controls
- Two (2) Mix Water Centrifugal Pump Controls
- Boost Centrifugal Pump Control
- Recirculation Centrifugal Pump Control
- Cement Metering Valve Control
- Slurry Tub Mixing Paddles/Agitators Controls
- Light switches
- All other required control devices

Also installed on or near the Control Console will be the following indication devices:

- Two (2) Diesel Engine EDM Display Modules each to provide the following information:
 - Tachometer/Hour-Meter Readout
 - Oil Pressure Readouts
 - Water (Coolant) Temperature Readouts
 - Engine Diagnostic Fault Indication And Information
 - System Voltmeter
 - Two (2) Transmission oil pressure/temperature
 - Two (2) sets Transmission lock up indicator lights.
 - Hydraulic oil pressure/temperature
 - Boost Centrifugal Pump Pressure gauge
 - Recirculation Centrifugal Pump Pressure gauge
 - Two (2) sets High Pressure pump lube oil pressure/temperature
 - Two (2) MD/Totco 6" Dial 0-15,000 PSI pressure gauges on the control panel
 - Cement Slurry Fraction Monitoring Meter to indicate as a percentage Cement Slurry liquid/slurry ratios (this meter uses the mix water and cement slurry flow rates to calculate the Cement solid fraction from those flow rates and then display the result as a percentage Cement Slurry liquid/slurry ratio)
 - Air pressure gauge
 - Two additional engine speed meters
 - All other required indication devices

The above devices will be permanently engraved / labeled in English

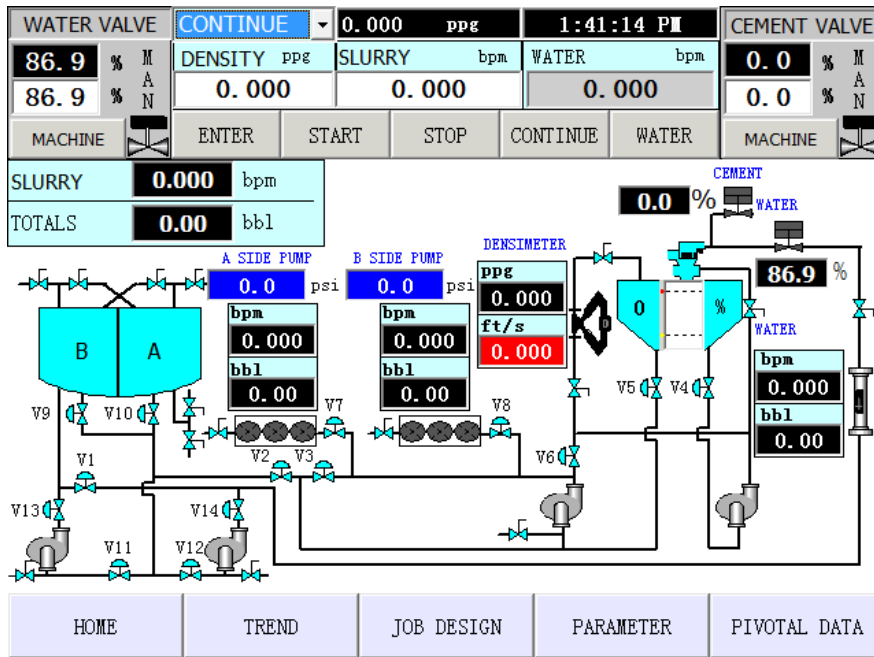
12. Data Acquisition

Automatic/Manual Cement Slurry Density Control System that will, through a Control Console mounted 12" Siemens touch screens/PLC that will display in either Imperial or Metric Units; allow an operator to operate and oversee the Recirculating Cement Slurry Mixing System in either automatic or manual mode. This system includes the following features:

- Automatic Density Control
- Key Job Parameter Recording and real time Data Storage (density/flow rate/pressure)

