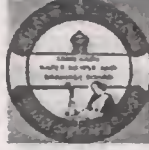


**TAMIL NADU WATER SUPPLY AND DRAINAGE BOARD**  
**No.31 Kamarajar Salai, Chennai.5.**



**Abstract**

**TWAD BOARD - PROPOSALS FOR OPERATION AND MAINTENANCE OF THE  
3.80 MLD CAPACITY SEA WATER DESALINATION PLANT INSTALLED AT  
NARIPPAIYUR IN RAMANATHAPURAM DISTRICT – ORDERS ISSUED**

**( Operation and Maintenance Wing )**

**B.P.Ms.No. 41**

**Dated : 29.05.2003**

**Read :**

Board's Resolution No.2.12 dt.5.5.2003

**Order :**

The Government in G.O. 3D No. 74/ MA & WS Department/ dated 12.07.1993, have accorded approval for the installation of one number of major capacity Desalination Plant at Narippaiyur and 39 numbers of medium/ smaller capacity Desalination Plant at various locations in Ramanathapuram District for an amount of Rs. 53.0466 crores and have directed that the Desalination Plants be installed through M/s. BHEL, Ranipet. The Government had also approved and communicated a MoU to be entered into between the TWAD Board and M/s. BHEL.

Later on, the proposals were modified with the change in locations for some plants and increase in the number of plants from 40 to 45 for the same capacity of 7.02 mld and this modified proposal was approved by the Government in Lr.No. 26903/ DMC/ 95-1/ dated 04.08.1995 of Municipal Administration and Water Supply Department. Out of the 45 plants approved by the Government, M/s. BHEL, Ranipet had completed the installation of 11 plants only. The installation of the remaining 34 plants were ordered to be foreclosed by the Board in view of the high value of TDS in the water from the borewells drilled and the orders of the Board were communicated in Board's Proceedings Ms.No. 26 dated 18.01.2001.

The major Sea Water Desalination Plant of 3.80 MLD capacity is installed at Narippaiyur. According to the MoU entered into between M/s. BHEL, Ranipet and TWAD Board, the plant will be operated and maintained by M/s. BHEL for a minimum period of seven years, from the date of commissioning of the plant and the cost of operation and maintenance is liable for changes once in three years at mutually agreed terms. The Desalination Plant at Narippaiyur was commissioned on 03.06.1999. As per the MoU, the first year O&M cost is Rs. 450 lakhs for the period from 03.06.1999 to 02.06.2000.

The Operation and Maintenance contract for the 3.80 MLD plant at Narippaiyur for the subsequent 1 1/2 years was concluded with M/s. BHEL for the period from 03.06.2000 to 31.12.2001 for an amount of Rs. 615.67 lakhs. The operation and maintenance contract specifies that, necessary routine maintenance spares and consumables including chemicals etc for normal operation and maintenance of the plant excluding for major shut down should be made readily available by the

2  
availability. However, the contract for operation and maintenance do not include supply of membrane and their replacement.

The Operation and Maintenance contract with M/s. BHEL was renewed for the period from 01.01.2002 to 02.06.2003 for an amount of Rs. 510.90 lakhs. The Operation and Maintenance contract provides for repairs and renewals, spares including cartridge replacement but excluding membrane replacement.

As far as replacement of membrane is concerned, the Operation and Maintenance contract specifies as under :

The scope of the contract for the contractor excludes membranes supply and replacement, however, whenever the contractor envisages membrane replacement, they shall intimate atleast 2 months in advance the quantum of requirement and its approximate cost to the Board with invoice for effecting the advance payable to the contractor (clause 18.01)

The contractor is eligible to claim 15 % handling charges towards the procurement of membranes on the total cost of procurement which include ex-works cost of membranes, FOB charges, freight and insurance, port handling and clearance charges etc, but excluding applicable duties and taxes which will be paid by TWAD on actual basis (clause 18.02)

The Operation and Maintenance contract provides for graded payment to M/s. BHEL based on the TDS of the product water. The TDS in the product water was found to be increasing during September 2002. This is because of the reason that the membranes have become old, necessitating urgent replacement of 50 % of the membranes to maintain quality of product water. The matter was discussed on 24.09.2002 by the Managing Director, TWAD Board with the officials of M/s. BHEL. During the meeting, M/s. BHEL expressed the opinion that it would not be possible to forecast any price at this stage, as the membrane replacement is both sensitive and technical requiring negotiations with international manufacturers. During the meeting, the following observations were made :

M/s. BHEL would be given necessary freedom to carry out the negotiations and finalise the best possible options in terms of membrane quality as well as design changes.

Negotiations regarding warrantees and guarantees would be very crucial.

TWAD Board would bear the cost of membrane including service charges of M/s. BHEL as also the duties/ taxes as applicable as per actuals.

