

OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION A

(To be completed, filled in, signed
and stamped by the principal)

ANNEXURE 'A'

Material MEMBRANE ELEMENTS
Tender Enquiry No PROC-FA/CB/P&P-5018/2021
Due Date
Evaluation Criteria FULL

SCHEDULE OF REQUIREMENT

Sr No	Description	Unit	Quantity	Unit Price (FOB)	Total Price (FOB)	Unit Price C & F BY SEA	Total Price C & F BY SEA	Deviated From Tender Spec. If Any
1	MEMBRANE ELEMENTS, for CO2 & H2S REMOVAL FROM RAW GAS, CELLULOSE ACETATE FIBROUS MATERIAL along with accessories	Number	300					
2	MEMBRANE ELEMENTS, for CO2 & H2S REMOVAL FROM RAW GAS, CELLULOSE ACETATE FIBROUS MATERIAL along with accessories	Number	72					
3	MEMBRANE ELEMENTS, for CO2 & H2S REMOVAL FROM RAW GAS, CELLULOSE ACETATE FIBROUS MATERIAL along with accessories	Number	50					

Note:

- 1. Bid Bond Amount:** US \$ 30,000/= (United States Dollar Thirty Thousand Only) or equivalent Pak Rupees validity up to 210 Days from the date of technical bid opening
- 2. Mode of Bidding:** Single stage two Envelope basis.
- 3. Evaluation Criteria:** - Full Consignment wise C&F By Sea Karachi
- 4. Delivery Period:** 90 days from establishment of LC
- 5. Bid Validity:** 180 Days
- 6. Bidders** are advised to carefully read all the terms and conditions of the Tender Document available on OGDCL website which is an integral part of this Schedule of Requirement

establishment

OGDCL
Technical Specifications & Evaluation Procedure
FOR
Purchase of Membrane Elements for Qadirpur, Chanda & Nur-Bagla
Plants

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OGDCL
Technical Specifications & Evaluation Procedure
FOR
Purchase of Membrane Element

A. Background:

Oil & Gas Development Company Limited (OGDCL) Pakistan is the operator of Qadirpur Joint Venture, **Chanda & Nur-Bagla gas processing plants.**

Qadirpur Gas Processing Plant is based on membrane technology for gas purification (CO₂ removal reducing CO₂ content from 6.0 mole % to <2.0 mole % & H₂S removal reducing H₂S contents from 80-90 PPM to <16 PPM).

Removal of CO₂ from Raw gas of Chanda field through Chanda Gas Processing Plant using Membrane technology.

Removal of CO₂ from Raw gas of Nur-Bagla field through Nur-Bagla Gas Processing Plant using Membrane technology.

In order to meet sales gas specification OGDCL has installed aforementioned gas processing plants using membrane technology wherein cellulose acetate spiral wound membrane elements are being used to reduce CO₂ and H₂S contents in Raw gas.

B. Scope of Bid Request:

This Bid Request is for the supply of 422 (300 elements for Qadirpur plant, 72 for Chanda plant and 50 for Nur-Bagla) along with all the accessories for the connection of membrane elements within specified membrane elements housing, to Oil and Gas Development Company Limited (OGDCL), after successful testing of offered membrane elements.

C: Special Testing/Membrane Performance Evaluation Program for Technical Evaluation:

