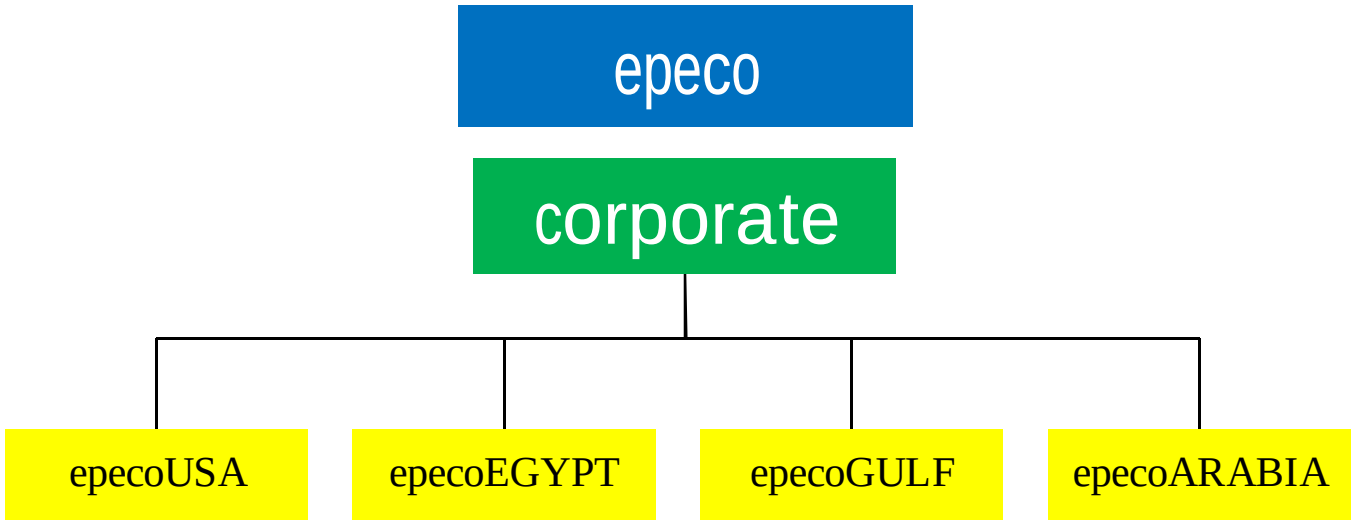
EPECO, the Environmental Projects & Engineering company, incorporated in Cairo/Egypt. **EPECO** activities were extended to cover Middle East & North Africa MENA region. Many associates were added to **EPECO** group of companies, focusing on environmental protection engineering, projects and products. **epecoGULF**, a free zone company based in United Arab Emirates , **epecoUSA** based in Nevada State/USA and **epecoARABIA** based in Riyadh/Saudi Arabia are the members of **EPECO** Environmental Engineering Group.

epeco


epeco
corporate
epecoUSA
epecoEGYPT
epecoGULF
epecoARABIA

epecoUSA

epecoUSA, incorporated in the state of Nevada, USA on 1993, has established several associated companies in the middle east & North Africa. Nowadays, **epecoUSA** activities are limited to design, engineering, business development and procurement of outsourced manufactured components.

epeco.egypt

epecoEGYPT, the manufacturer & construction contractor, based in Cairo/Egypt , specialized in water & wastewater treatment & reuse projects.

epecoEGYPT, is working through-out North Africa from headquarters in Cairo.

epecoEGYPT, is operating a modern factory at AGA city, southern of Mansourah, 100 km north Cairo. In this Aga factory, most standard epecoUSA standard residential products are manufactured for direct sales in Egypt & North Africa.

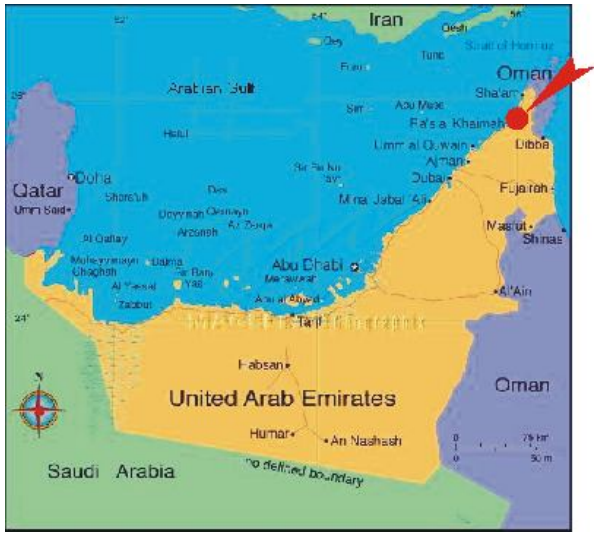
A modern fabrication plant in Suez is utilized for projects & custom built equipment.

epecoGULF

epecoGULF, the manufacturer & construction contractor, based in Ras al Khaimah/United Arab Emirates is licensed as a free zone company, specialized in manufacturing/construction of water & wastewater treatment & reuse projects.

epecoGULF is operating fabrication plant in Ras al Khaimah for project packaging.

epecoGULF, is working through-out the Arabian Gulf States (excluding Saudi Aarabia) in construction of water & wastewater treatment & recycling projects & equipment.



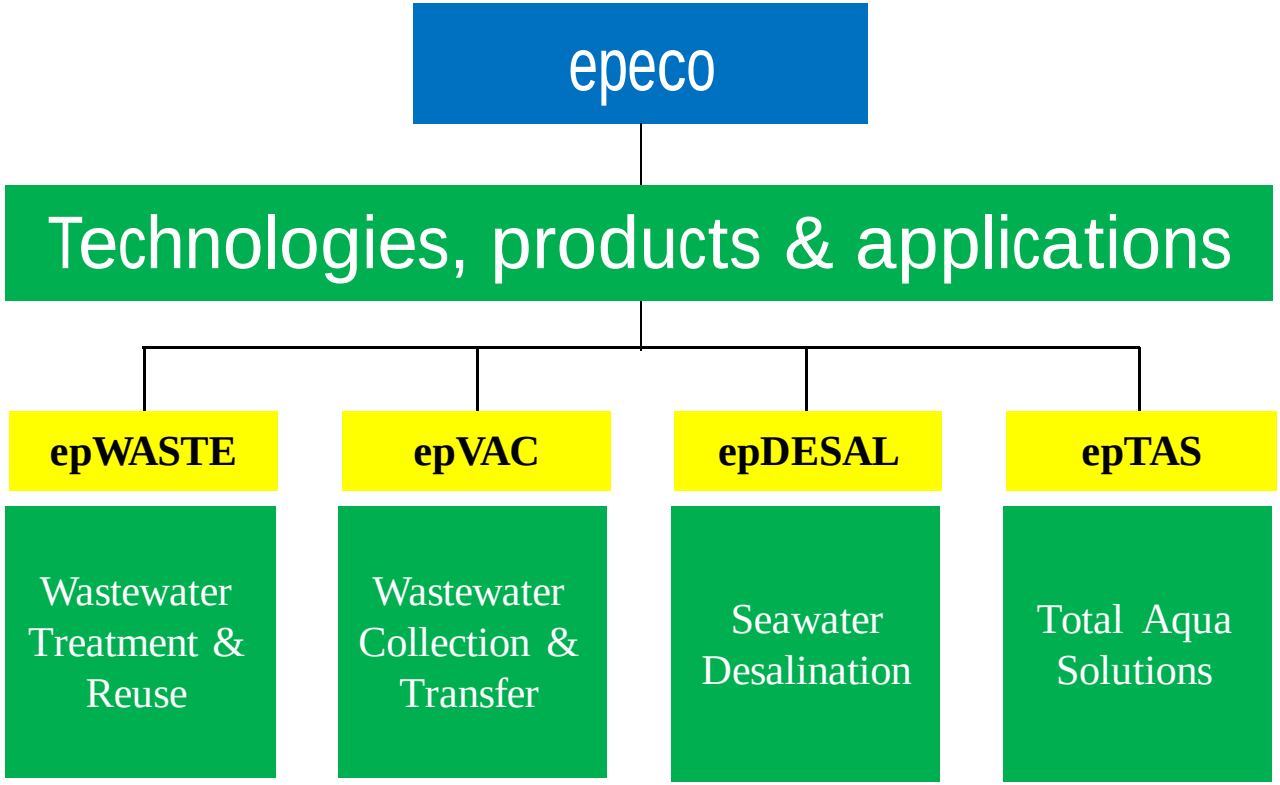
epeco.arabia

epeco.arabia, is the Environmental Projects & Engineering Division, of Saad H. Farrash Trading and Contracting Enterprise, based in Riyadh.

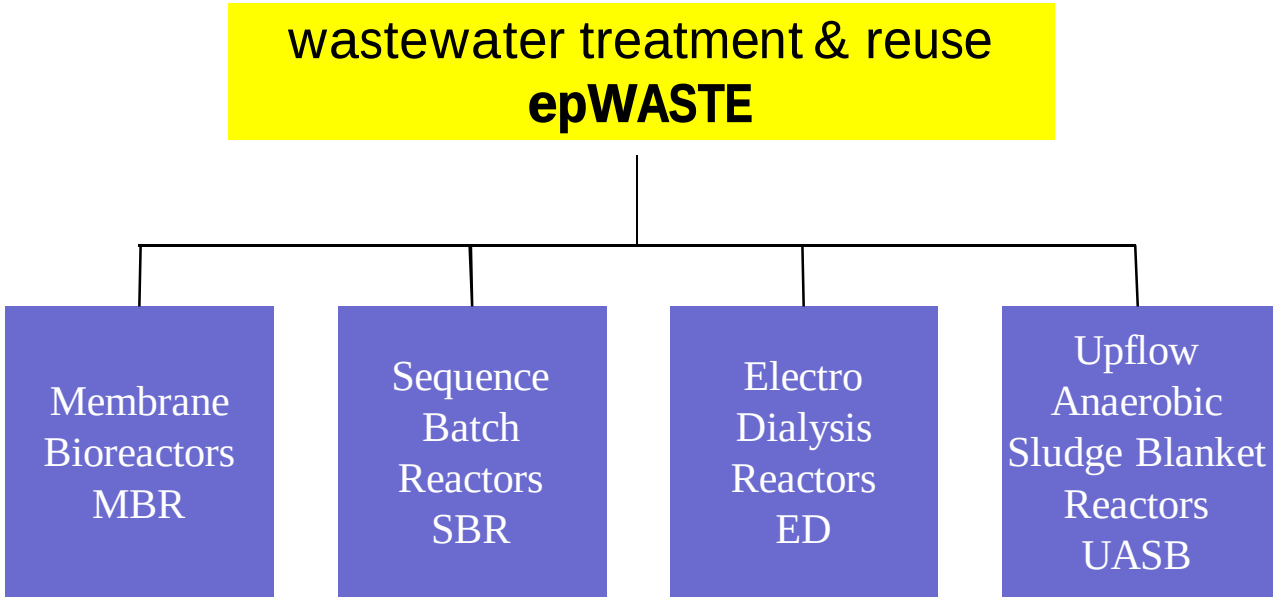
epeco.arabia is under incorporation (2011) in association with **epecoUSA**, Inc. **epeco.arabia** is the manufacturer and construction contractor of water & wastewater treatment & reuse projects in Saudi Arabia .

epeco.arabia is focusing on saving & environmental protection products & projects.

epeco


epeco
Technologies, products & applications
epWASTE
epVAC
epDESAL
epTAS
Wastewater Treatment & Reuse
Wastewater Collection & Transfer
Seawater Desalination
Total Aqua Solutions

epeco


wastewater treatment & reuse
epWASTE
Membrane Bioreactors MBR
Sequence Batch Reactors SBR
Electro Dialysis Reactors ED
Upflow Anaerobic Sludge Blanket Reactors UASB

epeco

membrane bioreactors
MBR

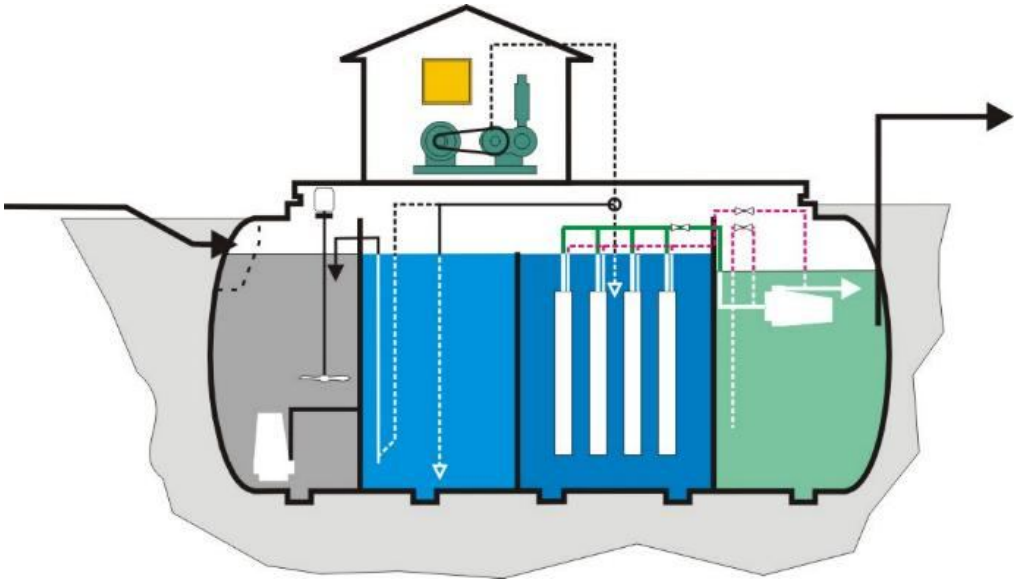
technology

membrane bioreactors **MBR**

In membrane bioreactors MBR systems, MF or UF membranes are immersed directly into the mixed liquor and draw treated effluent into the fibers using a gentle suction. Secondary clarifiers and tertiary filtration are eliminated.

cont'd

technology | MBR



cont'd

technology MBR

Because sludge settling is not required, MBR system can operate at much high mixed liquor suspended solids concentrations, typically in the range of 8,000 to 15,000 mg/l. This enables the MBR to function with relatively small bioreactor volume, and considerably reduces capital and operating costs because less land, fewer components and a smaller physical plant is required.

MBR systems produce tertiary effluent quality that has very low levels of BOD, COD, nitrogen, phosphorus, suspended solids and microbial contamination.

MBR systems are rapidly replacing the aging conventional treatment systems in small communities and are increasingly installed to serve land development projects such as residential projects, hotels, resorts, shopping centers, office buildings, airports and camp grounds.

cont'd

technology | MBR

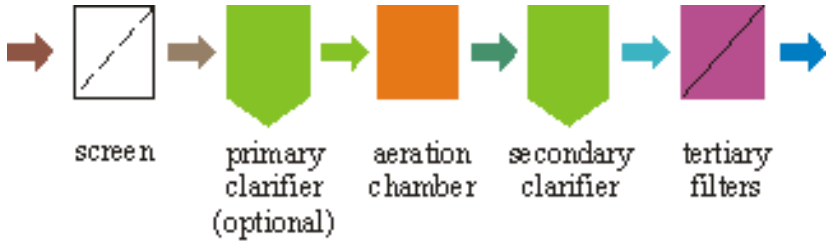
MBR systems, Why?

- Accepts highly fluctuating organic and hydraulic loads while keeping consistent product quality with no sacrifice of performance.
- Reduce at least 40% of the space required for conventional wastewater treatment plant installation.
- No chemicals used for regular operation.
- No full time attendance required to operate the plant.
- Low power consumption per unit of treatment.

