



ETHYDCO FACILITY
ALEXANDRIA, EGYPT

THE SITUATION

Egyptian Ethylene and Derivatives Company (ETHYDCO) built a 460,000 T/Y ethylene plant and a 20,000 T/Y butadiene extraction plant as part of ETHYDCO's petrochemical complex in Alexandria. ETHYDCO needed to meet strict Egyptian environmental guidelines with a robust and reliable solution that was still cost effective. The solution would have to meet not only current, but future guidelines. The result was Egypt's first Zero Liquid Discharge (ZLD) System.

THE AQUATECH SOLUTION

Aquatech's experienced team of engineers designed and supplied a completely integrated ZLD solution that included Microfiltration for pretreatment, High Efficiency Reverse Osmosis (HERO™), Qua's Fractional Electrodionization (FEDI™), a Brine Concentrator, Crystallizer and sludge treatment system. This system treated both inconsistent water intake from the Nile for processing and wastewater produced by the plant with the only bi-product being clean steam and landfillable solids. Aquatech's integrated solution reduced fresh water demand by 70%. This success has been heralded by the Regional Egyptian Government as an example of industry finding solutions to protect their only life-giving aquifer, The River Nile and its significance to Egypt.

ETHYDCO
REDUCED
NEED FOR
FRESH WATER
INTAKE BY
70%

>97%
REVERSE OSMOSIS
EFFICIENCY

TREATS
VARIUS
AGGRESSIVE
WASTEWATER STREAMS

EGYPT'S
ZLD
SYSTEM
1ST

www.ZLDone.com

DESIGN WATER ANALYSIS

| Parameter | Feed Water Analysis | Treated Water Quality | DM Water Quality |
|---|---------------------|-----------------------|------------------|
| Normal Flow Rate m ³ /hr | 1122 | 813 | 210 |
| Rated Flow Rate m ³ /hr | 1219 | 813 | 210 |
| TSS - ppm | 20 | 0- | |
| TDS - ppm | 609 | 271 | 0.2 |
| Total Hardness - ppm as CaCO ₃ | 173 | 76 | |
| Ca Hardness - ppm as CaCO ₃ | 106 | 46 | Nil |
| Total Alkalinity - ppm as CaCO ₃ | 170 | 74 | - |
| Sodium - ppm | 87 | 42 | - |
| Chloride - ppm | 89 | 45 | - |
| SiO ₂ - ppm | 31 | | < 0.2 |
| SO ₄ - ppm | 92 | 41 | - |
| pH | 7-8.5 | 8 - 9.56 | - 8 |
| Pressure, kg/cm ² g4 | .5 | ENPPI to add2 | |

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