- Built in pre-job system check
- Built-in Manual Simulator
- Prior to Cement Slurry Mixing operations the operator enters into the Control Console mounted
- Siemens touch screen the following job parameters for up to three (3) Cement Slurry Mixing designs:
- Desired slurry density
- Water specific gravity
- Design yield
- Water requirements
- Discharge rate

TYPICAL ONLY



The operator will also be able; during Cement Slurry Mixing operations to modify any of the pre-programmed job parameters as is required. Density, slurry rate and pumping pressure data are stored in the computer at operator set intervals. This Control System may also be placed in a simulation mode for operator training and system functional verification. In manual mode the Operator controls the Mix Water and Bulk Cement Metering Valve hydraulically actuated proportional valves directly from the Control Console to achieve the required slurry density as indicated by the Mass Flow Meter display.

Supplied with the unit be a Data Acquisition System (JDAS) with one copy of Data Acquisition Software that will be stored in a lockable Data Acquisition Unit/Printer/cables storage cupboard during transportation and that may be used for local Data Acquisition Purposes via Data Cables.

Typical Inputs are as follows:

- High Pressure Fluid Pump Flow Rate
- High Pressure Fluid Pump Flow Total
- Slurry Density
- Mix Water Flow Rate and Flow Total
- Typical Calculated Outputs (Math Channels):

- Flow totals
- Cumulative totals

13. Miscellaneous items

Unitization and completion will include the following items:

- 2" 2.5 m Treating Iron racks , 3 layers , 4 pcs , driver side
- Swivel joints racks , 2 pcs , passenger side
- Plug valve rack , 1 pc , passenger side
- One weather and dust proof lockable steel toolbox
- One fire extinguisher with mounting brackets
- Unit will be equipped with two spare carrier/tire/wheel assembly with up/down lift device for easy pick up and installation of the spare tire.
- Unit will be equipped with all required warning, emergency, flashing, hazard clearance, back up and other required lights and all required safety signs.
- The trailer will be equipped with rear center positioned tow loops.
- The trailer will be equipped with fenders, mud flaps all round heavy duty rear bumper and all required decking
- Unit axle loadings will not exceed axle rated load capabilities.
- All gauges and instruments will read in either Imperial and Metric standards or in Imperial only and be labeled in English
- All instrumentation shall be weatherproof, dust proof and vibration protected.
- All equipment will be built under the Quality Standards of ISO 9001 and all latest relevant/applicable manufacturing standards.
- All equipment will be brand new, will not be used or rebuilt returned equipment.
- Weekly report with pictures need to be submitted during the equipment designing, manufacturing and testing.
- Bolts, nuts and pads used for fastening the centrifugal pumps and butterfly valves will be made of SS.

14. Paint

The unit will be sand blasted (where required) primed and finish painted after the completion of final testing as per the following:

- Deck parts will be yellow-silver,
- Under the deck will be Graphite gray.
- All exhaust manifolds will be painted high-temperature aluminum.
- All corrosion-resistant surfaces such as stainless steel/aluminum etc. surfaces, hoses and hose fittings will not be painted.

Lubrication fluids chart (permanent sign attached to unit) will be provided listing fluids, lubricants and filter types that the Equipment requires.

The chart to state that before using any other fluid type, the relevant Operation and Maintenance Manual must be consulted. Fluids to be identified by generic name (i.e. hydraulic oil) near the fill port for each fluid. The lettering will be in English, will be black on a white or stainless steel background.

15. One-year spare parts consumption

One year of spare parts consumption is based on 10 monthly jobs per unit (Mechanical and Electrical)

16. Documentation

- Layout drawing with overall dimensions
- Lubrication schematic with parts list.
- Hydraulic schematic with parts list
- Pneumatic schematic with parts list.
- Electrical schematic with wiring diagram and parts list.
- Piping schematic with parts list
- Software manuals (on separate CD's).
- Operating/Maintenance manuals
- COC
- COO

17. Other if required

- Fiber Additive Improvement

It has been improved the circulation system, using slurry instead of water to flush the fibers.

- Support Frame Reinforcements

Double the 2×1 Valve for bleed of back to displacement tank as rule of thumb in all cementing companies.