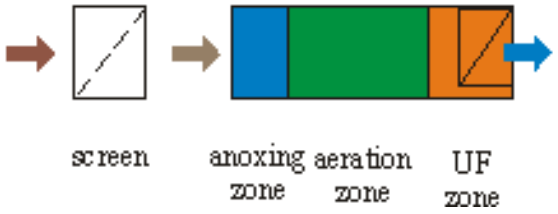
cont'd

technology | MBR

MBR vs Conventional Wastewater Treatment Systems:



Conventional



MBR

cont'd

technology MBR

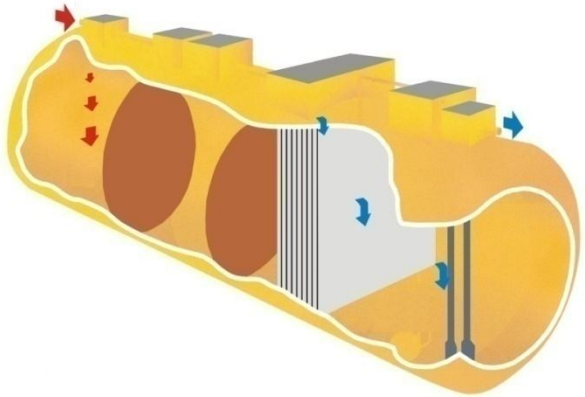
EPECO developed a manufacturing program of small wastewater treatment systems based on an enhanced MBR technology. In small residential buildings, inflow quality and hydraulic profile are widely varying. **EPECO** 's MBR product line implemented an advanced innovations to treat fat, oil & grease FOG , hair blocking and foaming problems which are normally associated with the small flow domestic applications.

products epMBRj

The wastewater treatment plants from **EPECO , epMBRj** capacity range is up to 10 cubic meters per day (equivalent to 40 users in average).

cont'd

products | epMBRj



epMBRj is available in fiberglass or steel structure for above or under ground installation

cont'd

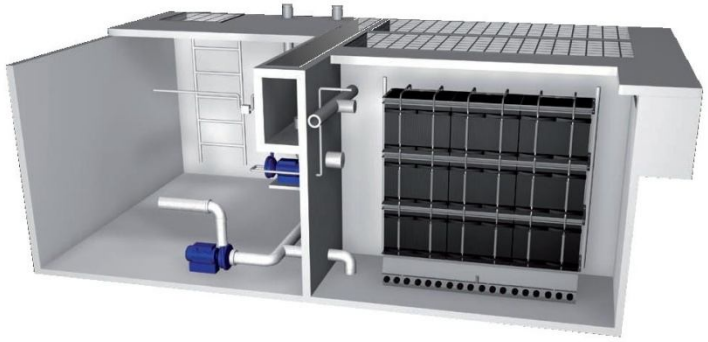
products epMBRs

The wastewater treatment **plants epMBRs** capacity range is 15-30 cubic meters per day. Multiple Streams will allow for larger capacities.

cont'd

products | epMBRs

epMBRs can be built in steel or concrete structure for above or under ground installation



cont'd

products

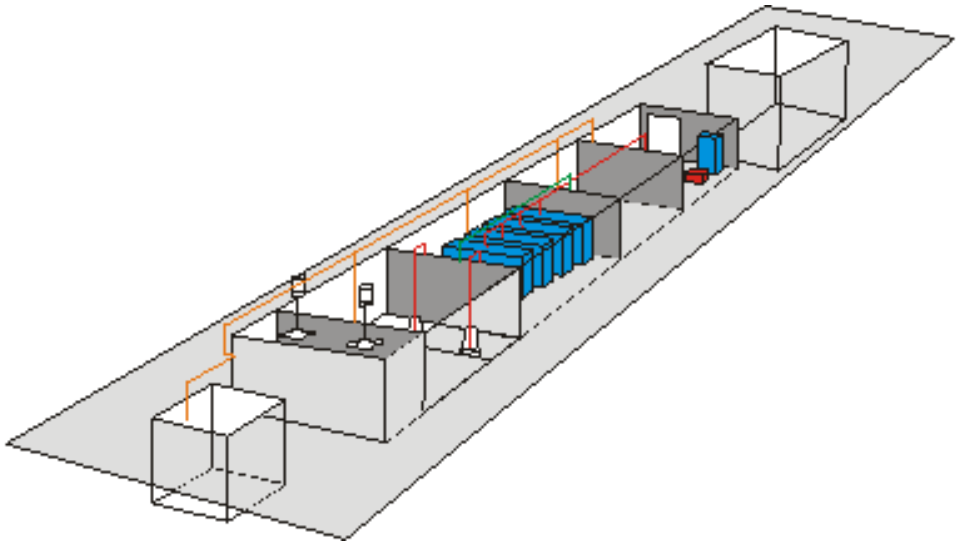
epMBRc

The wastewater treatment **plants epMBRc** capacity range is 100-500 cubic meters per day-in a single monoblock module (equivalent to 2000 users in average). Larger capacities can be built in multiple modules .

epMBRc plants are build in concrete structure for fully or semi buried installations.

cont'd

products | epMBRc



concrete structure for semi buried installation

application epMBR

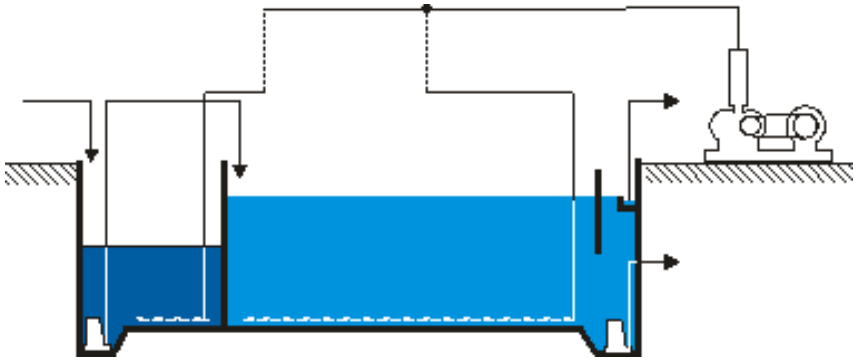
for a single building

up to towns & cities

sequence batch bioreactors
SBR

technology

sequence batch bioreactors
SBR



The **SBR** process operates on a fill and draw batch basis, where the main aeration chamber works as a biological reactor and settling tank at various stages of the treatment cycle. Wastewater may be accumulated in a batching tank and then delivered to a reaction tank(s), which contains activated sludge. The batch is subject to biological treatment for a prescribed period under aerobic effect. At the end of the reaction period, the batch is allowed to settle, after which the clarified effluent is decanted from the top of the tank.

cont'd

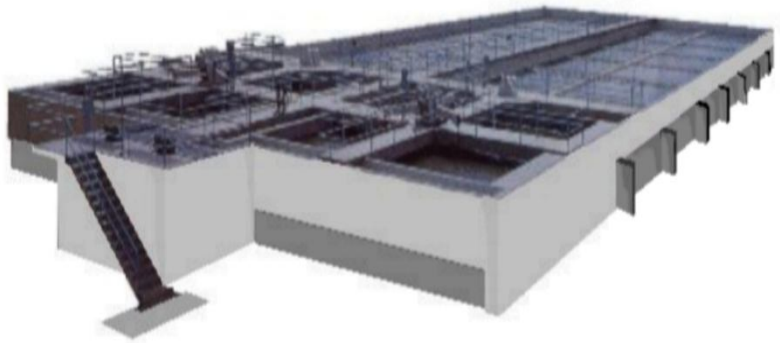
technology SBR

The sludge remains in the tank to provide the biological population for the subsequent cycle. Excess biomass is pumped on a regular basis to a sludge disposal systems.

product epSBR c

Capacity: up to 1000 m3/day & multiples.

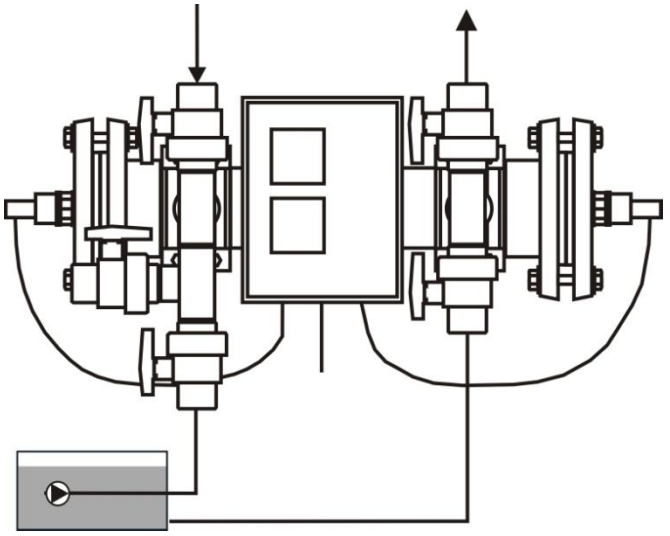
Standard Construction: Concrete structure for under ground installation.



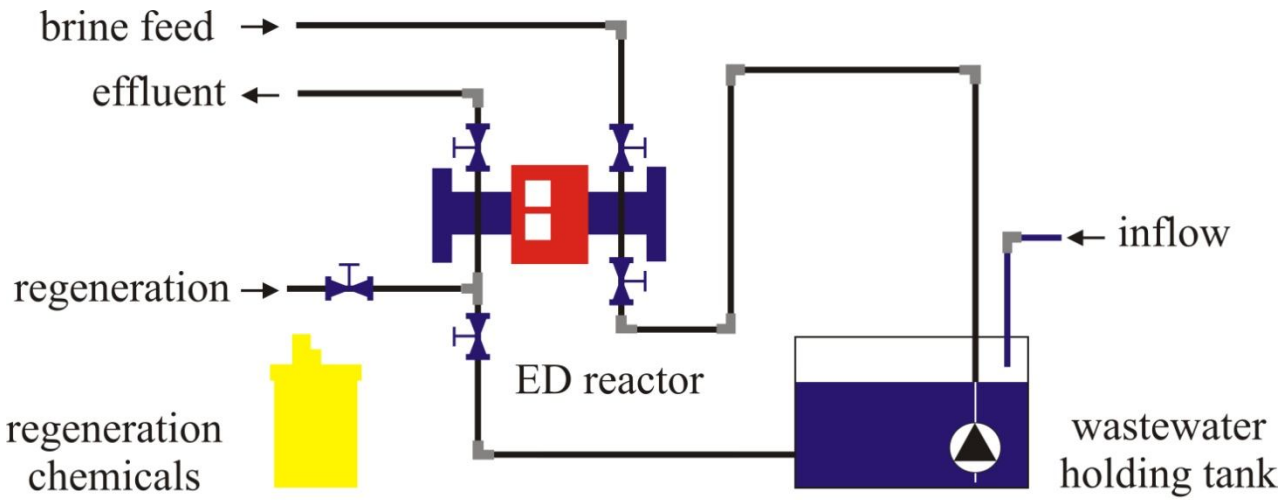
electrodialysis reactor
ER

electrodialysis reactor
ER

By mixing wastewater with sodium chloride solution and by applying low voltage electric current through by-metal electrodes, electrolytic solutions , such as sodium chloride/water will electro-dialyze, forming sodium hypochlorite solution-rich in free chlorine



technology | ER



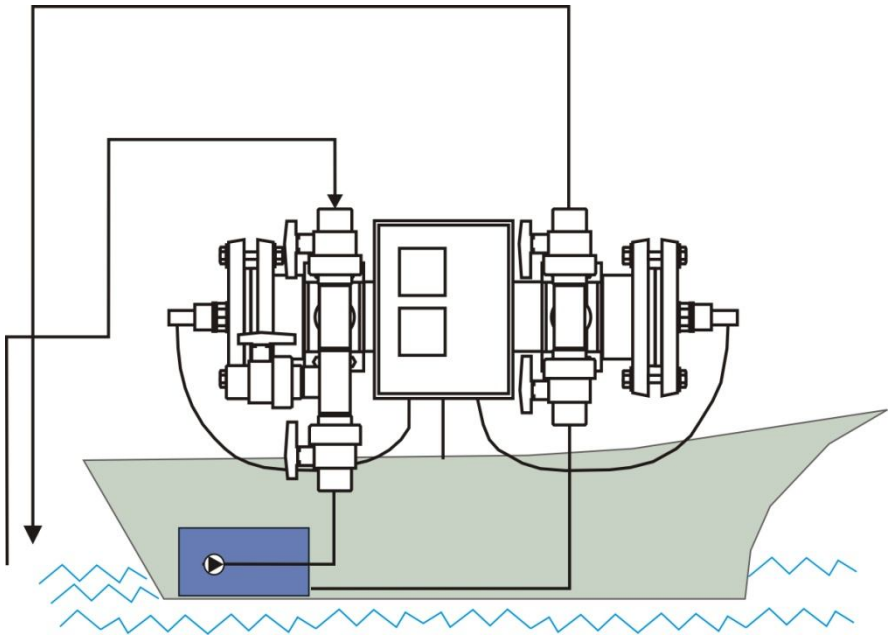
wastewater electrodialysis reactor

products | marincelST

EPECO developed the electrolytic wastewater dialyzer **marincelST** , designed-originally- for treatment of wastewater in environments-rich in sodium chloride solution. Ships & marine vessels, costal towns and some industries are among the users of **marincelST** systems or its affiliates. In the **marincelST** systems, wastewater is mixed with the sodium chloride solution (seawater- or brine) which produces sodium hypochlorite which- under certain design- will oxidize the pollutants converting them into simple & eco-friendly by-products.

cont'd

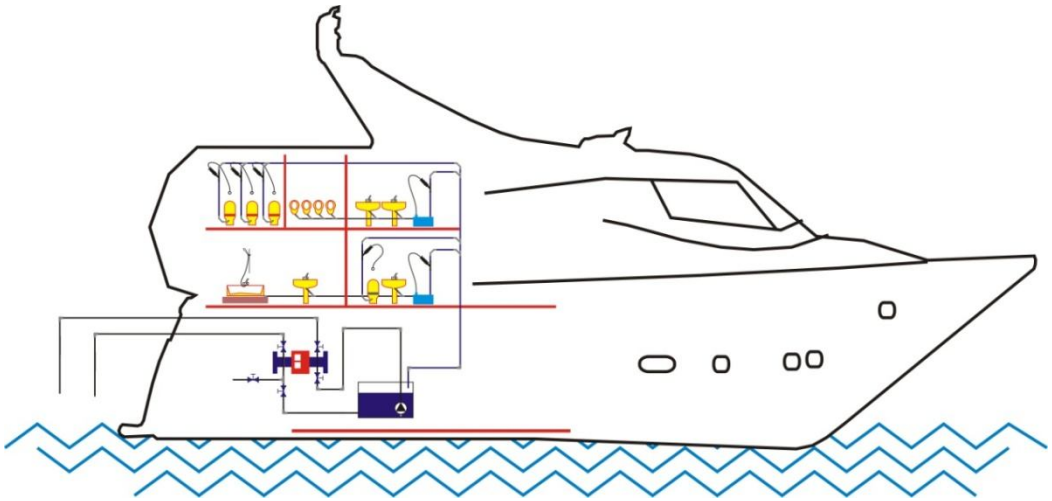
products | marincelST



On ships & marine vessels, the **marincelST** will produce free chlorine which will react with the biomass pollutants in domestic wastewater, converting it into simple oxidizable carbon form, which are disposed safely into the sea.

cont'd

products | marincelST



The **marincelST** technology copes with the International maritime Organization IMO and United States Coast Guard guidelines for treatment and disposal of wastewater on ships and marine vessels.

cont'd

products | marincelST

Available in Capacities up to 175 m3/day per unit. Multiple units can be arranged in parallel for higher capacities.

