

## Iraq ENI Basrah Water Treatment Plant



### Plant Description:

- Water treatment plant at Basrah is completely covered within a container.
- Plants are fully covered protected from ambient temperature with isolation and sensitive to the environment.
- Treated water meets WHO potable water standards.
- Contract involves process design, detail designs, engineering, supply, commissioning and operator training.

<b>Client:</b>	Dorçe A.Ş.
<b>Commissioned:</b>	2012
<b>Capacity:</b>	6 m <sup>3</sup> /hr
<b>Discharge consent:</b>	WHO standards
<b>Brief description:</b>	Containerised potable water treatment plant with filtration+reverse osmosis+disinfection units

### MBR Atıksu Arıtma Sistemleri Ltd.

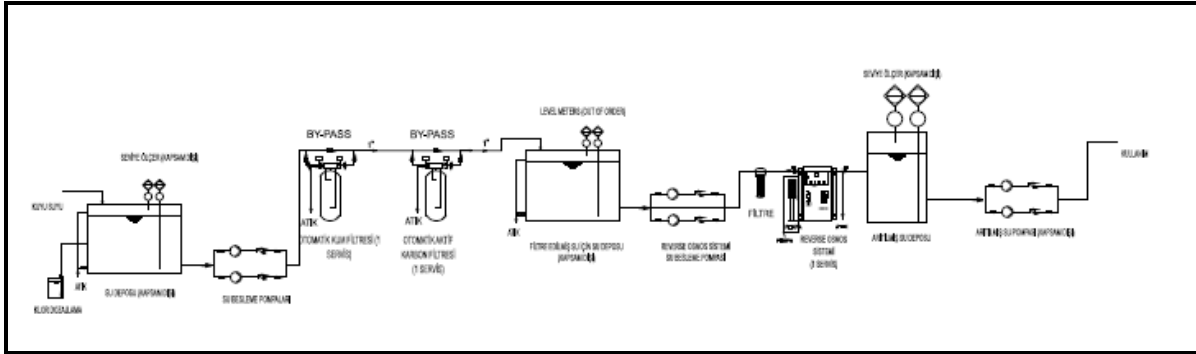
Bağdat Cad. No: 7, Kat: 4 Kızıltoprak – İstanbul

Tel: +(90)216 4141034- 4146035 Fax: 0216 4141344

e-mail: [asistan@tr-mbr.com](mailto:asistan@tr-mbr.com)

web: [www.mbraritma.com.tr](http://www.mbraritma.com.tr)

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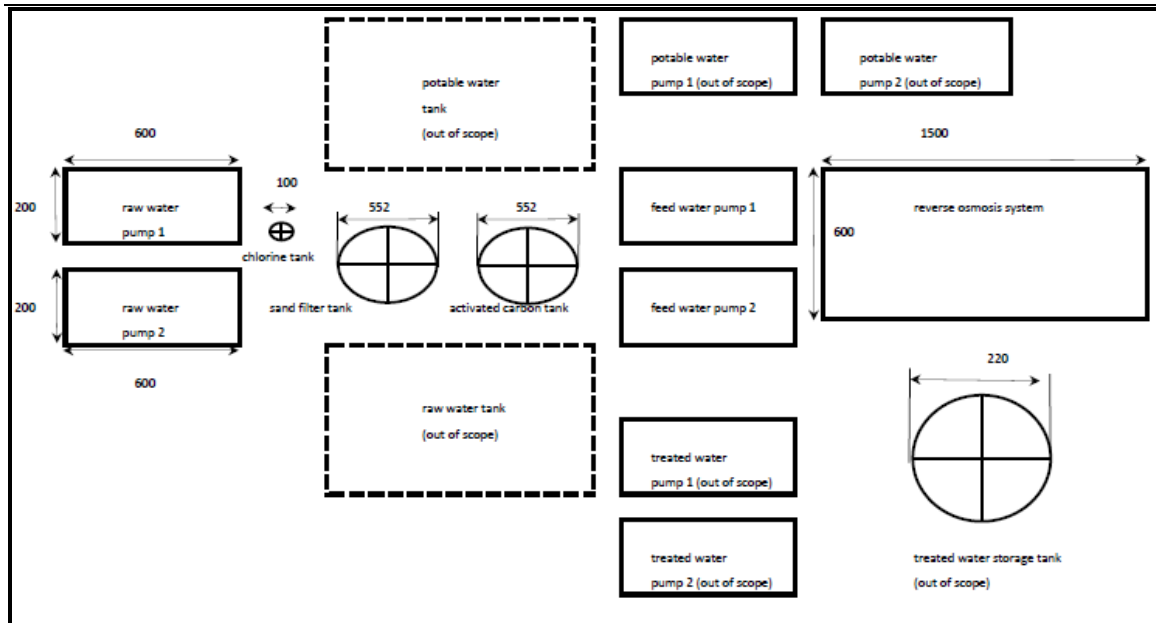
**Process Flowsheet**