Low pressure hoses rack under the unit need to be made bigger litter than 4" and extended to one side to make it easier for loading and offloading the 4" hose.

Add rings manual counter on displacement tanks to allow counting BBLs with company man.

Manual butterfly valves on displacement tanks need to be located so that the rig mix fluid supply valves need to be closer and handy to operator

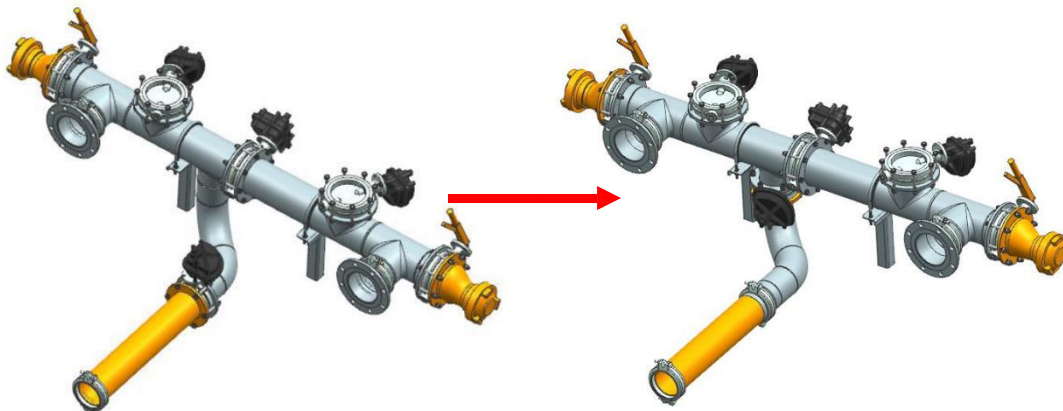
Add a mirror at top back of displacement tanks to show the operator the level in the tank as standing on the control panel.

- Modification for Low Pressure System

The pipeline (market below) under mixing tank it is easy plugged due to human error.



The modified schematic diagram is as follows:



Side of co-pilot engine oil gauge should be moved to the outside for easy observation.

Rubber pads to absorb vibration in some parts in the unit.

- SOLID FRACTION MONITOR

Will be integrated in Cementing Control System to realize quality control of low density cement slurry in real time.

The system measures the rate of mix water and slurry flow and calculates the solid fraction from those measurements, and the SFM solids fraction monitor determines liquid-solid ratios accurately, independent of slurry density. Adjustments are made to maintain the slurry at the proper water-to-cement ratio.

A key measure of quality in cement slurries is the solid fraction, which is the percent of dry blend in the slurry. There is an Enter Settings for dry cement-to-water volume ratio. And there is a water flowmeter for water supplying and Tub level Sensor on average tank. During the operation, keep the average tank liquid level constant, so the discharge slurry volume is equal to filling water and cement volume.

Once dry cement-to-water volume ratio is setting, change the displacement of water supplying, the dry cement supplying will be in automatic adjustment, So the system to produce a consistent slurry at the desired density base on automatic control Based on this mechanism.

Solid fraction monitor basic elements:

- Tub level Sensor on average tank
- Mixed fluid flowmeter
- Calculation Module to show actual solid fraction pumping downhole
- Real-time monitoring of all parameters (solid fraction, tub level, mixed water flow, calculated cement powder rate and other normal parameters (pressure, pump rate, density)
- Software should provide report on all critical parameters.

Annexure - 02 Expression of Interest

Abraj Energy Services S.A.O.C.	
FROM:	Supply Chain Department
DOCUMENT:	AES-02 / Expression of Interest
TENDER REFERENCE	STC.240123.WS.8000210,Rate Agreement for Purchasing Cementing Units

Dear Sir/Madam,

You are hereby invited to express your interest (EOI) for the above mentioned tender and confirms the following:

To register your interest please complete the forms listed below duly signed by authorized signatory and submitted within three (3) days of reviewing the Invitation to Tender (ITT) to:

Contract@abrajenergy.com

1. Annexure-03 Interest to Participate in Tender and Confidentiality Declaration for Tender
2. Annexure-04 Declaration to Comply with Company Requirement

Please note that all submissions and communications pursuant to this EOI notice shall bear following caption the Tender Reference

Our pre-qualification and tendering processes shall follow your EOI. If we do not receive any response from you on or before the above mentioned date, you will not be eligible to participate in this tender.