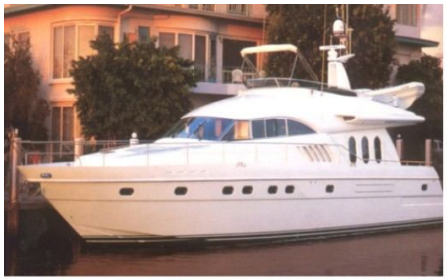
Standard Construction:
In standard equipment, all wet components are made of high pressure rating composites.

cont'd

products | marincelST

Alternatively, all metal (stainless steel, titanium, ..etc.) **marincelST** systems are manufactured. All metal **marincelST** will meet Lloyds, ASME, ….etc. requirements for marine vessels applications.

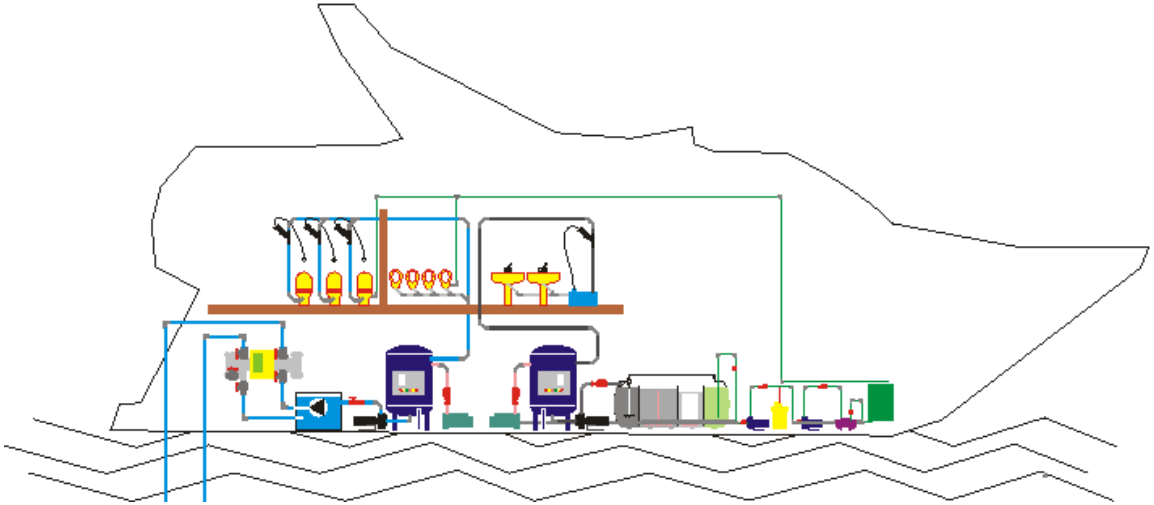
applications | marincelST



Suitable for installation on:
ships & boats.
off Shore rigs.
submarines.
….and more.

cont'd

applications | marincelST



Wastewater on ships and marine vessels can be collected in separate gray & black water vacuum sewers networks. Gray water can be treated in an **epMBR** biological wastewater treatment system followed by ultraviolet disinfection and ultrafiltration systems prior to recycling for toilet flushing, floor cleaning, cooling, …etc. Black water can be treated in **marincelST**, the electrolytic wastewater treatment system prior to disposal into the open seas.

cont'd

applications | marincelST

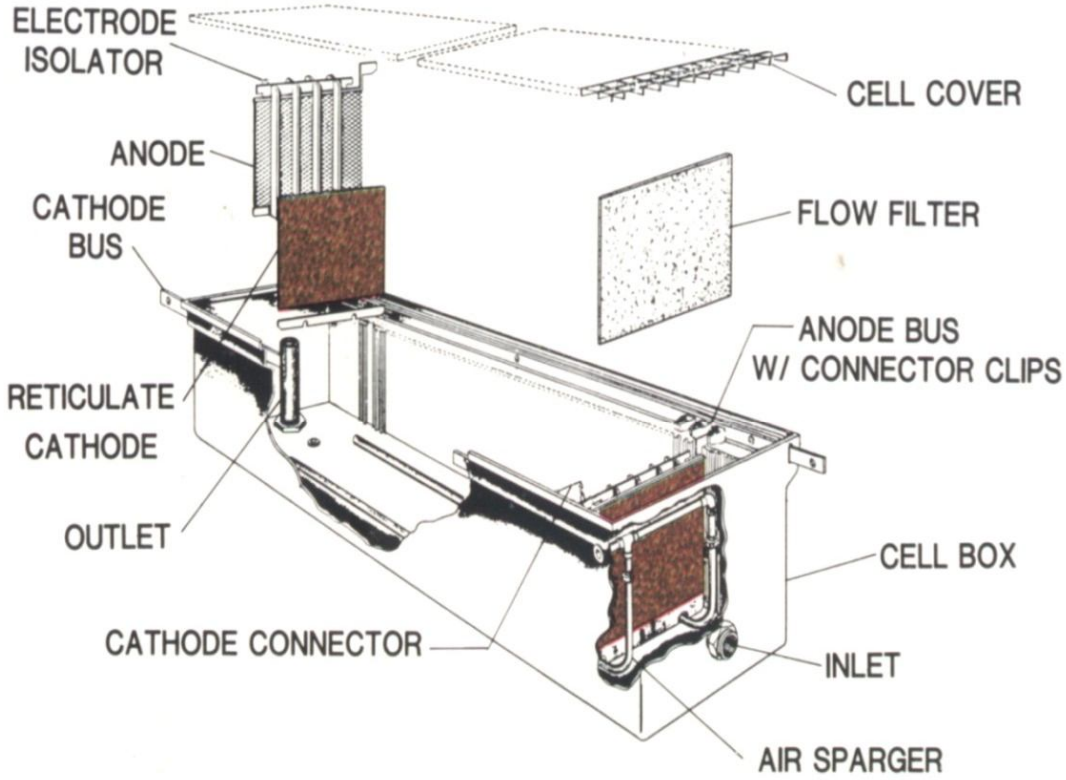
industrial wastewater treatment-marincelST or its affilates.

marincelST, can be modified to treat some industrial wastes. **marincelST** can destroy, neutralize and oxidize all oxidizable organics (VOCs), such as: PCBs, bromacil, dioxin, carbon tetrachloride, pentachlorophenol, ammonia, chloroform, toluene, BOD and COD. **marincelST** can also de-color, deodorize and sterilize the industrial wastewater.

Several **marincelST** are used to treat industrial wastes from electroplating, painting, food processing, chemicals, pharmaceutical, metal extracting industries, ……. and more.

cont'd

applications | marincelST



industrial wastewater electrodialysis reactor

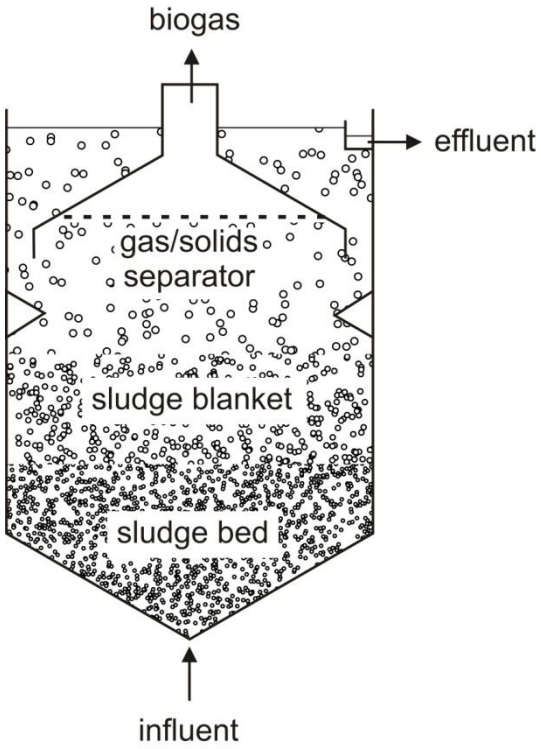
Upflow Anaerobic Sludge Blanket Reactors
UASB

technology UASB

EPECO designed an efficient wastewater treatment system for high strength industrial wastewater. Typical industries are ,(dairy, sugar, starch ,.. etc.). In these industries, absolute values of contaminants (BOD,COD,TSS,..etc.) are high. Furthermore, the ratio of the chemical oxygen demand COD to the biochemical oxygen demand BOD is high.

cont'd

technology UASB



It's necessary to focus on decontaminating the COD, while the BOD will be treated accordingly. Furthermore the Fat, Oil and Grease FOG and Total Suspended Solids TSS contents in raw wastewater are always a problem.

products UASB-c

Capacity: up to 1000 m3/day & multiples.

Standard Construction: Concrete structure for under ground installation. Steel structure for above ground installation.

applications UASB

UASB reactors are used for sludge digestion in conventional and advanced wastewater treatment plants.

UASB reactors are producing biogas, which can be utilized for power generation (generating set or fuel cell).

Solid waste from **UASB** systems are commonly used as fertilizer.

applications

epWASTE

Agricultural

Golf Courses

Gardens & Landscape

Pastures

Dunes Fixing

Mangrove Fields

…….and more

cont'd

applications | epWASTE

Domestic

Car Washing

Road Cleaning

Fire Fighting

Artificial Lakes

…….and more

cont'd

applications | epWASTE

Industrial

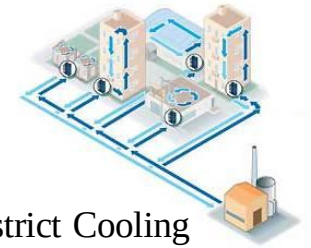
Power Geneation

Steam Boilers

Petrochemical Industries

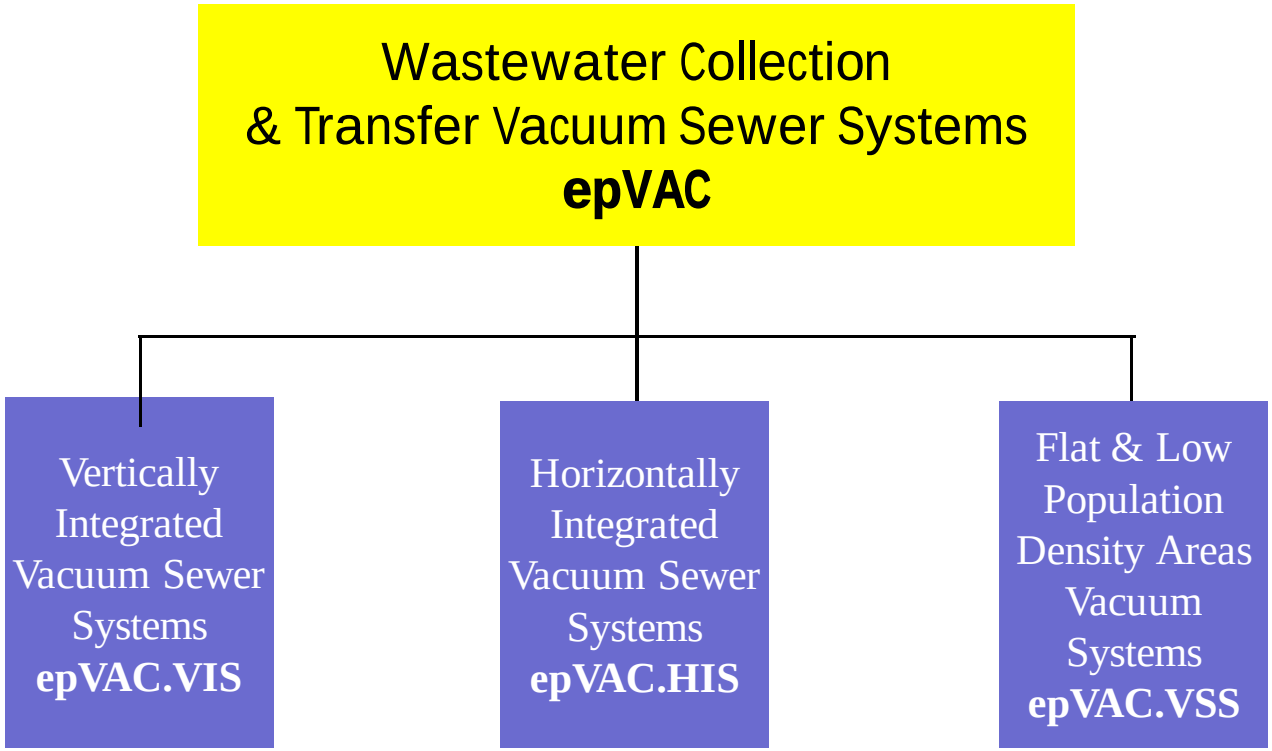
Batching Plants

Cooling Towers



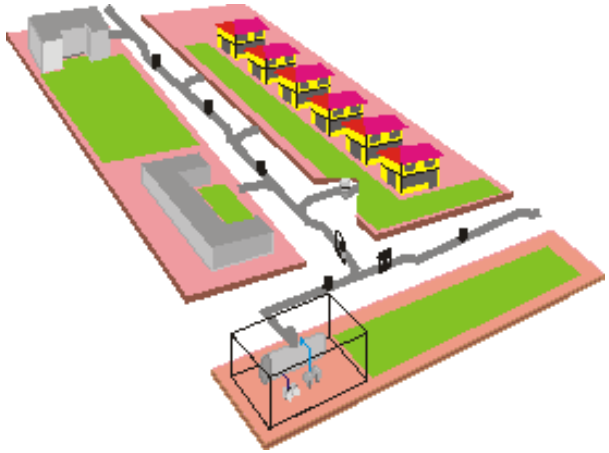
District Cooling

…… and more


Wastewater Collection
& Transfer Vacuum Sewer Systems
epVAC
Vertically Integrated Vacuum Sewer Systems
epVAC.VIS
Horizontally Integrated Vacuum Sewer Systems
epVAC.HIS
Flat & Low Population Density Areas Vacuum Systems
epVAC.VSS

technology | epVAC

vacuum wastewater collection and transfer systems are similar to gravity sewer systems in function. Both are collecting and conveying wastewater from sources to treatment or disposal points.



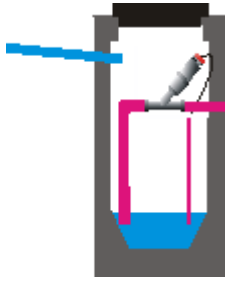
cont'd

technology | epVAC

epVAC systems are collecting waste water in valve pits, each consisting of one or more interface valve and sump. The wastewater is conveyed to the vacuum station through vacuum mains and branches.

When 40 liters of wastewater are collected in the sump, the interface valve opens and the network's negative differential pressure propels the wastewater through the network mains. Alternative sump capacities are available.

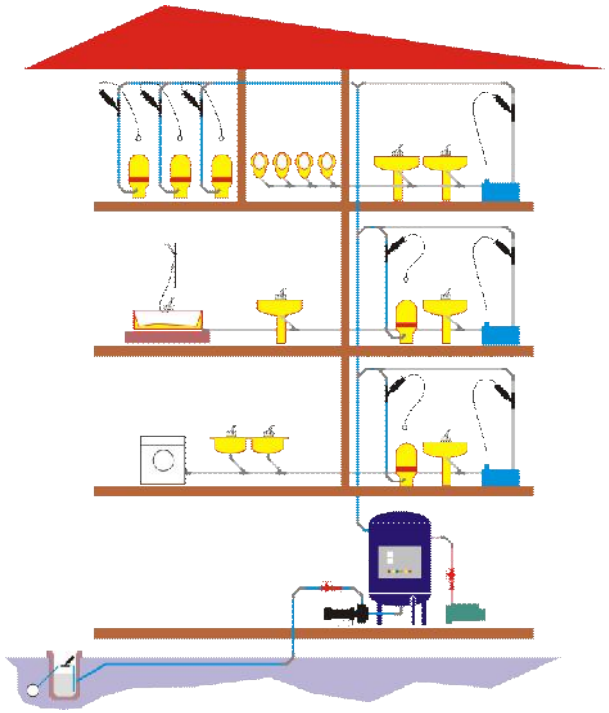
The network's negative differential pressure is built up by vacuum pumps + vacuum tank combination. When the vacuum tank is filled to a preset level, discharge pumps convey the wastewater to the treatment/disposal works.