### Process Description:

Plant is fully covered in a container and has isolation against ambient temperature.

Water is supplied is fed from the raw water tank within the container to the treatment system with hydrophore. Water passes through pre filtration, chemical treatment, sand filter, activated carbon filter, iron filter, neutralisation, chlore disinfection, Ph adjustment and UV disinfection in sequence and afterwards stored at treated water depot ready to use.

Plant is designed for fully automatic operation with minimum supervision.



**Layout**

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### Design data

Flow: 6 m<sup>3</sup>/hr

### Raw water parameters:

BOD :1-2mg/L  
 Iron-Manganese :<1 mg/L  
 Turbidity : 10 NTU  
 pH : 6-7.2  
 TDS : 2000 mg/L

Treated water meets WHO standards.

	<u>Turkish Standards TSE 266</u>	<u>World Health Organisation WHO</u>	<u>US Enviromental Protection Agency EPA</u>
<b>Turbidity (NTU)</b>			
Turbidity	25	5	5
<b>Microbiological Parameters</b>			
Coliform Bacteria	<1	0	<1
<b>Organical Chemical Parameters (mg/lt.)</b>			
Total Trihalometans		400	100
<b>İnorganical Chemical Material (mg/lt.)</b>			
Aluminium,Al	0,2	0,2	1
Arsenic, As	0,05	0,05	0,05
Barium,Ba	0,3		1
Cadmium,Cd	0,01	0,01	0,01
Cromium(Total)	0,05	0,05	0,05
Florure,F	1,5	1,5	0,7-2,4
Lead,Pb	0,05	0,05	0,05
Mercury,Hg	0	0	0
NitrateNO <sub>3</sub>	50	50	45
Selenium,Se	0,01		0,01

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Silver,Ag	0,01		0,05
Antimon,Sb	0,01		0,01
Berilium,Be			0
Asbest > 10 micron			7 milyon lif/lt.
<b>Radiological Parameters</b>			
Gross Alfa			15
Gross Beta			50
<b>Aesthetical Parameters(mg/lt.)</b>			
Clorure,Cl	600	250	250
Clolour (unit)	20	15	15
Copper,Cu	3		1
Detergents	0,2		0,5
Iron,Fe	0,2		0,3
Manganese,Mn	0,05	0,5	0,05
Odour level (unit)			3
pH	6,5-9,2	6,5-8,8	6,5-8,5
Sulphate,SO <sub>4</sub>	250	250	250
TDS	1500	1000	500
Zinc,Zn	5		5
<b>Additional Parameters (mg/lt.)</b>			
Calsium,Ca	200		
Hardness,CaCO <sub>3</sub>		500	
Magnezium,Mg	50		
Potassium,K	12		
Sodium,Na	175	200	
Residual Clorure	0,1-0,5	5	
Ammonium,NH <sub>4</sub>	0,05-0,5	1,5	

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