Abraj takes this opportunity to wish you all the best and we hope to deal with you soon.

Regards,

Supply Chain Department

Abraj Energy Services S.A.O.C.

Annexure – 03 Interest to Participate in Tender and Confidentiality Declaration for Tender

Abraj Energy Services S.A.O.C.	
FROM:	Supply Chain Department
DOCUMENT:	AES-03 / Interest to Participate in Tender and Confidentiality Declaration for Tender
TENDER REFERENCE	STC.240123.WS.8000210,Rate Agreement for Purchasing Cementing Units

Attention: Contracts Officer

Dear Sir/Madam,

Having reviewed the Tender Document our company would like to register our interest in bidding for above referenced tender.

We the undersigning party (hereinafter called the ‘Bidder’) hereby represents and warrants to ABRAJ ENERGY SERVICES SAOC, being a company incorporated under the laws of the Sultanate of Oman having its Head Office at Al-Mawaleh, PO Box 1156, PC 130, Azaiba, Muscat, Sultanate of Oman (hereinafter called the ‘Company’) to be unconditionally bound by the following terms and conditions with respect to the receipt, review, and treatment of all information and documents provided to the Bidder by or on behalf of the Company, including but not limited to the Tender Documents, in connection with the Tender Reference mentioend above.

- 1.1. Confidential Information shall mean all knowledge, data or information in connection with this Tender or the Project, which from time to time may be disclosed to the Bidder by Company, or on behalf of Company, in writing, including drawings, magnetic tapes, computer programs or in any other way, as well as all knowledge, data or information derived there from, to the extent that such knowledge, data or information at the time of such acquisition or disclosure is not either already in the unrestricted possession of Contractor or part of public knowledge or literature.
- 1.2. Confidential Record shall mean all documents and any other material containing Confidential Information.
- 2.1. The Bidder shall:
 - (a) preserve and cause its employees, potential Subcontractors and Manufacturers to preserve the secrecy of any Confidential Information;
 - (b) not disclose, except with the prior written consent of the Company, to any Third Party any Confidential Information or Confidential Record or enable any Third Party to note the fact that the Bidder has been invited to submit a Tender for the work for any purpose other than the performance of the work or the preparation and submission of a Tender for the work;
 - (c) not, except with the prior written consent of the Company, reproduce, copy or use, or disclose to, place at the disposal of or use on behalf of any Third Party or enable any Third Party to peruse, copy or use, any Confidential Information for any purpose other than the performance of the work or the preparation and submission of a Tender for the work.

2.2. The Bidder may disclose Confidential Information or Confidential Records as required by law or to a court or tribunal of competent jurisdiction if an order for such disclosure is made and, in those circumstances, only to the extent necessary by law or to satisfy such order for disclosure. The Bidder shall notify the Company prior to any such disclosure and shall provide all reasonable assistance as may be requested by the Company to prevent or minimize such disclosure.

2.3. The undertakings under Clause 2.1 above shall continue so far as the Confidential Information in question has:

- (a) not become part of public knowledge or literature, or
- (b) not been disclosed to the Bidder by a Third Party (other than one disclosing on behalf of the Company) whose possession of such information is lawful and who is under no secrecy obligation with respect to the same.

3.1. All intellectual property rights, including but not limited to copyright, patents, trademarks, moral rights and industrial design rights in any Confidential Record shall, in the absence of any express provision to the contrary thereon, be vested in the Company.