Vertically Integrated Vacuum Sewer Systems
epVAC.VIS

products epVAC.VIS

In high rise buildings, mixed wastewater (gray & black) is collected via combined or separate vacuum sewer line **epVAC.VIS** and transferred to the public sewer network



applications | epVAC.VIS

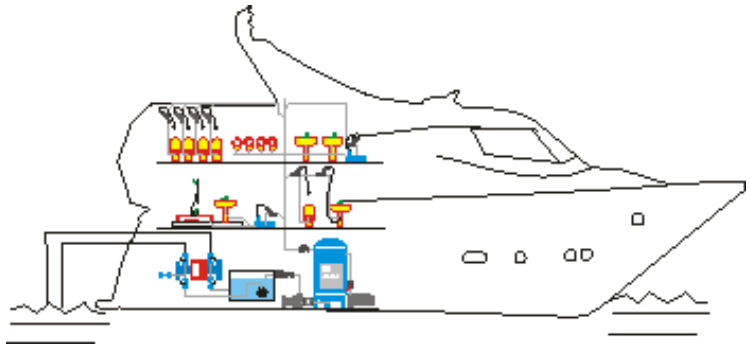
From Vilas

…..to High Rising Towers

cont'd

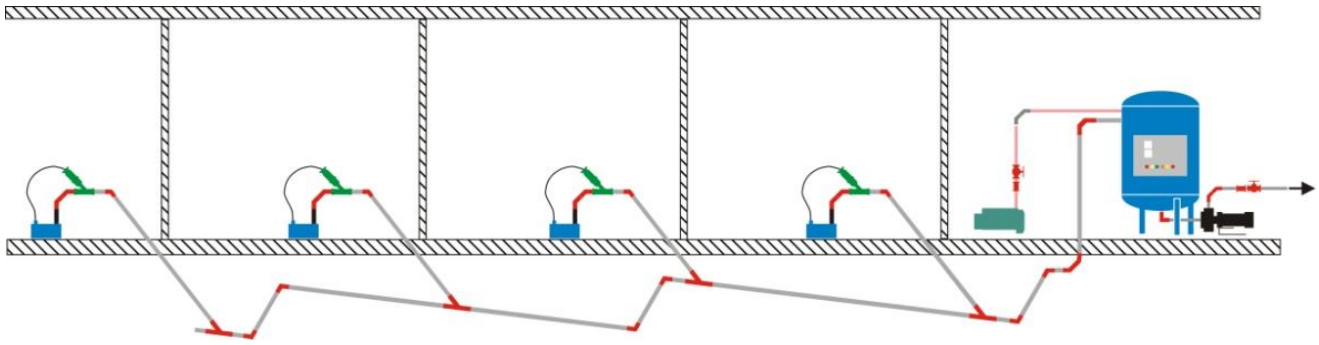
applications epVAC.VIS

Vertically Integrated wastewater collection systems line **epVAC.VIS** can be installed on ship board for gray and/or black wastewater collection.



Horizontally Integrated Vacuum Sewer Systems
epVAC.HIS

products | epVAC.HIS



In flat or low rise buildings, mixed wastewater (gray & black) is collected via combined or separate vacuum sewer lines **epVAC.HIS** and transferred either to sewer line or local treatment & disposal system.

applications | epVAC.HIS





schools
universities
shopping centers & malls
hotels
hospitals
mosques & churches
prisons & correction jails
military barracks
and more…….

Flat and Low Density Population Areas Vacuum Sewer Systems
epVAC.VSS

applications epVAC.VSS

epVAC.VSS collection systems are commonly used for installation of sewer lines in loose or hard rock soil formations. It also can be used effectively where wet dredging is necessery, as the **epVAC.VSS** trenches are very shallow.

cont'd

applications | epVAC.VSS

epVAC.VSS collection and transfer systems are used for outdoor applications. **epVAC.VSS** systems are useful in cases where obstacles may affect the sewer system installation . Shallow pipe paths and thrust boring techniques are economically possible with **epVAC.VSS** systems.

applications epVAC

resorts
residential compounds
campuses
sports clubs
caravan parks
gardens & amusement parks
airports
marinas
…….and more

cont'd

applications | epVAC

In marinas and docks, horizontally integrated systems **epVAC.HIS** are used to collect and transfer wastewater from ships and boats-if not equipped with evacuation pumps. Independent horizontally integrated system **epVAC.HIS** can also receive and transfer bilge oil from ships and boats and transfer them to central stores/treatment facilities.

cont'd

applications | epVAC

In airports, both vertically and horizontally integrated systems, **epVAC.VIS** & **epVAC.HIS** respectively are used to collect wastewater from service workshops, aircraft parking lots, offices and residential buildings.

For optimum application, industrial wastewater, gray and black water are collected in three independent streams.

Separate wastewater treatment and recycling plants will allow for minimum waste- water production and environmentally clean process.

cont'd

applications epVAC

epVAC systems are a trusted systems for industrial liquid waste collection and transfer applications where safety, effectiveness and efficiency are major goals. Vacuum sewer systems are used in a wide variety of industries:

Textile.
Fiberglass, Plastics & composites.
Oil Refineries.
Petrochemicals.
Chemicals.
Pharmaceutical.
Construction material.
Steel.
Metal extraction.
.....and others.

cont'd

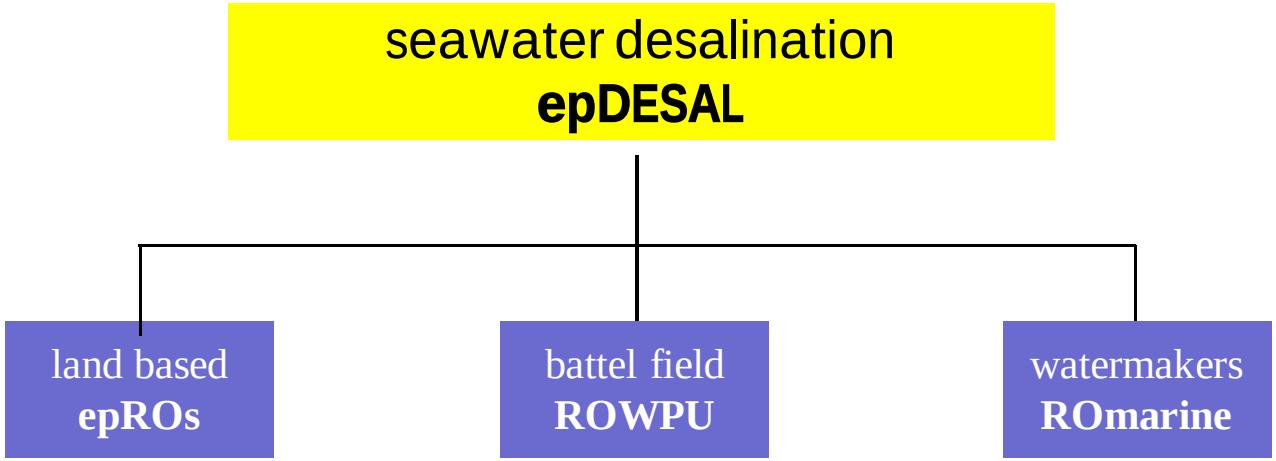
applications | epVAC



epVAC systems are optimized for collection and transfer of hazardous wastewater in certain industries:

- Petrochemical.
- Chemical.
- Power Plants
- Slaughter Houses

…….and more


seawater desalination
epDESAL
land based
epROs
battel field
ROWPU
watermakers
ROmarine

Land Based

epROs

technology | epDESAL

EPECO is manufacturing Seawater Reverse Osmosis SWRO desalination systems for several applications. The SWRO systems contains cross flow filtration modules where the feed stream is split into permeate (pure) and brine (concentrate) streams. The cross flow configuration allows for continuous duty process as the concentrate sweeps away the membrane 's rejected salts and discharge them to the brine stream.

products | epROs

The **epROs** systems, are manufactured in standard container frame modules (20” & 40”). Capacities of modules are ranging from 100-500 m3/day

cont'd

products | epROs

The **epROs** plants are built in standard modules -skid or frame mounted. Skids or frames can be assembled in containers , hangers or shops. Multiple modues may be assembled to form larger plants

applications | epROs



epROs are built for land-based or loff-shore applications. All **epROs** plants are delivered, to site, packaged, tested and ready for installation, commissioning and start up.

EPECO scope of work includes design, construction, operation & maintenance, refurbishing and /or upgrading of systems.

Battle Field

ROWPU

products | ROWPU

EPECO is manufacturing **ROWPU's**, the Reverse Osmosis Water Purification Units, for battle field operations.
In 1990 **ROWPU**s were built by **epecoUSA** and were widely deployed in desert storm operations (August 2, 1990-Feb 23, 1991). **ROWPU** Gulf War II units are built on a light weight Aluminum-Titanium alloy and heavy duty rough terrain trailers. **ROWPU's** dimensions & weight were modified to fit in the C-130 and C-141 air carriers for high transportability and possibility of platform airdrop. Each Gulf War II **ROWPU** unit was capable of producing up to 500 cubic meters per day from seawater sources. All **ROWPU** units can be fit with NBC (Nuclear, Biological and Chemical) decontaminators which can secure the production of pure water under the most difficult military operations conditions.

cont'd

products ROWPU

ROWPU's are manufactured at a wide capacity range (10-500 cubic meters per day). As an alternative to the integrated trailer mounted**,** **ROWPU**'s, can be built "skid mounted" , "canopy enclosed" or self autonomous systems.

EPECO developed the fourth generation of the **ROWPU**'s. The modern **ROWPU**'s have the minimum thermal and acoustic emissions which meet the most stringent military standards.

The modern **ROWPU**'s are built in four basic treatment modules-primary, brackish water, seawater, post, NBC and power pack. The modules can be detached or reattached in 30 minutes.

Watermakers

ROmarine

products | ROmarine

ROmarine water makers-designed for on-ship board, are available in integrated or split formats where power drive is independent from the desalination unit. This will allow for flexible plant room arrangement.

cont'd

products | ROmarine

ROmarine plants capacity range is up to 20 m3/day (standard ocean salinity 35'000 mg/l). Capacity is reduced for higher salinity, however special Red Sea & Gulf packages can serve same capacity at 42'000 & 48'000 mg/l salinity respectively.

applications ROmarine

Watermakers converts seawater into fresh water for:

Sail boats
Yachts
ocean cruises
…..and more

Total Aqua Solutions
epTAS

In Total Aqua Solution **epTAS** systems, wastewater is collected via vacuum sewer network **epVAC** and directed to local wastewater treatment plant **epMBR** for treatment & reuse or discharge to disposal point.

epVAC systems can be “split” into independent gray & black water networks. Black water can be discharged to the domestic sewer line or treated for reuse in irrigation. Gray water can be treated independently and reused for irrigation and/or domestic non-potable water applications (toilet flushing, fire fighting, floor cleaning,……etc.).

technology | epTAS

epTAS technology is implementing the proven efficient vacuum sewer collection and transfer systems for indoor applications.

Wastewater can be treated for disposal or reuse indoor and/or outdoor buildings.

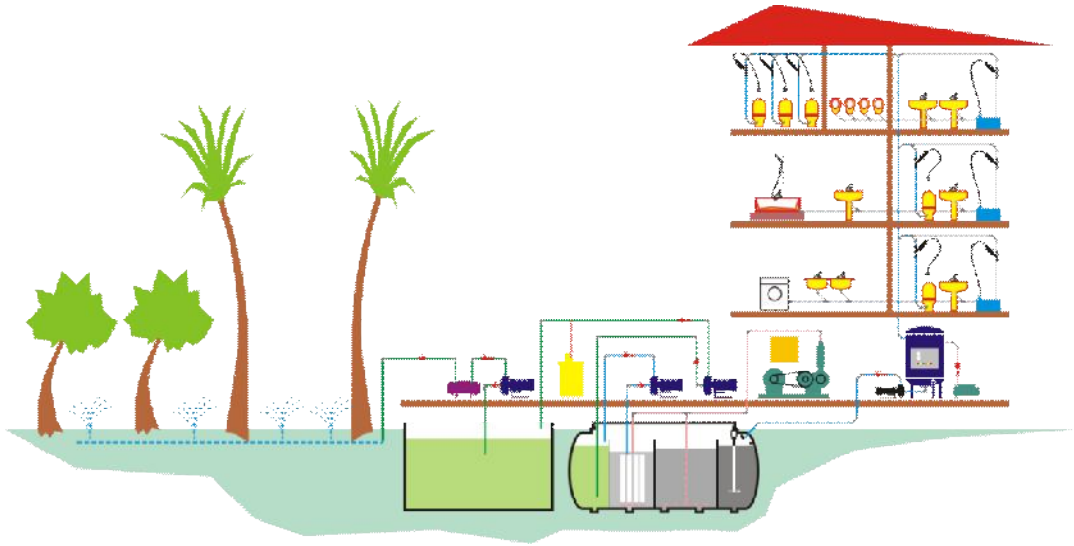
cont’d

technology | epTAS

epTAS technology are also utilized for outdoor extended , low density population areas.

products | epTAS

epTAS/epVAC + epMBR/combined

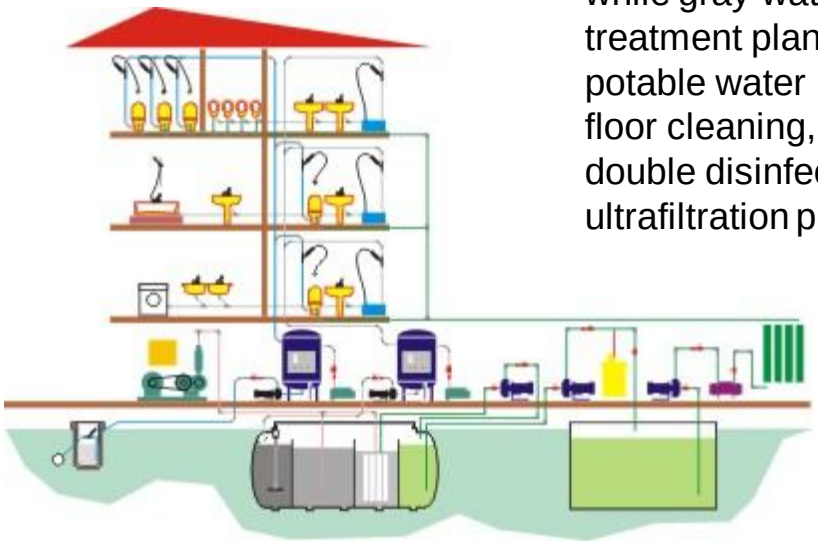


Mixed wastewater (gray & black) is collected via combined vacuum sewer line **epVAC.VIS** and transferred to the wastewater treatment plant **epMBR** then reused for irrigation.

cont'd

products | epTAS

epTAS/epVAC.VIS + + epMBR/separate



Wastewater is independently collected in separate gray and black water networks-**epVAC.VIS** . Black water can be discharged to the domestic sewer network while gray water can be treated in wastewater treatment plant **epMBR**, then reused for domestic non-potable water applications (toilet flushing, fire fighting, floor cleaning,……etc.). Wastewater will be subject to double disinfection (chlorination & ultraviolet) & ultrafiltration prior to reuse.