One representative from TWAD will be involved during negotiations.

All efforts would be made to bring down the cost of water by effecting appropriate changes in the membrane and design.

Based on the above decision, Mr. Nishida of M/s. Toyobo, Japan made a visit to Narippaiyur on 05.10.2002 and accepted to give the offer for replacement of membranes before 21.10.2002. Communications were established with 17 other membrane manufacturers/ suppliers, but of no avail. As an immediate measure, on 12.10.2002, M/s. BHEL, Ranipet was directed to produce water within the maximum TDS of 1500 and to send proposals for replacement of membranes before 21.10.2002.

In response to this, M/s. BHEL, Ranipet had furnished their proposal for re-engineering, supply, installation and commissioning of Hollow Fibre membranes for the Desalination Plant at Narippaiyur for an amount of Rs. 3.80 crores, stating that the cost includes 80 nos. of Toyobo make R.O. membranes model HB 10255 SI including installation and commissioning and supply of 10 nos. of spare membranes as per clause 18.02 of the O&M agreement. This cost includes ex-works price, FOB charges, freight and insurance, port handling charges, clearance but does not include duties and taxes with back to back performance guarantee of the manufacturer.

The nucleus of the issues governing the replacement of membranes and O&M of the Desalination Plant installed at Narippaiyur was placed before the Board at its meeting held on 13.12.2002. The Board, after careful consideration, resolved in its Resolution no. 2.5 dated 13.12.2002, to constitute a committee with the following members to study in greater detail, the offer given by M/s. BHEL for supply of membranes and re-engineering works for Narippaiyur DSP and to give its recommendations to the Board about the purchase of suitable membranes for the plant following the Transparency of Tender Act.

Joint Managing Director, TWAD Board  
Special Secretary to Government, finance Department  
Chief Engineer, TWAD Board, Southern Region, Madurai  
Engineering Director, TWAD Board and  
An expert in the field of membrane technology

The Board directed that the Committee may give its report to the Board by 7<sup>th</sup> January 2003. The orders of the Board were communicated in Board's proceedings Ms.No. 130 dated 18.12.2002.

As directed by the Board, the meeting of the Committee was convened on 20.01.2003. Dr. B.M. Misra, Head, Desalination Division, Bhaba Atomic Research Centre, Mumbai and Dr. M.S.R. Swami, Senior Manager, Chennai Petroleum Corporation Ltd. had attended the meeting of the Committee. The Committee after detailed discussions, recommended that in view of urgency and the balance of advantage remaining with the retrofit replacement by proprietary item of Toyobo make Hollow Fibre membranes for treating sea water with Reverse Osmosis process, recommended that the offer of M/s. BHEL, Ranipet shall be proceeded further.

The issue relating to the tenders for the replacement of membranes is being dealt with separately. As far as the Operation and Maintenance of the Desalination Plant at Narippaiyur is concerned, efforts were taken as under to identify a viable alternative.

- (i) An open house discussion was held on 30.01.2003, for identifying the technology development, sources for the procurement of membrane, alternatives available and agencies available for entrusting the operation and maintenance of the Desalination Plant at Narippaiyur. Despite the participation from international agencies, proposal were not forthcoming for taking over the operation and maintenance of the Desalination Plant at Narippaiyur as may be evidenced from the lack luster response to the invitation of bids floated by the Chief Engineer, TWAD Board, Southern Region, Madurai.
- (ii) Tenders were invited by the Chief Engineer, TWAD Board, Southern Region, Madurai for taking over the Desalination Plant at Narippaiyur in 'as is where is' condition, rehabilitating, commissioning and Operation & Maintenance for three years including replacement of membranes. The tenders were invited on

07.10.2002, fixing the last date for the receipt of tenders as 13.11.2002, extended upto 06.02.2003. In response to the tender call, only two firms, namely M/s. Vivendi Water (India) Pvt. Ltd., New Delhi and M/s. Enviro Care Systems, Chennai had offered their bids.

The technical bids were placed before the head Office Tender Evaluation Committee at its meeting held on 18.02.2003. The Head Office Tender Evaluation Committee directed that the Chief Engineer, TWAD Board, Southern Region, Madurai may seek and get necessary clarifications on certain points raised by the Committee from the firms. The Evaluation Committee desired that since the firms involved in this bid are having liaison with foreign counterparts, the technical and financial details provided by them may be entrusted to a qualified and experienced Chartered Accountant of repute for obtaining opinion on the financial standings of the firms after due analysis.

The Evaluation Committee desired further that legal opinion may also be obtained on the correctness and acceptability of the credentials and records as well as on the legal status of the firms in question besides the legal content of the particulars furnished in the tenders by the firms. The Head Office Tender Evaluation Committee directed that after carrying out the above exercise, the subject may be placed again for taking a decision on the pre qualification of the firms.