4.1. In the event that it is decided by the Company that the tendered work will be entrusted to another Bidder, or if the tender process is terminated or suspended by the Company for any reason whatsoever, the Bidder shall, upon receipt of a written notification thereof from the Company, return to the Company the Tender Documents as well as any Confidential Record pertaining thereto and delete any electronic record thereof in Bidder’s possession.

5.1. The Bidder shall ensure that if, under the terms of this Confidentiality Declaration, any of the Confidential Information comes to the knowledge of and/or into the possession of any Third Party, the Bidder shall require from such Third Party that it shall abide by identical stipulations to those contained in this Confidentiality Declaration.

5.2. Notwithstanding the above clause 5.1, the Bidder shall at all times remain liable to Company for any breach of the obligations under this Confidentiality Declaration, irrespective of whether or not the disclosure is actually caused by the Bidder or a Third Party to whom the Bidder has disclosed the Confidential Information.

6.1 This Confidentiality Declaration shall be governed by and construed in accordance with the Laws of the Sultanate of Oman.

6.2 In the event of a dispute arising under or in connection with this Confidentiality Declaration, including with respect to the existence, operation or validity of this Confidentiality Declaration, such dispute shall be resolved by arbitration in accordance with the arbitration proceedings and shall be conducted in the English language and the seat of the arbitration shall be Muscat, Sultanate of Oman.

Yours faithfully for:

Signature & date:

Full Name:

Position:

Stamp of Bidder

Annexure – 04 Declaration to Comply with Company Requirement

Whereas M/s. confirm to comply with company requirements as per below checklist:

Item Description	Required by Company (Yes/No)	Supplier Confirmation (Yes/No)	Comments
Compline to Abraj Terms and Conditions	Yes		
Tender Fees	No		
Bidder to Submit Tender Bond as per clause 2.15 of this document	No		
Bidder to Submit Performance Bond as per clause 2.16 of this document	Yes		
Bidder to Submit Advance Payment Bank Guarantee (if any advance payment requested)	Yes		
Bidder to submit Omanisation Certificate	Yes		

Failure to comply with the above checklist will result in Bidder being disqualified from the tendering process.

Agreed and accepted this Day of..... [Insert year]

For and on behalf of Bidder:

Annexure – 05 Form of Tender Bond

Abraj Energy Services (SAOC)
 Al-Mawaleh, PO Box 1156, PC 130, Azaiba,
Sultanate of Oman

Tender Bond No.

By this bond we.....whose address
 is.....hereby guarantee
 Messrs.....
 of..... and hold at
 your disposal the sum of R.O.
 being1....% of the Tender Value from untila total period of
 ninety (90) calendar days.

This bond shall be free of interest and payable in cash on your first written demand in the event of the Bidder either withdrawing his Tender within a period of (90) calendar days from the date for the receipt of Tenders or failing to provide a Performance Bond within ten (10) working days of acceptance of the Tender whichever date is earlier without any reference to or contestation on behalf of the Contractor.

This bond should be returned to us upon its expiry or upon fulfilment of our undertaking, whichever is the earlier.

Authorized Signatures

(To be issued by a locally registered bank)

Annexure – 06 Form of Performance Bond

[LETTERHEAD OF BANK]

Guarantee No. [Insert]

[Date]

[Insert Name]

Attention: [Insert]

[Insert Address]

[Insert Address]

**Subject: Bank Guarantee/Performance Bond
Contract No. [Insert] dated [Insert] between Abraj Energy Services and [Insert Name of Contractor]**

WHEREAS, [Insert name of Contractor], having its office at _____ (the “Contractor”) and Abraj Energy Services LLC (the “Company”), have entered into Contract N. [Insert] dated [Insert] (the “Contract”) on the condition that the Contractor provides the Company, upon execution of the Contract, an unconditional, irrevocable on-demand guarantee by [Insert Name of the Bank], [Insert Address of the Bank] (“Guarantee”) in order to guarantee the fulfilment by the Contractor of all of its obligations under the Contract.