cont'd

products | epTAS

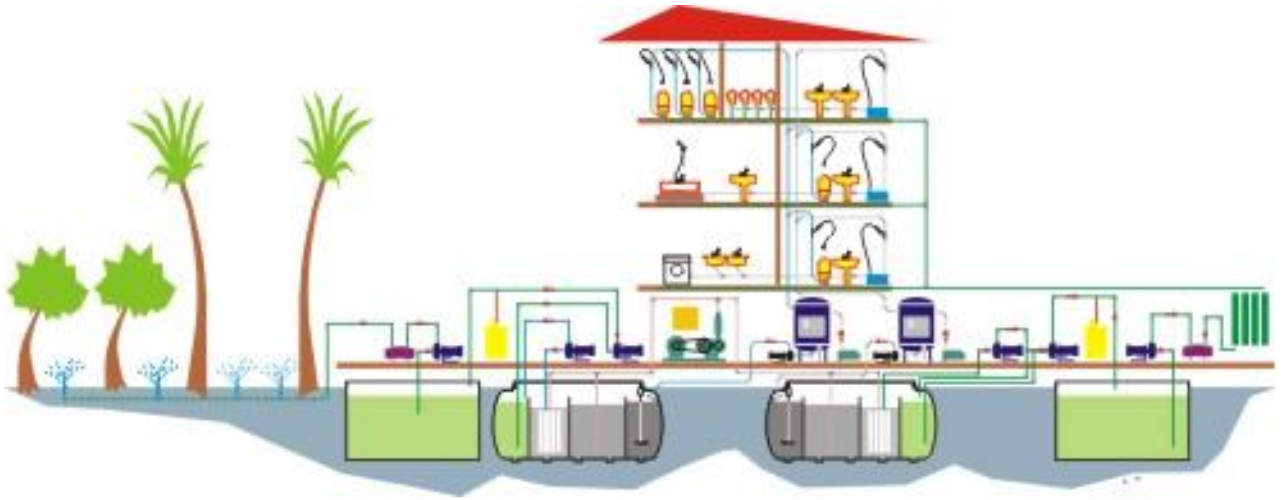
epTAS/epVAC.VIS + + epMBR/separate

While black water can be discharged to the domestic sewer , gray water can be treated in wastewater treatment plant **epMBR**, then reused for domestic non-potable water applications (toilet flushing, fire fighting, floor cleaning,……etc.) or irrigation.

cont'd

products | epTAS

epTAS/epVAC.VIS + + epMBR/separate

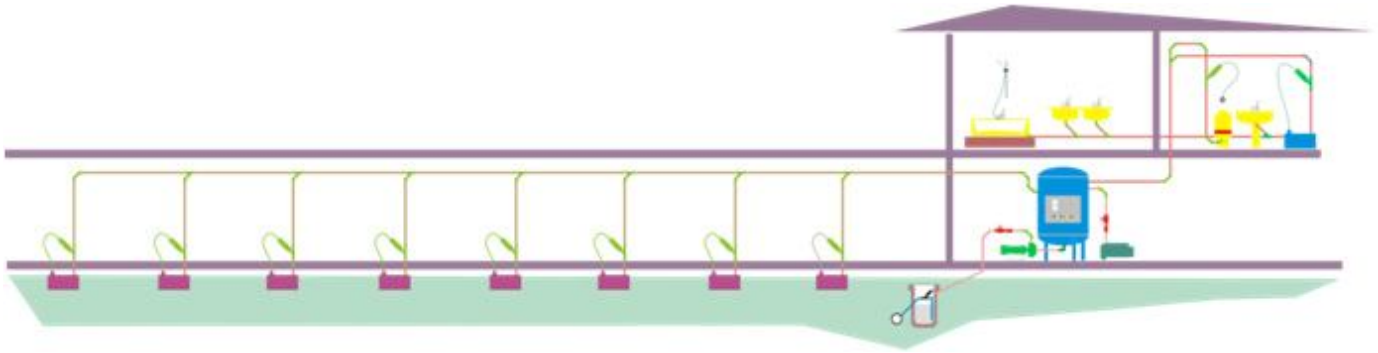


Wastewater is independently collected in separate gray and black water networks- **epVAC.VIS** . Black water can be treated in wastewater treatment plant **epMBR** followed by disinfection (chlorination) prior to reuse for irrigation. Gray water can be treated in gray water **epMBR** plant, double disinfected (chlorination & ultraviolet) & ultrafiltation prior to reuse in domestic non-potable water applications.

cont'd

products | epTAS

epTAS/epVAC.HIS + + epMBR/combined

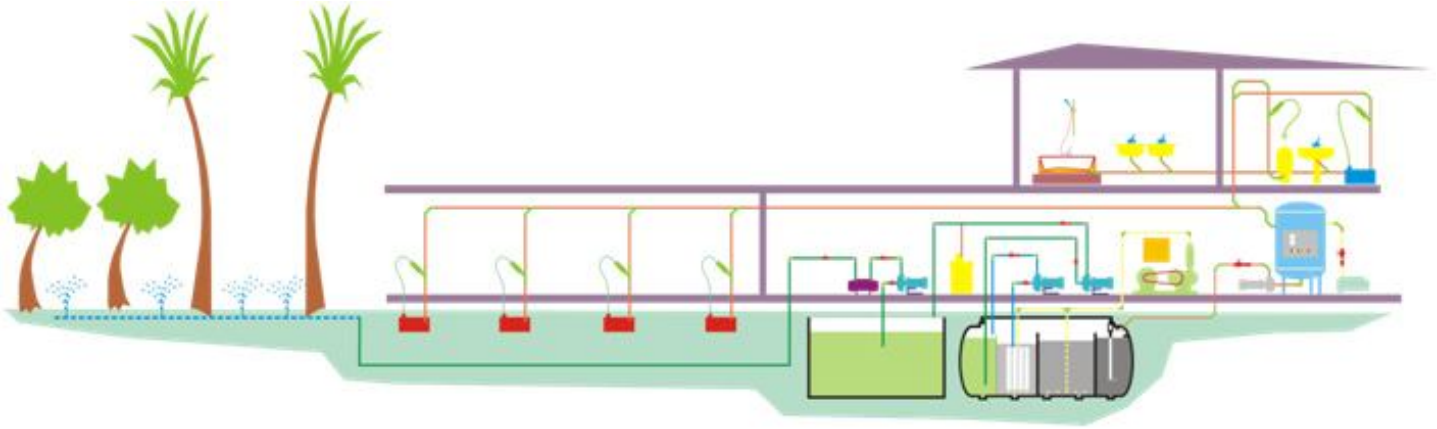


Mixed wastewater (gray & black) is collected and transferred via combined vacuum sewer line **epVAC.HIS** to a central vacuum tank, then it can be discharged to the sewer line.

cont'd

products | epTAS

epTAS/epVAC.HIS + + epMBR/combined

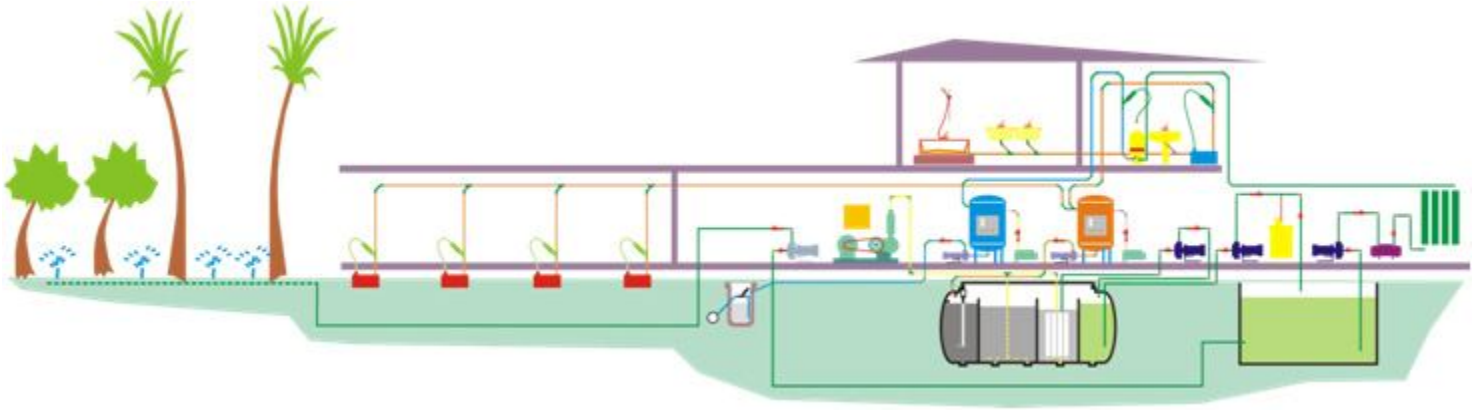


Mixed wastewater (gray & black) is collected and transferred via combined vacuum sewer line **epVAC.HIS** to a central vacuum tank, then it can be treated in a wastewater treatment plant and reused for irrigation.

cont'd

products | epTAS

epTAS/epVAC.HIS+ +epMBR/separate

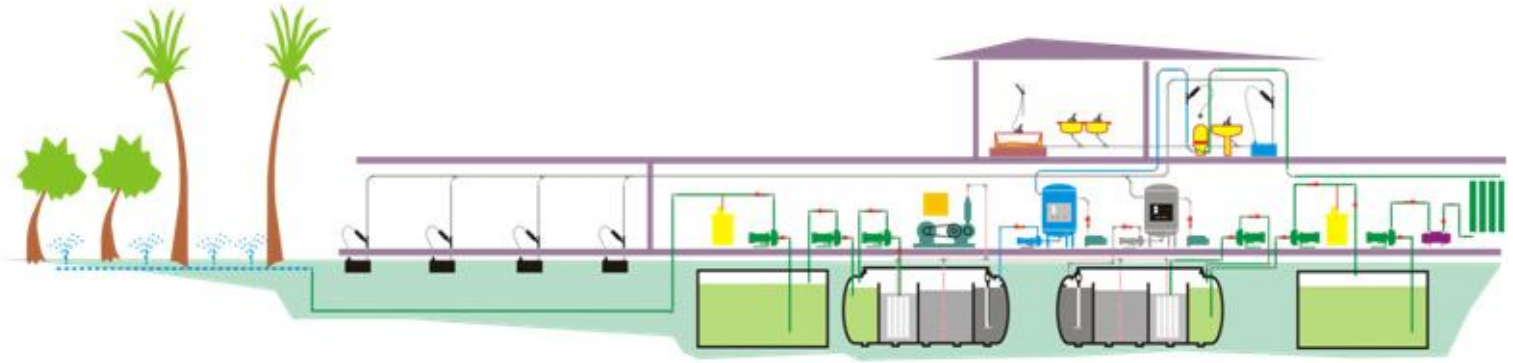


Wastewater is <u>independently</u> collected in <u>separate</u> gray and black water networks- **epVAC.HIS** . Black water can be discharged to the domestic sewer network while gray water can be treated in wastewater treatment plant **epMBR**, then reused for domestic non-potable water applications (toilet flushing, fire fighting, floor cleaning,……etc.). Treated effluent can also be used for irrigation.

cont'd

products | epTAS

epTAS/epVAC.HIS+ +epMBR/separate



Wastewater is independently collected in separate gray and black water networks- **epVAC.HIS** . Black water can be treated in black water treatment plant **epMBR** followed by double disinfection (chlorination & ultraviolet) prior to reuse in irrigation. Gray water can be treated in gray water epMBR plant.

epeco

manufacturing

AGA Plant/Egypt





cont'd

AGA Plant/Egypt

cont'd

Suez Plant/Egypt





cont’d

RAK plant/UAE

epeco

credentials & testimonials

epeco

CERTIFICATE

State of Nevada — Secretary of State

I, CHERYL A. LAU, Secretary of State of the State of Nevada, do hereby certify that

EPECO U.S.A., INC.

did on the TWENTY-SEVENTH day of APRIL, 19 93, file in this office the original Articles of Incorporation; that said Articles are now on file and of record in the office of the Secretary of State of the State of Nevada, and further, that said Articles contain all the provisions required by the law of said State of Nevada.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Great Seal of State, at my office in Carson City, Nevada, this TWENTY-SEVENTH day of APRIL, A.D. 19 93

Cheryl A. Lau
Secretary of State

By Deborah J. Jennings
Deputy

Form DC-2 (Rev. 11-90)

Government of Ras Al Khaimah
RAK Investment Authority
Free Zone

حكـومة رأس الخيمـة
هيئة رأس الخيمة للاستثمار
المنطقة الحرة

رخصـة
LICENCE

LICENCE NO.	RAKIA 29 FZ1 03 07 0293		رقم الرخصة
LICENCE TYPE	INDUSTRIAL	صناعية	نوع الرخصة
LICENSEE	EPECO Gulf FZ LLC	أيبكو جلف ش.م.ح-د.م.م	المرخص
PARTNERS NAME	Magdi Mohamed Omar Elbeheiri	مجدي محمد عمر البحيري	أصحاب الترخيص
	Ismat Al Sawaqed	عصمت سواقد	
	Dr.Khafer Massaad	د.خافر مسعد	
TRADE NAME	EPECO Gulf FZ LLC	أيبكو جلف ش.م.ح-د.م.م	الإسم التجاري
ADDRESS	P.O.Box: 31291 Al- Jazeera Al-Hamra Ras Al Khaimah	ص.ب: 31291 الجزيرة الحمراء رأس الخيمة	العنـــوان
ACTIVITY	Crane manufacturing, Specialized Precision Equipment Manufacturing, Water treatment equipment trading, Water Sewage & Irrigation Engineering services	صناعة المعدات -الكورينات،صناعة الأجهزة والمعدات الدقيقة المتخصصة،تجارة المياه وتقنيتها،خدمات هندسة المياه والصرف الصحي	النشـــاط
MANAGER	Ismat Al Sawaqed	عصمت سواقد	المـدير
Legal Status	Free Zone-Limited Liability Company	شركة منطقة حرة-ذات مسؤولية محدودة	الشكل القانوني
ISSUE DATE	29/03/2007		تاريخ الإصدار
RENEWED ON	31/03/2009		تاريخ التجديد
Amended On			تاريخ التعديل
VALID TILL	28/03/2010		تاريخ الإنتهاء

RAK Investment Authority Free Zone
P.O. Box 31291

Chief Executive Officer

P.O. Box. 31291, Ras Al Khaimah, United Arab Emirates
Tel.: +971 7 2446533, Fax : +971 7 2447202, Website : www.rakinvestmentauthority.com
administration@rakinvestmentauthority.com

epeco

بسم الله الرحمن الرحيم

جمهورية مصر العربية
وزارة الصناعة والثروة المعدنية

شهادة

تشهد الوزارة بأن المنشأة الصناعية

شركة هندسة ومشروعات البيئة المحدودة (ابيكو) / قطاع خاص / ذات مسئولية محدودة

اسم صاحب المنشأة : شركة ذات مسئولية محدودة

المقر الرئيسى : ١٩٥ ش بورسعيد / السيدة زينب / القاهرة

مقر المصنع : أبا / شارع العسلوية بالسكة الجديدة / الدقهلية

قيدت بالسجل الصناعى برقم (٢٦٠٢٥)

سنة الإصدار : ١٩٩٧

نوعية الصناعة : هندسية

المنتجات الرئيسية : تجميع جهاز التعقيم وتنقية المياه بالأشعة فوق البنفسجية و تجميع مرشح مياه .... بالشروط خلف الشهادة

وقد حررت هذه الشهادة تطبيقا لقانون السجل الصناعى رقم ٢٤ لسنة ١٩٧٧ ووفقا للبيانات المقدمة من المنشأة المذكورة

تحريرًا فى ٢٧ / ١٠ / ١٩٩٧
تنتهى فى ٢٢ / ٩ / ٢٠٠٢

نائب رئيس
الهيئة العامة للتصنيع

بسم الله الرحمن الرحيم

جمهورية مصر العربية

غرفة الصناعات الهندسية

شهادة عضوية

تشهد غرفة الصناعات الهندسية بأن المنشأة الصناعية

شركة هندسة ومشروعات البيئة المحدودة - ابيكو

التي عنوانها ١٠ ش الطيران رابعة العدوية مدينة نصر القاهرة

مسجلة بعضوية الغرفة برقم (٩٣٨) هندسية

وقد حررت هذه الشهادة تطبيقاً للقرار الوزاري رقم ٤٣٧ لسنة ١٩٩٢ ووفقاً لطلب المنشأة المذكورة.