The Chief Engineer, TWAD Board, Southern Region, Madurai, after carrying out the requirements as desired by the Committee, placed the subject again before the Head Office Tender Evaluation Committee at its meeting on 24.03.2003. The Head Office Tender Evaluation Committee, after detailed discussions and after perusal of the opinion of the Chartered Accountant and legal Advisor, observed that based on the pre qualification criteria prescribed in the bid document and after considering the opinions offered by the Legal Adviser and Chartered Accountant on the bids offered by the firms, the Committee after detailed discussions decided not to consider both the firms for the reasons set out below :

*M/s. Vivendi Water (India) Pvt. Ltd., New Delhi*

This firm has not executed any work on their own and also not achieved annual turnover of Rs. 5 crores and thereby not satisfied the prescribed qualification criteria both physical and financial and other requirements to substantiate its capability and viability for undertaking and successfully completing the operation and maintenance of the contract.

*M/s. Enviro Care Systems, Chennai*

The firm has claimed exemption from payment of EMD stating that it is a small scale tiny unit. From the certificate furnished by them, it is observed that the activity of the firm is only servicing of the sea water desalination plant at site. Since the work covered in this tender is operation and maintenance of the existing sea water based RO Desalination Plant at Narippaiyur, the firm does not have the requisite qualification.

Moreover, this firm has not satisfied the financial qualification criteria prescribed as it has not achieved the annual turnover of Rs. 5 crores in anyone of the last three years, besides does not also comply with other tender conditions prescribed.

As per the bid conditions, the price bids of the firms who have been pre qualified alone can be opened. Since both the firms have not been considered for pre qualification, the price bids cannot be opened.

In the circumstances, since the present Operation and maintenance contract with M/s. BHEL is valid upto 02.06.2003, a comprehensive note covering different aspects governing the replacement of membranes as well as operation and maintenance of the 3.80 mld capacity sea water Desalination Plant was placed before the Board at its meeting held on 05.05.2003 for taking a decision.

The Board, after careful consideration, took note of the fact that the existing O&M contract with M/s. BHEL for the sea water Desalination Plant at Narippaiyur expires on 02.06.2003 and RESOLVED in its Resolution no. 2.12 dated 05.05.2003, to extend the O&M contract with M/s. BHEL for a further period of three months. The Board further resolved that the TWAD Engineers should get themselves trained in the operation and maintenance of the plant so that TWAD Engineers could independently maintain the unit. The Board has also resolved that the tenders for 'taking over the sea water Desalination Plant at Narippaiyur in as is where is condition, rehabilitate and commission including replacement with suitable membrane on BOOT basis' should be invited again and finalized in the next 3 months, in view of the fact that dependence on hollow fibre membrane may not be advisable as it is no longer being manufactured except by one company in Japan and as the hollow membrane technology itself is getting replaced by better technologies.

Accordingly the Board accords approval for extending the O&M contract with M/s. BHEL for a further period of three months beyond 02.06.2003. The Board directs that the TWAD Engineers should get themselves trained in the operation and maintenance of the plant so that the unit can be maintained by the TWAD Engineers independently. The Board also directs that the tenders for 'taking over the sea water Desalination Plant at Narippaiyur in as is where is condition, rehabilitate and commission including replacement with suitable membrane on BOOT basis' should be invited again and finalised in the next 3 months, in view of the fact that dependence on hollow fibre membrane may not be advisable as it is no longer being manufactured except by one company in Japan and as the Hollow membrane technology itself is getting replaced by better technologies.

**/ By order of the Board /**

**S. Karuthiah Pandian**  
Managing Director, TWAD Board

**To**

The Chief Engineer, TWAD Board, Southern Region, Madurai  
Copy to the Superintending Engineer, TWAD Board, Sivagangai Ramanathapuram Circle, Sivagangai  
Copy to the Executive Engineer, TWAD Board, Desalination Plant Division, Ramanathapuram  
Copy to the Engineering Director, TWAD Board, Chepauk, Chennai - 5  
Copy to Finance Director, TWAD Board, Chepauk, Chennai - 5  
Copy to Joint Chief Engineer (CO&M), TWAD Board, Chepauk, Chennai - 5  
Copy to the Joint Chief Engineer (PM), TWAD Board, Chepauk, Chennai - 5  
Copy to the Chief Accounts Officer/ Chief Audit Officer, TWAD Board, Chepauk, Chennai-5  
Copy to Board Cell/ Spare

**/ forwarded by order /**

*D.WT* *30.5.03*  
**Joint Chief Engineer (CO&M)**  
**TWAD Board, Chennai - 5**  
*30/5/03*