NOW THEREFORE, we, [Insert Name of the Bank], having its registered office at [Insert] (the “Guarantor”), on condition that the Company and the Contractor, in fact, enter into the Contract, do hereby unconditionally and irrevocably undertake and guarantee to pay the Company an amount or amounts up to [Insert amount 5% of the value of the contract], the exact amount or amounts to be solely determined by the Company, immediately upon first written demand by the Company for any such amount or amounts, notwithstanding any objection or contestation by the Contractor.

The Guarantor hereby waives any right it may have to first require the Company to proceed against or enforce any other rights or other guarantee or security with respect to or claim payment from the Contractor before making a demand against or claiming from the Guarantor hereunder. Furthermore, the Guarantor’s obligations hereunder shall not be exonerated by the following described actions, circumstances, matter or thing which, but for this provision, might operate to release or otherwise exonerate the Guarantor from its obligations, including without limitation and whether known or not known to the Guarantor or the Company:

1. Any amendment, modification, extension, indulgence, time, waiver or concession granted to the Contractor, whether as to payment, time performance, or otherwise, under the Contract;
2. Any legal limitation, disability, incapacity or other similar circumstances relating to the Contractor; and/or
3. Any unenforceability or invalidity of any of the Contractor’s obligations to be performed by it under the Contract.

This Guarantee shall be governed by and shall be construed in accordance with the laws of [the Sultanate of Oman], except for the conflict of law principles that would cause the laws of another jurisdiction to apply.

This Guarantee shall be valid from the date first above written and shall remain in full force and effect for [insert date or duration]. Upon expiry of the said [date/duration], the Guarantee shall be null and void without the necessity of it being returned to us.

Yours faithfully,
[Insert Name of the Bank],

Signed by: _____

Name: _____

Title: _____

And Authorized Signatory

Annexure – 07 Form of Advance Payment Bond

Abraj Energy Services (SAOC)
 Al-Mawaleh, PO Box 1156, PC 130, Azaiba,
Sultanate of Oman

Advance Payment Bond No.....

Whereas M/s (Hereinafter called the Contractor) has been awarded a Contract dated for implementation, completion and maintenance of Project as described in the contract for the total Contract Price of R.O. (Omani Rials Only) and in consideration of your making an advance payment of R.O. (Omani Rials Only) to the Contractor being (10%) of the Contract Price, by this bond, we whose address is

 guarantee to pay you a sum not exceeding R.O. (Omani Rials Only) on your first written demand without any reference to or contestation on behalf of the Contractor.

It is understood that our liability towards you will be progressively reduced by the amount repaid to you by the Contractor as contained in the Certificates and Payment against the said advance payment.

The bond will be effective from and shall be valid until, or until the amount of advance payment is fully recovered, whichever occurs later.

This bond should be returned to us upon its expiry or upon fulfillment of our undertaking whichever is the earlier.

Authorised Signatories
 (To be issued by a locally registered bank)

Place:
 Date:

Annexure – 08 In Country Value (ICV)

1- Workforce: Number of Omanis Employed

Table A - : WORKFORCE related to execution of this specific contract duration with details of Main/Lead Contractor or Sub-Contractor.

	Workforce Category	Senior Management			Professional			Supervisory			Skilled/Semi Skilled		
		HD	MH	CP	HD	MH	CP	HD	MH	CP	HD	MH	CP
Contractor	Omanis												
	Expatriate												
Sub-Contractor	Omanis												
	Expatriate												

2- Use of Local Goods/Services

Bidder must provide details in the format below showing local goods/services proposed to be utilized in the performance of the Services. If none: Bidder shall so state.

a- Goods Made-in-Oman

#	Goods Description	Manufacturer /Provider	Address	Quantity	% of total quantity sourced from local manufacturer	Total value of local manufactured goods
1						
2						
3						

b- Goods Procured in Oman

#	Goods Description	Location of International Manufacturer	Local Supplier Address	Quantity	% of total Contract quantity to be local supply	Total value of local manufactured goods
1						
2						
3						