صدرت في ٢٠٠٢/٦/١٦

تنتهي في ٢٠٠٣/٦/١٥

المدير العام

CHAMBER OF ENGINEERING INDUSTRIES غرفة الصناعات الهندسية

رقم ٠٢٨٢

epeco

2006

MEMBER

Water Quality ASSOCIATION

2007

Certificate of Membership

EPECO

HAVING CLEARLY EVIDENCED SINCERE INTEREST
IN THE PROGRESS AND THE DEVELOPMENT OF WATER
QUALITY FOR ALL MANKIND YOU ARE HEREBY
ELECTED TO MEMBERSHIP WITH FULL PRIVILEGES IN

WATER QUALITY ASSOCIATION

Peter J Censky

PETER J. CENSKY
EXECUTIVE DIRECTOR

epeco

بسم الله الرحمن الرحيم

مصنع الطائرات

عقد اتفاق
التعاون الفني والتجاري

تمهيد :-

انه في اليوم الاول من شهر يونيو سنة ١٩٩٣ ميلاديه فقد تم الاتفاق بين كل من :-

١) مصنع الطائرات احد مصانع الهيئه العربيه للتصنيع - هيئه عربيه مسجله طبقاً لانظمه الجامعه العربيه ومقره الرئيسي بحلوان - جمهوريه مصر العربيه ويمثله في التوقيع على هذا العقد المهندس / احمد السيد بصفته رئيساً لمجلس الاداره .
ويشار اليه فيما بعد "الطرف الاول"

٢) شركه هندسه ومشروعات المياه المحدوده - ايبكو - شركه ذات مسئوليه محدوده مسجله طبقاً للقوانين المصريه ومقرها الرئيسي بمدينه القاهره - جمهوريه مصر العربيه ويمثلها في التوقيع على هذا العقد المهندس / مجدى محمد عمر البحيرى بصفته رئيساً للشركه ويشار اليه فيما بعد "الطرف الثاني"

اتفق الطرفان على التعاون الفني والتجاري لتصنيع وتسويق معدات معالجه المياه بجمهوريه مصر العربيه والمنطقه العربيه والافريقيه طبقاً للتفصيلات التاليه :-

المادة "١" :-

يعتبر التمهيد السابق جزء لا يتجزأ من هذا العقد .

المادة "٢" :- مجال الاعمال :-

تشمل الاعمال موضوع هذا العقد المجالات التاليه :-

- تحليه مياه الشرب من مصادرها الجوفيه او البحريه .
- معالجه مياه الاستخدامات الصناعيه .
- معالجه مياه الصرف الصحي واعاده استخدامها .
- معالجه مياه الصرف الصناعي .

المادة "٣" منطقه العمل :-

يعمل بهذه الاتفاقيه داخل الحدود الجغرافيه لجمهوريه مصر العربيه .

بعده / ٢

بسم الله الرحمن الرحيم

مصنع الطائرات

المادة (١٢) التعديلات :

يجوز ادخال اى تعديلات على مواد هذه الاتفاقيه او ادخال مواد جديده او ملاحق بموجب اتفاق كتابى بين الطرفين .

المادة (١٣) الاخطارات :

تكون كافه الاخطارات المرتبطه بهذه الاتفاقيه كتابه وتسلم باليد او البريد المسجل او اى وسيله تؤكد الاستلام دون إخلال بالتزامات كلا الطرفين قبل الطرف الاخر .

المادة (١٤)

تسرى لوائح الهيئه العربيه للتصنيع فيما لم يرد به نص .

المادة (١٥) مستندات العقد :

تحرر هذا العقد من نسختين اصليتين واحده بيد كل طرف للعمل بموجبها وعليه فقد جرى التوقيع .

الطرف الاول	الطرف الثاني
مصنع الطائرات	شركه هندسه ومشروعات المياه المصريه
ويمثله	ايبكو ويمثلها
المهندس / احمد السيد	المهندس / مجدى محمد عمر البحيرى
- العنوان . القاهرة - حلوان . .	[illegible]
- التليفونات . . . ٧٨٧٥٠٤٤ . . .	. . . . ٢٩١٠٨٦٥
- الفاكس . . . [illegible]	. . . . ٢٩١٠٨٦٥
- التلكس . . . . [illegible]	. . . .
- التوقيع	. . . . [illegible]

سهام /

بسم الله الرحمن الرحيم

بروتوكـــــول

للتعاون المشترك بين مصنع الطائرات التابع للهيئة العربية للتصنيع وشركة هندسة ومشروعات البيئة المحدودة (أبيـــكو) في مجـــال تصنيـــع وتسويـــق محطـــات تحليـــة طـــراز ROMARINE

انـــه في يـــوم الموافـــق / /٢٠٠٦ فقد تم الاتفاق بين كل من :-

أولاً : مصنـــع الطائـــرات – التابـــع للهيئـــة العربيـــة للتصنيـــع ومقره حلوان – القاهرة ، ويمثله في التوقيـــع على هذا البروتوكول السيد المهندس / رضا محمد راشد بصفته مدير القطاع التجاري .

(طرف أول)

ثانيـــاً : شركـــة هندســـة ومشروعـــات البيئـــة المحـــدودة (أبيـــكو) – ومقرها ١٠ شـــارع الطـــيران مـــيدان رابعة العدويـــة – مدينـــة نصـــر– القاهـــرة – مصر ويمـــثلها فـــي التوقيع على هذا البروتوكول السـيد المهندس / مجدي محمـد عصـــر بصفته المديـــر المســـئول .

(طرف ثاني)

" البند الثامن "

" العناويـــــــن "

العناويـــن المذكـــورة بصـــدر هـــذا الـــبروتوكول هـــي العناوين التي تتم عليها جميع المكاتبات والمراســـلات بين الطرفين وعلى الطرف الذي يغير مقره أخطار الطرف الآخر بذلك وإلا اعتبرت المكاتبات والمراسلات الموجهة إليه بالعنوان الموضح بالعقد قد تمت صحيحة ومنتجة لآثارها .

" البند التاسـع "

" عـــــدد النســـــخ "

تحرر هذا البروتوكول من عدد (٢) نسخة بيد كل طرف نسخة وذلك للعمل بموجبها .

الطرف الأول **الطرف الثاني**

المركز القومي للبحوث

عقد إتفاق بين المركز القومي للبحوث
و شركه هندسه ومشروعات البينه المحدوده (إبيكو)

انه في يوم الموافق : / / ٢٠٠٥
حرر هذا العقد بين كل من :

أولاً : المركز القومي للبحوث ويمثله السيد الأستاذ الدكتور / هاني عز الدين الناظر
بصفته رئيس المركز القومي للبحوث
ومقره- ش البحوث (التحرير سابقاً) – الدقي – الجيزة .
(طرف أول)

ثانياً : شركه هندسه ومشروعات البينه المحدوده (إبيكو) يمثلها قانونا
السيد المهندس/ مجدي محمد عمر البحيري
بصفته رئيس مجلس الإدارة.
ومقرها ١٠ شارع الطيران-رابعه العدويه- مدينة نصر – القاهره.
(طرف ثاني)

تمهيد

يعتبر المركز القومي للبحوث أكبر تجمع علمي متعدد التخصصات يقوم بالبحث العلمي والتطوير ليس في جمهورية مصر العربية وحدها أيضا على مستوي القارة الأفريقية ومنطقة الشرق الأوسط بأسرها في مجالات الزراعة والصناعة والصحة والبيئة ونقل التكنولوجيا والطاقة والعلوم الأساسية وسائر المقومات الرئيسية للاقتصاد القومي في نطاق السياسة العامة للدولة ولتحقيق ذلك يقوم المركز بإجراء الدراسات والبحوث في مجالات العلوم الحديثة والتكنولوجيا المتطورة وتنفيذ الأنشطة التي تهدف إلي ابتكار التكنولوجيات اللازمة لمشروعات الاقتصاد القومي وتدريب الكوادر العلمية في المجالات المتخصصة التي تحتاجها جهود الأرتقاء التكنولوجي للبلاد وتوثيق الروابط العلميه والتعاون مع المؤسسات والهيئات المحليه والدوليه في جميع الأنشطه.

ورغبة من الطرف الثاني في الأستفاده من تلك الخبرات فقد تم الأتفاق على:

١. إنشاء محطات تنقية مياه في مناطق محرومه من مياه الشرب.
٢. تدريب كوادر شابه من نفس أهالي المنطقه على تشغيلها وصيانتها بالمشاركه مع الطرف الأول.

وذلك من خلال الوحده الأستشاريه لبحوث الفيروسات والأختبارات الحيويه بالمركز القومي للبحوث.

البند الرابع

يتولى السيد **الاستاذ الدكتور/ محمد احمد احمد علي** -وبصفته- استاذ بقسم بحوث تلوث المياه بالمركز القومي للبحوث ورئيس الوحده الأستشاريه لبحوث الفيروسات والأختبارات الحيويه- مهمة الباحث الرئيسي المسئول عن تنفيذ موضوع هذا العقد وكذلك اختيار الفريق البحثي الذي يتعاون معه في تنفيذ هذا العقد.

البند الخامس

يعتبر كل بند من بنود العقد السابقه والملاحق المرفقه به جزءا مكملا له ولا يتجزأ منه.

البند السادس

حرر هذا العقد من ثلاث نسخ تسلم الطرف الاول (المركز القومي للبحوث) نسختين والطرف الثاني (شركه هندسه ومشروعات البينه المحدوده-إبيكو) النسخه الثالثه.

البند السابع

اتخذ كل من الطرفين مقره الموضح بصدد هذا الاتفاق موطنا قانونيا له توجه اليه المكاتبات على أنواعها وفي حالة نشوء منازعات بين الطرفين يتم حلها بالطرق الوديه وفي حالة عدم قبول احد الاطراف لقرار التحكيم تكون محكمه الجيزه الابتدائيه دون غيرها هي المختصه بالفصل في المنازعات.

الطرف الاول
ا.د. هاني عز الدين الناظر
رئيس المركز القومي للبحوث

الطرف الثاني
السيد المهندس/ مجدي محمد عمر البحيري
رئيس مجلس الاداره

epeco

U.S. FILTER
UNITED STATES FILTER CORPORATION

12442 EAST PUTNAM STREET
WHITTIER, CA 90602
TEL: 310-698-9414
FAX: 310-698-1960

October 15, 1992

TELEFAX 966-1-478-7159

EPECO
P.O. Box 16259
Riyadh 11464, Saudi Arabia
Attn: Mr. Magdi El Beheiri

To Whom It May Concern:

This letter will advise those interested that we have appointed EPECO (at the above address) as our licensee for Egypt, Saudi Arabia, Kuwait and other Gulf States.

This agreement allows EPECO to act as our sole representative for this area with the exception of several projects that are underway between U. S. Filter and customers in Saudi Arabia.

A licensee for U. S. Filter is approved to sell and manufacture our equipment.

As soon as we complete the technical problems that exist with our license agreement we will send you a copy for your approval.

Sincerely,

U. S. FILTER/WHITTIER, INC.

H. N. Haberstroh
Vice President, Sales
HNH:ns

MECO® MECHANICAL EQUIPMENT COMPANY INC.
861 CARONDELET STREET • NEW ORLEANS, LOUISIANA 70130, U.S.A.
PHONE 504 / 523-7271 • TELEX: 460165 • FAX: 525-4846

May 1, 1991

Environmental Projects & Engineering Co.
(EPECO)
P.O. Box 16529
Riyadh, 11464
Saudi Arabia

Dear Mr. Magdi:

It is the intention of MECO to appoint Magdi ElBeheiri/EPECO as our exclusive agent covering MECO Seawater and Brackish Water Conversion Equipment for the territory of Egypt and Area Manager for the territories of Saudi Arabia, Kuwait, Iraq, Bahrain, Oman, Sudan & Yemen to be handled through local distributors appointed by EPECO and approved by MECO.

The formal agreement will be drafted and sent by May 6, 1991. You will send a draft of the Distributor Agreement.

We appreciate your business and look forward to our future business relationship.

Best regards,

Wil F. Pergande
Vice President - Marketing

WFP:mmb

WATERLINE

TO WHOM IT MAY CONCERN

We hereby certify that the company EPECO Environmental Projects & Engineering Co., Riyadh, has been appointed as our exclusive distributor with contract dated October 15, 1992 for the following Countries:

- Saudi Arabia (excluding Water and Sewage Authority of Jeddah)
- United Arab Emirates
- Kuwait
- Egypt
- Bahrain
- Sultanate of Oman
- Yemen

International aid and relief organisations in any of the above countries are excluded from the exclusive distributorship agreement. The validity of said agreement is limited to December 31, 1993 with a mutual option to renew.

WATER-LINE S.A.
MEZZOVICO-LUGANO / SWITZERLAND

Nicola A. Jeker
Marketing & Sales

Romano Dilla
Director

LICON

October 21, 1992

Environmental Projects & Engineering Co.
P.O. box 16259
Riyadh, Saudi Arabia 11464

Att: Mr. Magdi El Beheiri Re: Licon Representation

Subject: Initial Agreement

Dear Mr. El Beheiri,

We are pleased to inform you that EPECO is the exclusive agent of LICON, INC. in the territory of The Kingdom of Saudi Arabia, Egypt and Kuwait.

The products represented are Licon's complete line of liquid processing equipment used for industrial waste water concentration and fresh water production.

This letter agreement will be in effect until our formal registered Agreement is finalized and completed.

We wish you success in the representation of LICON, INC. and its family of products for the Industrial, Offshore, and Marine industries.

Best regards,

Wil F. Pergande
President/CEO

WP/kt

ref/wil92.153

200 EAST GOVERNMENT STREET • SUITE 130 • PENSACOLA, FL 32501 • (TEL) 904/434-5088 • (FAX) 904/438-2040

HICK HARGREAVES & Co. Ltd.

BOLTON,
ENGLAND. BL3 6DB.

Registered Office

Telephone: +44 (0) 204 23373
Facsimile: +44 (0) 204 395261
Telex: 63239 HICK G

Vat Reg. No. GB 337 4702 55
Registered No. 36116 England

26th August 1992

To Whom it may concern

Please be advised that the following Company are the authorised Sales Representatives for the Machinery Division of the Hick Hargreaves & Company Limited in the Arab Republic of Egypt:-

EPECO
Environmental Projects & Engineering Co
295 Portsaiod Street
Sayada Zainab
Cairo
Egypt

Tel: 390 6246
Fax: 391 0865

for HICK HARGREAVES & COMPANY LIMITED

AUTHORISED SIGNATORY

A ENGLAND
Export Sales Manager
Machinery Division

Date: 21/3/2006

Memorandum of Understanding

Mr. Sergio Dani, the commercial manaer of ItalProgetti Engineering S.p.A , based in Lungamo Pacinoto, 59/a 56020 San Romano (PI), Itally and Mr. Magdi el Beheiri, the director general of the Environmental Projects & Engineering Co. Ltd.-EPECO, based in 10, tayaran Str., Raba el Adawia, Nasr City, Cairo 11371, Egypt, has agreed to form a joint venture business to achieve the following:

(1)To execute the Italprogetti projects locally in Egypt and other middle east countries. Projects will be discussed and executed on a case by case bases between Italprogetti+EPECO joint venture and Italprogetti.
(2)To promote Italprogetti original business in the same geographical area as above.
(3)To promote new businesses-worldwide- through Italprogetti+EPECO such as reverse osmosis desalination, membrane bio-reactors, compact domestic wastewater treatment and recycling, filtration systems, …etc. It's obvious that Italprogetti+EPECO will benefit of it's "Italian" roots.