1. Each Vendor/Manufacturer will provide 40 nos. of typical membrane elements to OGDCL at no cost to facilitate performance, integrity and other testing by OGDCL under the supervision of OGDCL's Consultant. The elements shall be provided by the respective Bidders at Qadirpur site within 30 days of issuance of Fax / Email from OGDCL after initial scrutiny of the Technical Bid. These elements must meet OGDCL's technical requirements prior to acceptance of bid from Vendor/Manufacturer. The membrane elements will be returned to the Vendor/Manufacturer after testing program, if desired. All the exporting expenses including export authorization from Government of Pakistan would be on part of the Vendor/Manufacturer. However, OGDCL will provide assistance (if required) in this regard.
2. To accurately check the performance / durability of the membrane elements provided by the Vendor/Manufacturer, a membrane performance evaluation program shall be carried out on "Membrane skid banks" at Qadirpur gas processing plant. Membrane elements of each bidder will be tested for a period of **03 months**. During this period all the relevant data / gas analysis will be collected including but not limited to flow of Raw/Residue/Permeate Streams.
3. All the data will be entered into separate sheet for each day. By using this data, overall performance of membrane elements shall be evaluated.
4. OGDCL shall not pay any mobilization / demobilization charges. OGDCL may provide accommodation at site and technical assistance during the whole testing process to the bidders.
5. OGDCL shall not be responsible for any damages and the bidders would not lodge any financial claims to OGDCL for the installation, commissioning and testing process as well.
6. Performance evaluation of already in use (previously tested / qualified membrane elements) shall not be carried out. Their bid will be scrutinize without performing any test however, financial bid will be opened and evaluated with regard to offered price after completion of performance evaluation of the elements provided by rest of the Vendors.
7. Testing activity will be conducted using Qadirpur plant's Raw gas composition, temp. Pressure, and flow rate conditions. CO₂, H₂S and Hydrocarbon recovery bench mark as defined for Qadirpur plant in clause-D will be considered final for selection of elements for Chanda and Nur-Bagla plants.

D- Performance Evaluation Basis / Procedure:

1. On the basis of Membrane Feed gas composition, Temp. Pressure and flow conditions, following results in the sales/residue gas are mandatory to be met.

H₂S < 16 PPM,

CO₂ < 2 %,

H/C Recovery of 92 % or more on single stage basis in the residue

Delta P (Maximum 25 Psig)

2. The offered elements for testing shall be housed in dedicated membrane bank tubes. The parameters like flow, gas analysis, temp, pressure etc. shall be logged as soon as the raw gas starts flowing through the membrane.
3. At the completion of the testing procedure the results shall be compiled based upon the key performance indicators elaborated above.
4. The feed gas may contain trace impurities such as corrosion inhibitor that are used at well heads for production line protection. The membranes must be capable of meeting design process and mechanical conditions with the presence of these impurities. Manufacturer to confirm that the present pretreatment scheme is adequate to process Qadirpur gas for the required life of the membranes.

E. Technical Support:

1. The membrane manufacturer/Vendor/Manufacturers shall provide information on the following points:
 - a. Proven operating / design limits,
 - b. Maximum Operating design pressure
Maximum operating design differential pressure
Maximum and minimum operating/design temperature
Maximum and minimum operating/design flow per skid and/or per element
 - c. List of substances that will irreversibly damage the membrane, with concentration limits for safe operation where applicable.
 - d. Design life of the offered Membrane elements.
 - e. Security of supply of replacement membranes, including capacity of manufacturing facilities (relative to size of Qadirpur requirements), commitment of company to membrane business, etc.
- 2- Vendor / Manufacturer shall supply the membrane elements directly from their manufacturing plant not from storage.
- 3- Vendor/Manufacturer to provide details of expected storage shelf life of their offered membranes at various storage temperatures.
- 4- Vendor/Manufacturer must provide with the bid, any special storage and / or handling requirements for their elements.

- 5- All membrane elements must be marked permanently on the end plate showing manufacturer, date of manufacture, and a specific serial number. This information is to be duplicated externally on the packing case of each element.
- 6- The Vendor/Manufacturer shall provide the technical support by placing a service Engineer in Pakistan fully trained and experienced in the supplier's membrane product. Such Engineer will visit the plant at least once a month to provide support services for the proper operation of membrane plant. He is to be available to visit the plant on short notice by OGDCL. Services of the Engineer will be free of cost to OGDCL. Land transportation to and from Sukkar airport to plant, boarding and lodging including necessary communications facility will be provided by OGDCL.
- 7- Each Vendor/Manufacturer to provide a list of Membrane Experts contacts within their company for provision of additional technical or commercial information, if required by OGDCL.
- 8- The successful vendor will have to arrange factory visit at their production facilities to 02 professionals of OGDCL for 05 days after award of contract, all the boarding / lodging and visit cost will be borne by the Bidder.