Summary of Tables A & B		
Total Value of Goods Made in Oman (OMR / USD)	Total Value of Goods Procured in Oman (OMR / USD)	Total Value of Goods Procured from Overseas (OMR / USD)
\$0	\$0	\$0

c- Local Services Obtained in Oman

#	Type of Service	Proposed Subcontractor Address	Value added	% of total Contract value
1				
2				
3				
4				

Summary of Tables C	
Total Value of Local Sourcing (USD / OMR)	Total Value of Overseas Sourcing (OMR / USD)
\$0	\$0

ICV Terminologies/Definitions

Table B - Work Force

HD stands for Headcount: "Headcount" means the number of full-time equivalent employees or in-house Contractors/agency staff within the Contractor or 3rd Party Sub-Contractor who will be involved in execution of the Contract.

MH stands for Man-hours: "Man-hours" means the number of hours of work undertaken in execution of the Contract (only the actual hours written, or to be written, to Contract execution are included).

The method of calculation and reporting is as follows;

MH= Contract Duration x number of headcount of that category

For example, contract awarded for a period of 4 years, with 2 professional resources working full time on the execution of the contract:

4 years x 12 months x 30 days x 8 hours x 2 professionals = 23,040 Manhours

CP stands for Compensation: "Compensation" means the sum of Man hours multiplied by an average all-inclusive average hourly rate. Average hourly rate calculated from Gross Salaries pro rated.

The currency shall be in USD.

For example, contract listed the 2 headcount Professional as Drilling Engineer and Chemical Engineer with a monthly salary of \$2,000 and \$1,800 respectively. The total monthly salary shall be inclusive of PASI and other permanent allowances such Housing and Transport allowance.

The formula to calculate the average hourly compensation rate will be as follows:

Drilling Engineer Monthly salary divided by man-hours working per month: 2000 USD / (22 days x 8 hours)= 11.4 USD as hourly rate

Chemical Engineer Monthly salary divided by man-hours working per month: 1,800 USD / (30 days x 8 hours)= 7.5 USD as hourly rate

Total hourly rate for both resources = 11.4+7.5= 18.9

Average hourly rate for both resources =18.9/2= 9.5

The compensation per hour as calculated above to be included shall 9.5 USD/hour

JOB POSITIONS

6. "Senior Management" means a member of the decision-making executive of a function within Contractor or sub-Contractor Company. -CEO and all managers titles who reported to CEO.HR Mangers , Admin manager , finance manager, project manager .etc..

7. "Professional" means an individual who has completed bachelor degree related tertiary education and achieved professional certifications status within a professional body. Includes chartered engineers and accountants, lawyers, architects, procurement professionals and Engineer.

8. "Supervisory" means a worker who manages a team of at least two subordinates (but who is not considered part of the Senior Management team, nor a Professional). Supervisors include construction foreman, equipment overseers, business administration team leaders etc.

9. "Skilled" means a worker with a high level of technical expertise accumulated over a number of years (but not a member of a recognised 'profession'). A skilled worker may have attended a Technical College or learned their skill via a formal apprenticeship or on-the-job over a number of years. Includes: electricians, scaffolders, welders, crafts, business admin, personnel assistants, computer programmers, equipment and machinery operators.

10. "Semi-skilled" means workers with a skill set acquired in a short space of time (a few weeks or months). Following short periods of training a casual labor may become semi-skilled, thus demonstrating how the Contract has contributed to human capacity in Oman. Semi-skilled positions include secretaries, drivers, meet and greet services, fencing, block laying, basic construction skills etc.