It's anticipated that Italprogetti+EPECO will be able to secure orders and finalize deals worth US$ 100 Million/year in new businesses as mentioned. This must be planned to take place within 5-7 years time.
A short note agreement might be finalized and legalized to allow the new Italprogetti+EPECO to start.

Mr. Sergio Dani,
commercial manaer
ItalProgetti Engineering S.p.A,
Lungamo Pacinoto, 59/a
56020 San Romano (PI), Itally

ITALPROGETTI ENGINEERING spa
Via Lungarno Pacinotti, 59/A
56020 SAN ROMANO (PI)
Tel. 0571-450477 - 0571-450301
Partita IVA 00344980503

Magdi el Beheiri,
director general
Environmental Projects & Engineering Co. Ltd.-EPECO,
10, tayaran Str., Raba el Adawia, Nasr City,
Cairo 11371, Egypt

Magdi el Beheiri

epeco

experience

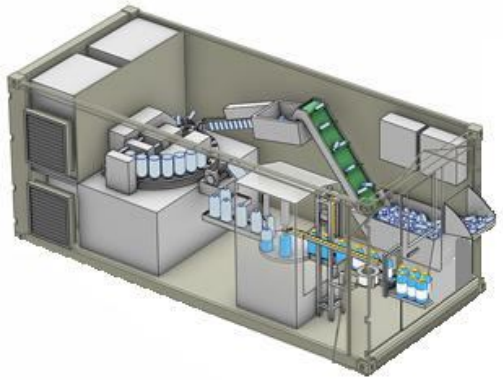
water treatment

Water Packaging System for Battle Field WaterLine

Allied Forces, Gulf War II
Flow Capacity: 272 cu m/day/system/ Total 7

Completed: 1991

EPECO supplied the Allied Forces with 15 Water Packaging Plants, each can produce up to 500'000 water long lasting bags each 200-300 cc. Each system is built in a standard 40 ft. containers for easy transport. Packaging systems were manufactured by WaterLine, Mezzovico, Lugano, Switzerland. The local Saudi Environmental Projects & Engineering co., Ltd SEPEC took over the supply contract..



Ref 01011

Water Treatment System for Battle Field ROWPU

Allied Forces, Gulf War II
Flow Capacity: 272 cu m/day/system/ Total 15

Completed: 1991

EPECO supplied the Allied forces operating in the gulf area with 15 ROWPU 3000 systems , the Reverse Osmosis Water Purification Units, designed for battle field operations.-capacity each 272 cu m/day. All ROWPU 3000 systems .

All **ROWPU** units were fit with NBC (Nuclear, Biological and Chemical) decontaminators which can produce high quality water even under the most difficult military operations conditions.

ROWPU 3000 were built by MECO, New Orleans, Luisiana and the local Saudi contractor was Saudi Environmental Projects & Engineering co., Ltd SEPEC.

Ref 01010

Water Treatment Plant WTP

EgyptAir Inflight Services
Sharm el Sheikh, Egypt
Capacity: 2410 cu m/day

Completed: 2006

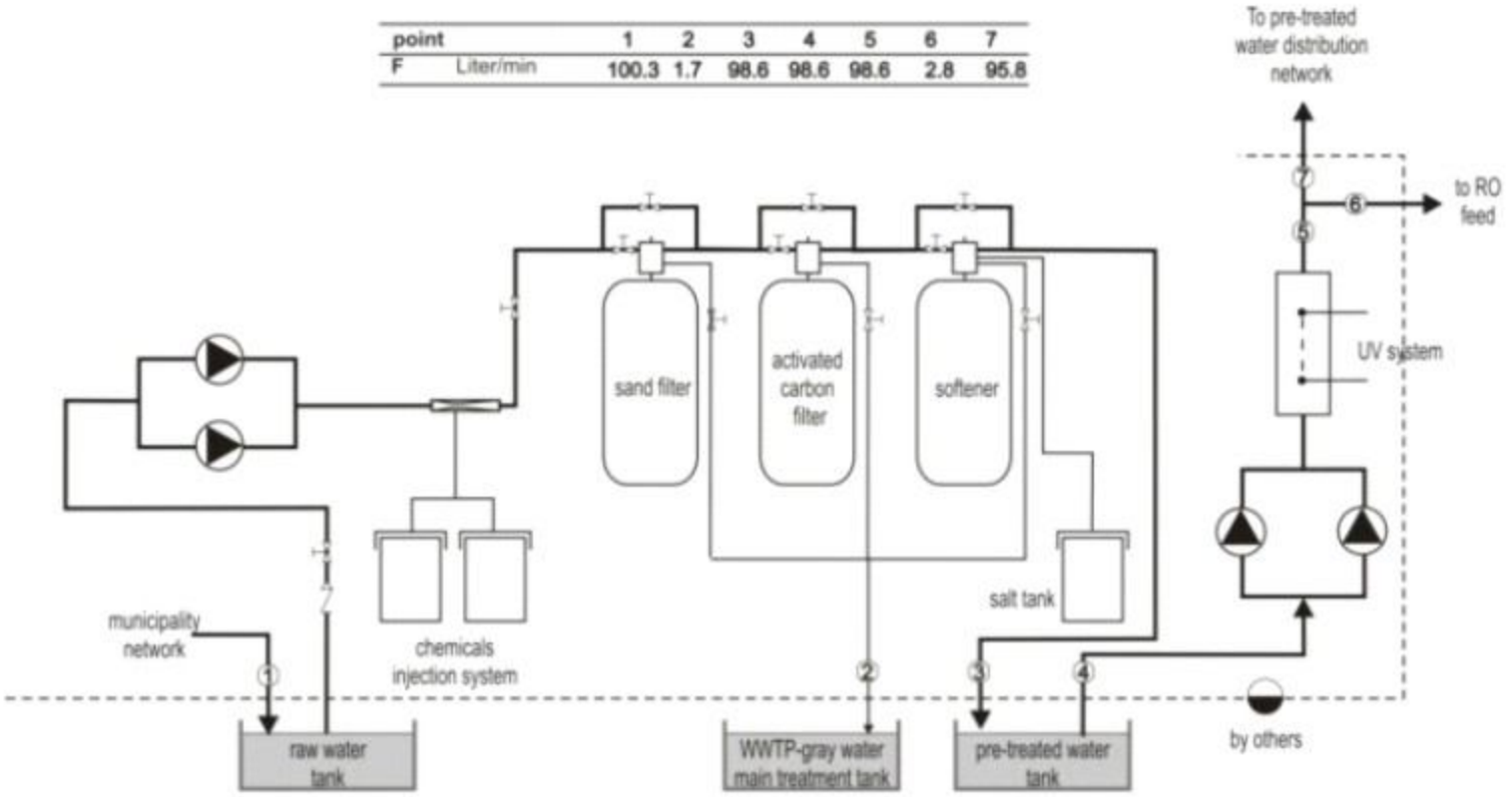
EPECO designed and built a water Treatment plant at EgyptAir Inflight Services Complex/Sharm el Sheikh Airport/Egypt.

The WTP based on epecoUSA's media filtration-floking, softening-epSOFTA and ultraviolet sterilization-UVindu is producing nearly 2000 cu m/day of potable water for domestic and industrial applications along with 75 cu m/day of Reverse Osmosis desalination feed. Rinse water from the epSOFTA system is collected in industrial wastewater tank.

Ref 01008

pre-treatment stage
process flow diagram

point		1	2	3	4	5	6	7
F	Liter/min	100.3	1.7	98.6	98.6	98.6	2.8	95.8



--	rev	drawn by		title	water treatment plant at sharm sharm el sheikh airport capacity=2410 cu m/day
0502068-1-02	drwng#	checked by			
meb	approved by	approved by meb	date 18/9/2005	to	talenco for engineering & contracting
18/9/2005	date	scale	none		
		original issue	18/9/2005	drwng# 0502068-1-08	rev --

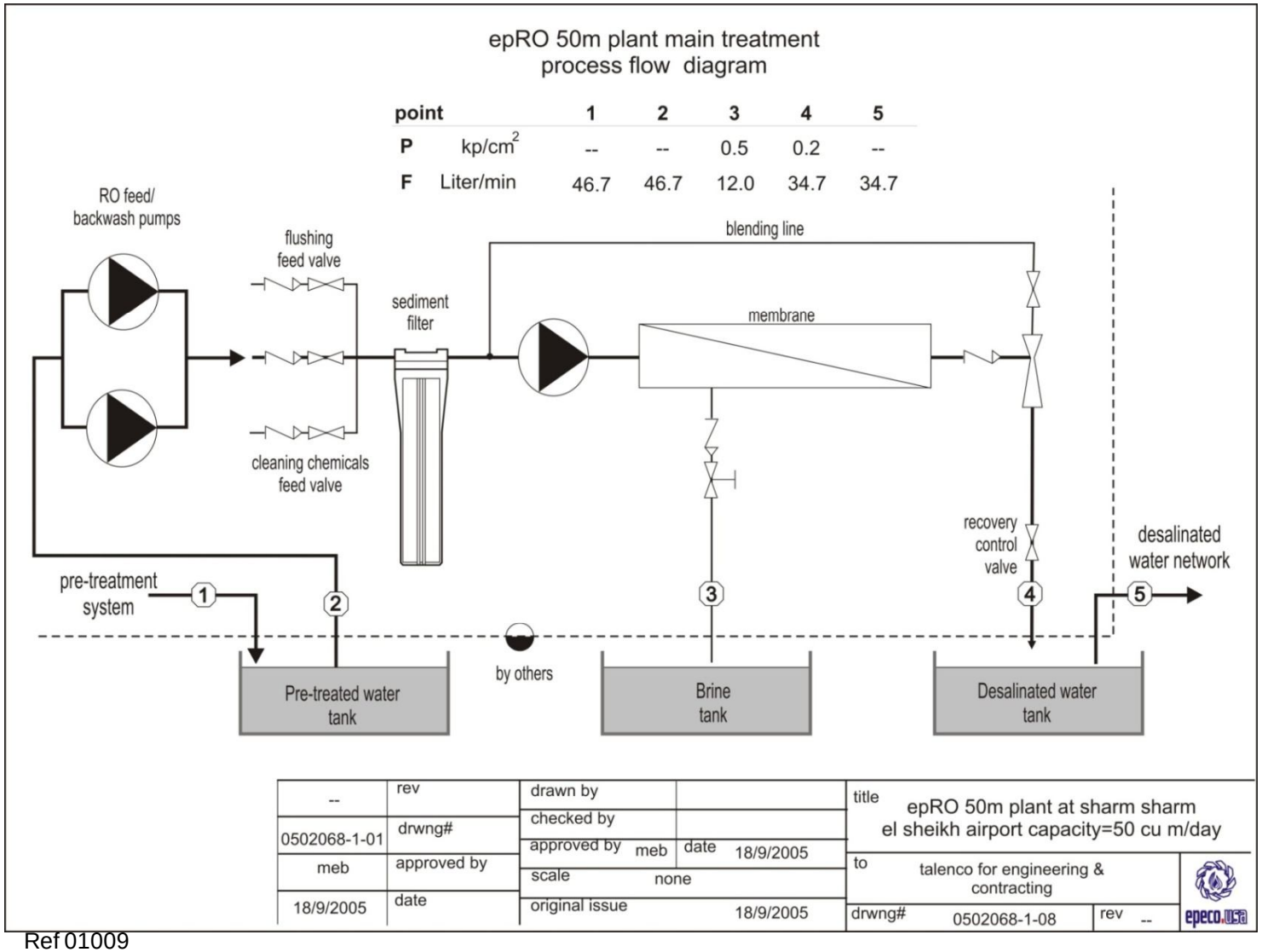
Ref 01008

Reverse Osmosis Desalination Plant epRO50 m
EgyptAir Inflight Services
Sharm el Sheikh, Egypt
Completed: 2006

Capacity: 50 cu m/day

EPECO installed its manufactured desalination plant epRO 50m at EgyptAir Inflight Services Complex/Sharm el Sheikh Airport/Egypt. The product water is additionally sterilized by epecoUSA's Ultraviolet system UVindu 50 then used for cooking.
The brine water is returned to the final effluent tank.

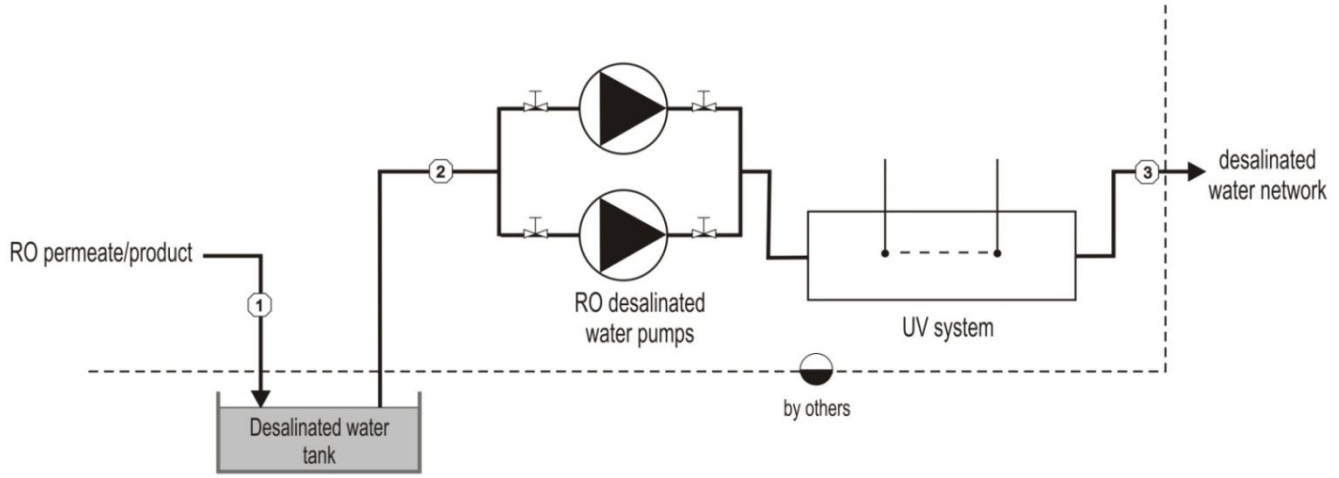
Ref 01009


epRO 50m plant main treatment
process flow diagram
point 1 2 3 4 5
P kp/cm2 -- -- 0.5 0.2 --
F Liter/min 46.7 46.7 12.0 34.7 34.7
RO feed/
backwash pumps
flushing
feed valve
cleaning chemicals
feed valve
sediment
filter
blending line
membrane
recovery
control
valve
desalinated
water network
pre-treatment
system
1
2
3
4
5
by others
Pre-treated water
tank
Brine
tank
Desalinated water
tank
--
rev
0502068-1-01
drwng#
meb
approved by
18/9/2005
date
drawn by
checked by
approved by meb
date 18/9/2005
scale none
original issue 18/9/2005
title
epRO 50m plant at sharm sharm
el sheikh airport capacity=50 cu m/day
to
talenco for engineering &
contracting
drwng# 0502068-1-08
rev --
epeco.USA