F. Financial Soundness

The Vendor/Manufacturer shall provide proof of financial soundness in the form of latest audit balance sheet for the last two years and Credit Worthiness Certificate from a reputed Bank mentioning that the firm is capable to undertake the business up to US \$ 3 million at a time.

G. Technical Evaluation:

Technical Proposal shall be reviewed first to determine its responsiveness to procedural requirements of ITB and conformity with the **Special Testing/Membrane Performance Evaluation Program for Technical Evaluation**. After completion of technical Evaluation, the Financial Proposals of only the technically responsive/qualified bids shall be opened, reviewed and evaluated. (Minimum 60 marks are mandatory)

Technical Evaluation:

The Technical Evaluation shall be based on following disciplines

<u>S#</u>	<u>Discipline</u>	<u>Criteria</u>	<u>Marks obtained</u>
1	Special testing/membrane element performance evaluation program at site	Total Marks: 60 60marks @ H/C recovery 92% 55marks @ H/C Recovery 90% 50marks @ H/C recovery less than 90 % and above than 85 % 15marks @ H/C recovery less than 85 % 0 marks @ H/C recovery less than 80 % (Will be rejected) Above marks shall be allocated only in case the CO2 and H2S bench marks are attained in the residue gas otherwise bid will be rejected	
3	After sale service/technical support / laboratory facilities	Based on the information provided against clause (E) Marks: 20	
4	HSE	10	
5	Financial soundness	Based on information provided against clause (F) Marks: 10	
Total			

H. Financial Evaluation:

Financial proposals of only the technically qualified bidders will be opened.

I. Award of contract:

Following formula shall be utilized for award of contract after opening of financial proposal on the basis of marks obtained in Tech. and Financial bids as described in the Table below:

A- Tech. Proposal

= 60 Marks i.e
(If the bidder obtains 100 Marks in the technical evaluation it shall be given 60 marks max. for further evaluation)

B-Financial proposal

= 40 Marks (Max.)

Detail

1st Lowest

=40 Marks

2nd Lowest

=35 Marks

3rd Lowest

=30 Marks

J- (Formula for calculation of overall marks obtained)

Name of bidder	Technical Evaluation Marks	Financial Evaluation Marks	Marks obtained
	(A)	(B)	$= \frac{60\% (A) + 40\% (B)}{100}$

Note: Contract will be awarded to the bidder obtaining maximum marks as per (Clause-J)