Annexure – 09 Clarification Request

Tender Reference: STC.240123.WS.8000210,Rate Agreement for Purchasing Cementing Units

1	<p><u>Question Received XX/XX/XXXX</u></p> <p><u>Article X.X.X</u></p> <p>...</p> <p><u>Company Response Dated XX/XX/XXXX</u></p> <p>...</p>
2	<p><u>Question Received XX/XX/XXXX</u></p> <p><u>Article X.X.X</u></p> <p>...</p> <p><u>Company Response Dated XX/XX/XXXX</u></p> <p>...</p>
3	<p><u>Question Received XX/XX/XXXX</u></p> <p><u>Article X.X.X</u></p> <p>...</p> <p><u>Company Response Dated XX/XX/XXXX</u></p> <p>...</p>
4	<p><u>Question Received XX/XX/XXXX</u></p> <p><u>Article X.X.X</u></p> <p>...</p> <p><u>Company Response Dated XX/XX/XXXX</u></p> <p>...</p>

Annexure – 10 Pricing Schedule

Contract Period	1 Year + 1 Optional years
Delivery Period	
Delivery Term	
Payment Term	
Bid Validity	90 Days

Annexure - 11 Tender Strategy for Evaluation of bid

Abraj Management had followed the tendering strategy as per the tender procedure which forms part of the Abraj Tender Policies and Procurement (ATPP).

The process followed was the following:-

1. Tender for purchase of equipment and materials or availing of Services and includes Purchase Order, Service Order or other arrangement will sent seeking Technical and commercial bids in a two separate sealed envelopes which are submitted in a sealed envelope or electronic mode.
2. The technical bids will evaluated as per the evaluation process defined below. We have tender opening protocol duly signed by the authorized persons as per ATPP.
3. The Commercial bids will opened for the technical qualified bidders only.
4. The Commercial bids will be reviewed and evaluated. The best offer will be awarded the Contract after evaluation and approval from Abraj Management Team.
5. Letter of Intent (LOI) has been issued to the successful bidder followed by execution of Contract wherever required.

Process for Evaluation of bid

The Technical Evaluation Process for the different types of bids will be carried out in the following steps:

1. Opening of the Technical Bids.
2. Analysis of the Technical Bids.
3. Gather all missing information from the technical bids.
4. Sending clarifications to those bidders who have not been disqualified initially.
5. Receive clarifications.
6. Set weightage for scoring based on importance of each evaluation criteria.
7. Evaluate data and score.
8. Finalize Technical Evaluation.
9. Minimum Technical Score to be obtained is 70 % to be Eligible for getting qualified for Commercial Bid Evaluation. For bidders who are technically disqualified, their commercial bid will not be opened.
10. Whoever is technically qualified, all are treated at par for commercial evaluation and L-1 bidder would be awarded the contract.

11. The Company reserves the right to award the contract in the best interest of the company to any bidder other than L-1 without assigning any reason whatsoever.

Technical Methodology

At first, Bidders shall be evaluated on technical proposals in accordance with Evaluation Criteria as described in the Tender Document.

Each of technical proposals shall be evaluated on the basis of the Bidder’s degree of compliance, with requirements as specified in the Tender Document including the Specifications. Bidder who achieves the Technical evaluation threshold will be evaluated commercially.

The evaluation shall consist of

Technical Proposal Evaluation

1. Compliance Criteria.

No.	Criteria	Yes/No
1	Full Compliance proposed design	
2	Onsite Training during commissioning and operation	

2. Evaluation Criteria

No.	Criteria	Weight Age	Excellent	Excellent Definition	Average	Average Definition	Poor	Poor Definition
1	Lead time (CIF Sohar/ SHUAIBA)	30	30	No more than 180 days ARO (calendar)	20	Between 181 days and 200 days ARO	0	More than 201 days ARO
2	After Sales support capabilities	20	20	Service Engineer available within 24	10	Service Engineer available within 48	0	above 48hrs
3	Availability of spare part center in region to supply critical spares parts (list shall be shared along with tender submission)	25	25	Fully functional Spare parts center in GCC	10	Fully functional Spare parts center in MENA	0	No regional Spare parts center in MENA/GCC
4	Previous industry experience	25	25	Abraj acquired >2 units and Region >20	10	Abraj acquired <5 units and Region >20	0	No record within Abraj >20 in the region

Cut off 70.

Financial Proposal Evaluation

Lowest bid ranked highest

Annexure – 12 Standard Terms and Conditions**Annexure - 13 In Country Value**