MEMBARNE TUBE DETAILS

Dia of membrane tube

8 inch internal dia

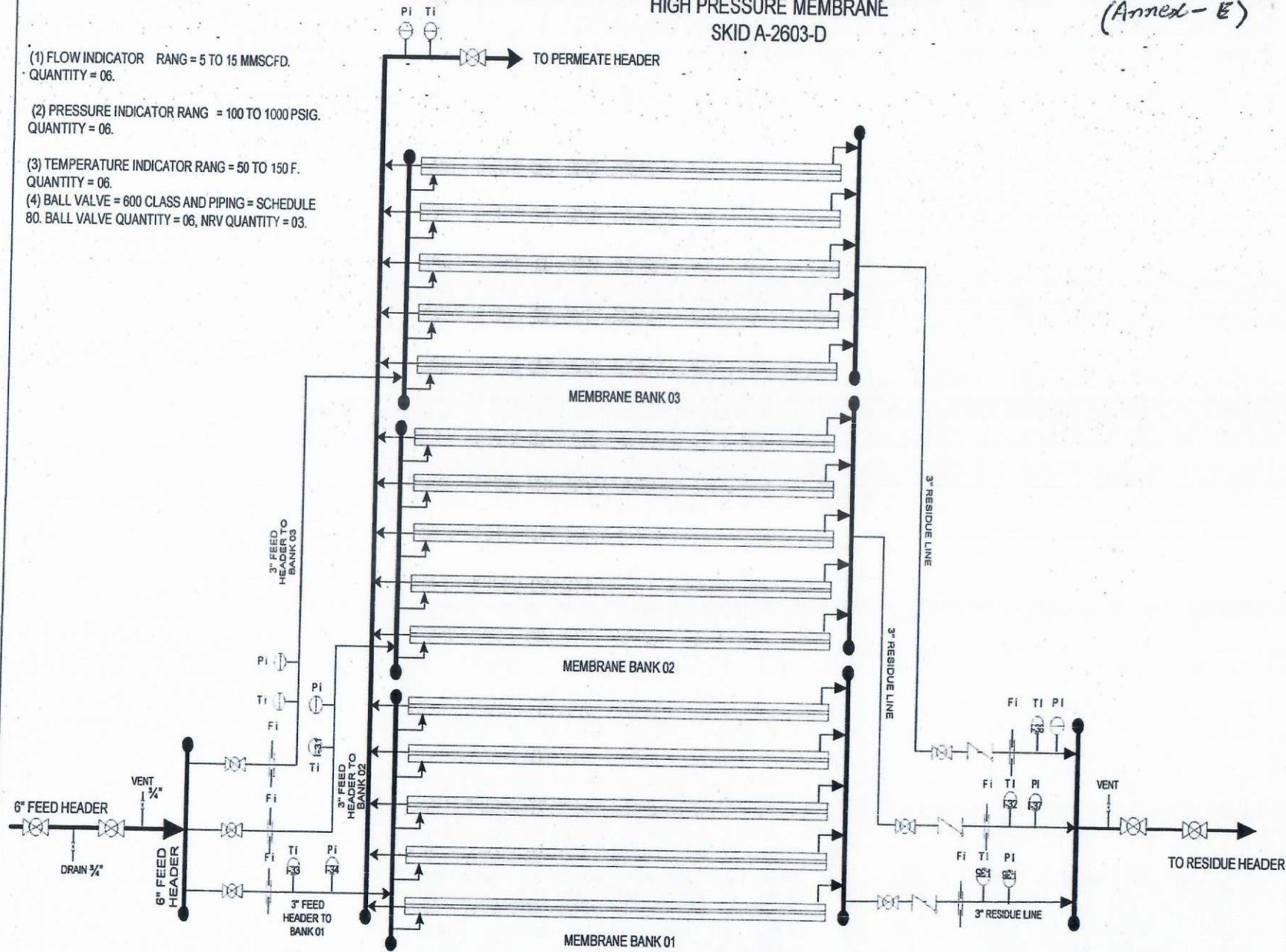
Length of membrane tube

*30 ft (nominal) F/F (for train I & II)
37.5 ft (nominal) F/F (for train III)*

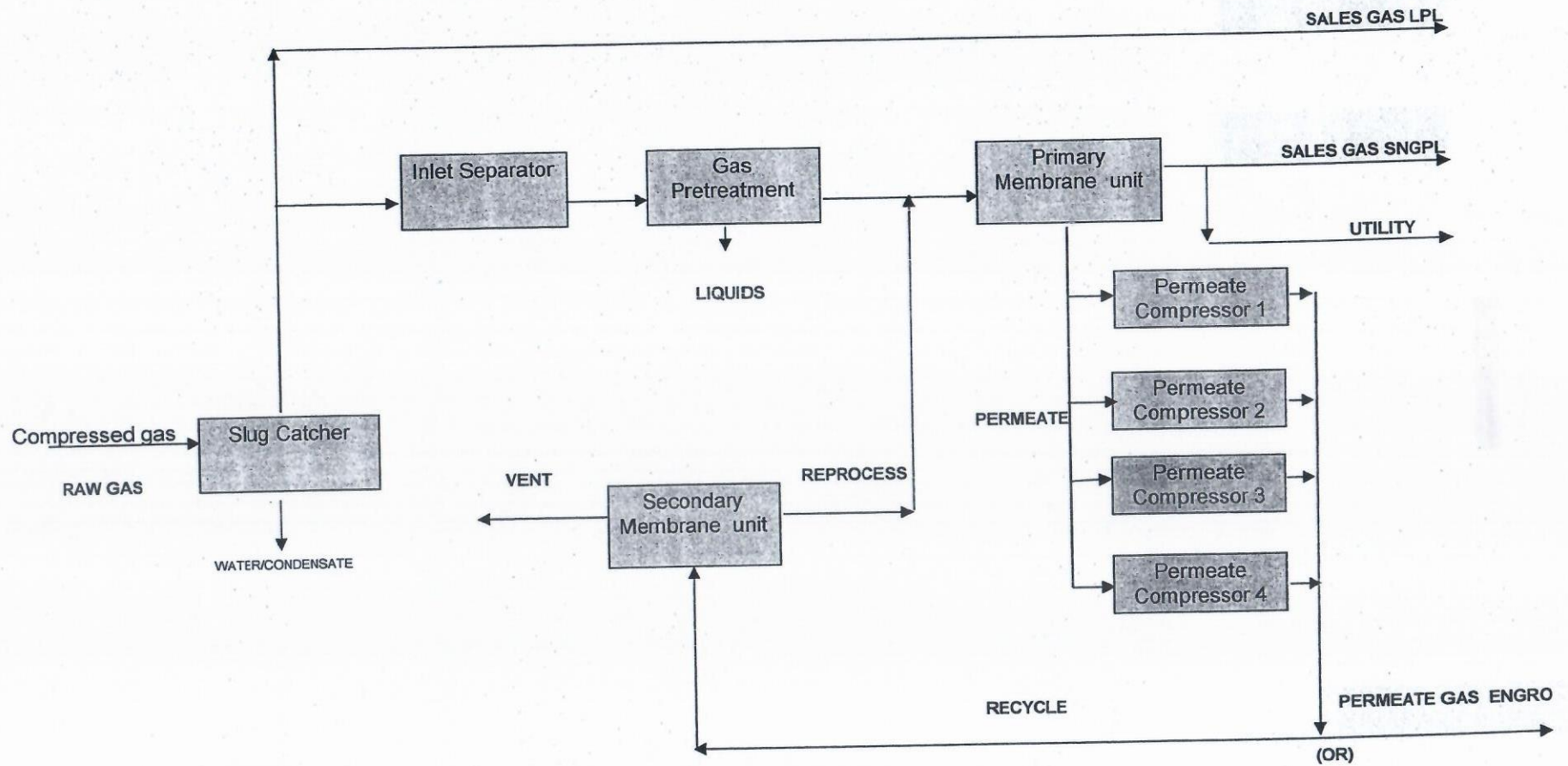
HIGH PRESSURE MEMBRANE
SKID A-2603-D

(Annex - E)

- (1) FLOW INDICATOR RANG = 5 TO 15 MMSCFD.
QUANTITY = 06.
- (2) PRESSURE INDICATOR RANG = 100 TO 1000 PSIG.
QUANTITY = 06.
- (3) TEMPERATURE INDICATOR RANG = 50 TO 150 F.
QUANTITY = 06.
- (4) BALL VALVE = 600 CLASS AND PIPING = SCHEDULE
80. BALL VALVE QUANTITY = 06, NRV QUANTITY = 03.



QADIRPUR GAS PROCESSING PLANT (Annex-A)



Annex-B

COMPOSITION	MEMBRANE FEED	MEMBRANE RESIDUE	MEMBRANE PERMEATE
CO2	6.64	1.85	23.45
N2	12.76	13.66	9.96
C1	79	82.91	65.77
C2	0.95	1.03	0.55
C3	0.24	0.27	0.12
iC4	0.065	0.07	0.07
nC4	0.065	0.07	0.0
iC5	0.03	0.07	0.04
nC5	0.03	0.00	0.00
C6+	0.22	0.07	0.04
water	70 lbs	0.00	0.00
H2S (ppm)	88	< 15	210