Ref 01009

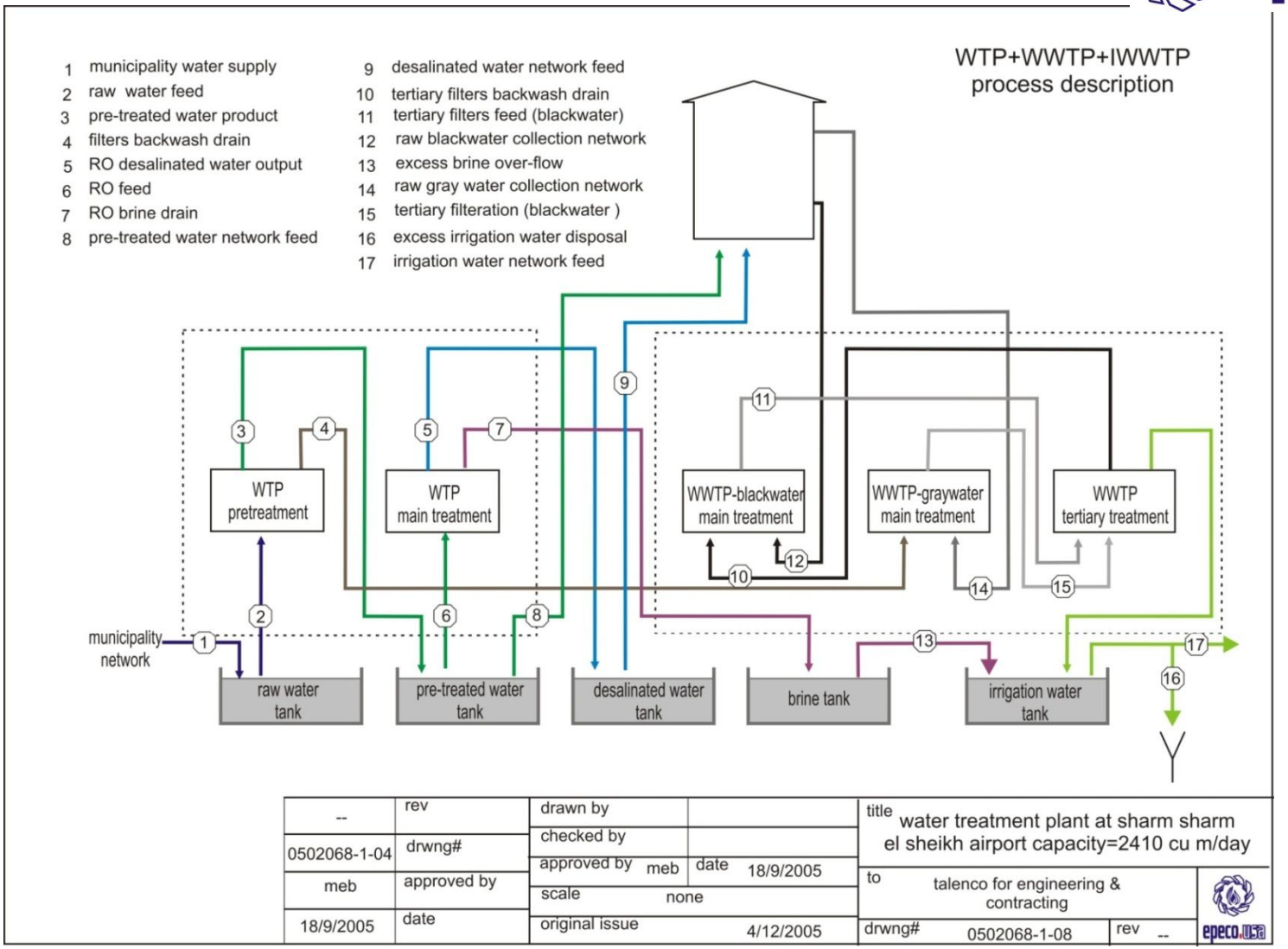
desalinated water supply network process flow diagram

point		1	2	3
P	kp/cm^2	--	--	2
F	Liter/min	34.6	34.7	34.7

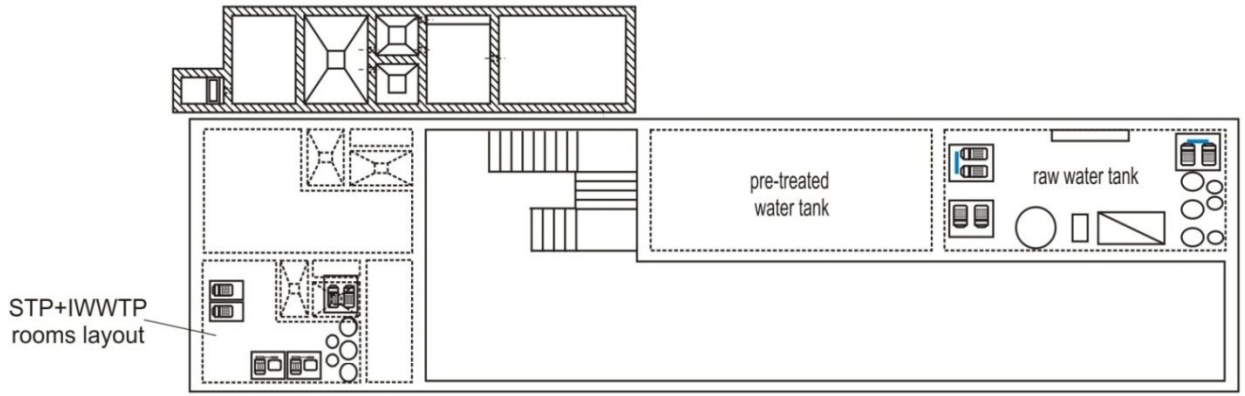


--	rev	drawn by		title: water treatment plant at sharm sharm el sheikh airport capacity= 50 cu m/day
0502068-1-03	drwng#	checked by		
meb	approved by	approved by meb	date 18/9/2005	to: talenco for engineering & contracting
18/9/2005	date	scale none		
		original issue 18/9/2005		drwng# 0502068-1-07 rev --

Ref 01009



Ref 01009-02009-02008-02009



important notes

these are not executional shopdrawings they're guidelines for construction works, all included data and dimensions must be checked and verified by the contractor prior to starting construction works.

drawings are not to scale

all dimensions in meters

as tanks are already existing, new holes will be arranged to allow for pipeworks to get in & out the tanks. The holes and the inserted sleeves to be located according to actual site conditions.

Furthermore, several manholes & ladders are required to ease access to tanks. Again these to be decided according to actual site conditions.

1	rev	drawn by		title	Water,Wastewater & Industrial Wastewater treatmen plant at sharm sharm el sheikh airport plant room arrangement
0502068	drwng#	checked by			
meb	approved by	approved by meb	date 6/1/2006	to	talenco for engineering & contracting
6/1/2006	date	scale	none		
		original issue	18/12/2005	drwng# 0502068-01	rev 1

Ref 01009-02009-02008-02009

Water & Wastewater Treatment Plants
GANTEC Housing Compound
At Orabi Farms, North Cairo, Egypt
Completed: 2000

Capacity Wastewater: 360 cu m/day
Capacity non-potable water: 410 cu m/day
Capacity drinking water: 72 cu m/day

EPECO designed and built a combined water & Wastewater at GANTEC Housing Compound at Orabi Farms, North Cairo, Egypt. The compound consists of 8 villas built on a 64'750 sq. m green area.

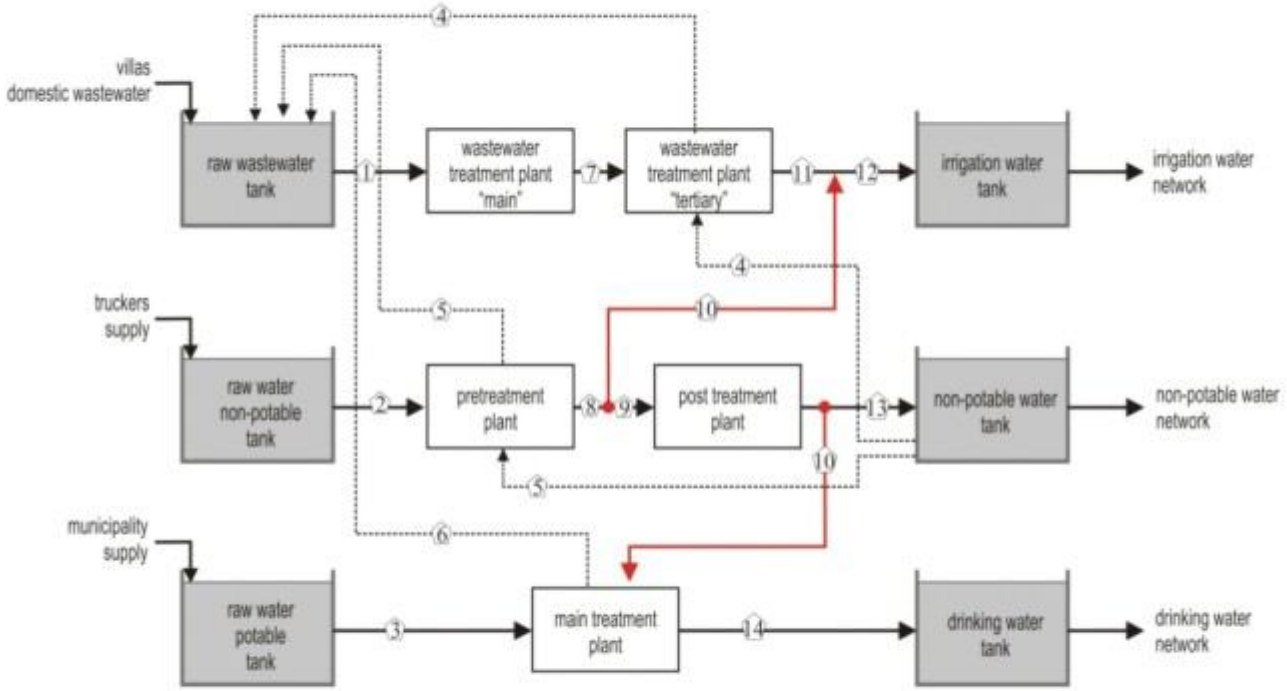
Ref 01006-0007-02007

cont'd

Water & Wastewater Treatment Plants

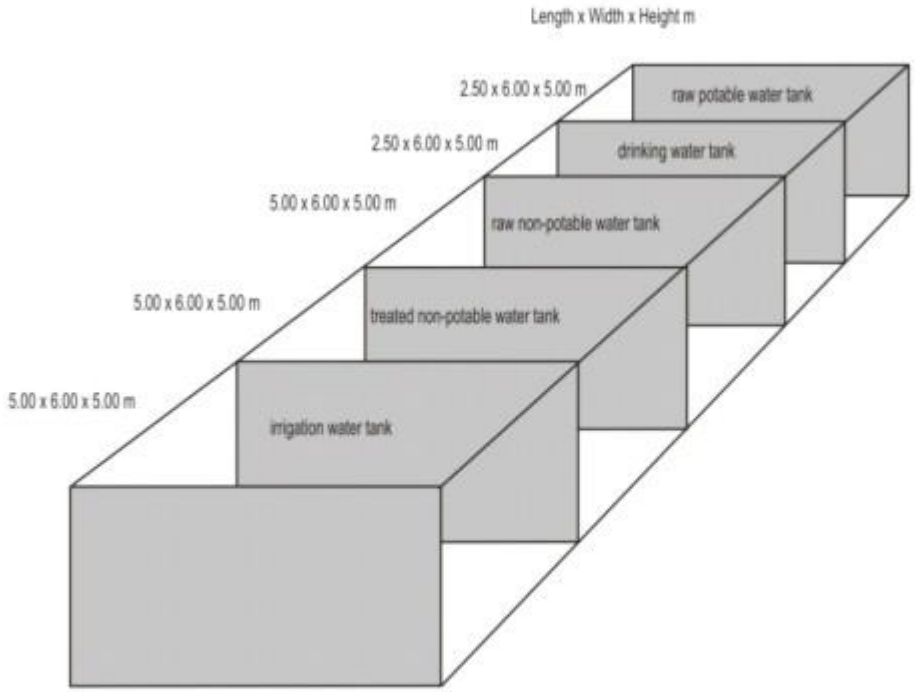
Each Villa has family & kids swimming pools, green tennis court and landscape. As public infrastructure was not available, it was necessary to optimize the water consumption to the best. Non-potable water is filtered and sterilized for non-potable applications (cleaning cars, flushing toilets, washing floors, swimming pools and fountains). Potable-water is treated up to the drinking quality via Reverse Osmosis RO desalination system. Domestic wastewater alongwith the RO reject and filtration system backwash & rinse water are mixed and biologically treated up to irrigation quality. The system is designed to allow for feeding the RO system from the available limited fresh (potable) water supplies (trucks). Treated non potable water may be automatically by-passed to feed the RO system. The total system is considered an early ZERO liquid waste discharge system.

point	1	2	3	4	5	6	7	8	9	10	11	12	13	14
capacity cu m/hr	15.00	17.20	4.30	0.75	0.50	1.30	12.50	16.70	16.70	N/A	12.50	12.50	16.70	3.00



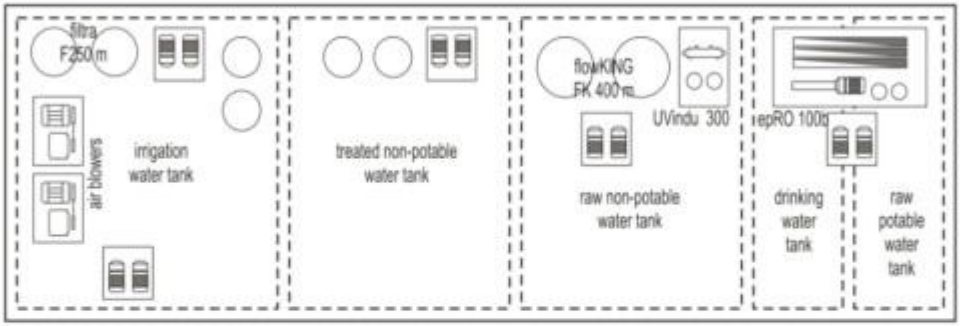
1	rev	drawn by		title	Water & Wastewater Treatment plants at GANTEC Residential Compound,Orabi Agri Society
0502068	drwng#	checked by			hydraulic profile
meb	approved by	approved by meb	date 6/1/2006	to	Gamal Abdel Naser Trading & Contracting Co., GANTEC
6/1/2006	date	scale	none		
		original issue	7/18/1999	drwng# 0201000-01	rev 1

Ref 01006-01007-02007



1	rev	drawn by		title	WTP+WWTP+epRO at GANTEC Residential Compound,Orabi Agri Socity tanks arrangement
0502068	drwng#	checked by			
meb	approved by	approved by meb	date 6/1/2006		
6/1/2006	date	scale	none	to	G.A.Naser Trading & Contracting Co., GANTEC
		original issue	7/18/1999	drwng# 0201000-07	rev 1

Ref 01006-0007-02007



1	rev	drawn by		title	WTP+WWTP+epRO at GANTEC Residential Compound,Orabi Agri Socity plant room layout
0502068	drwng#	checked by			
meb	approved by	approved by meb	date 6/1/2006		
6/1/2006	date	scale none		to	G.A.Naser Trading & Contracting Co., GANTEC
		original issue 7/18/1999		drwng# 0201000-06	rev 1

Ref 01006-0007-02007

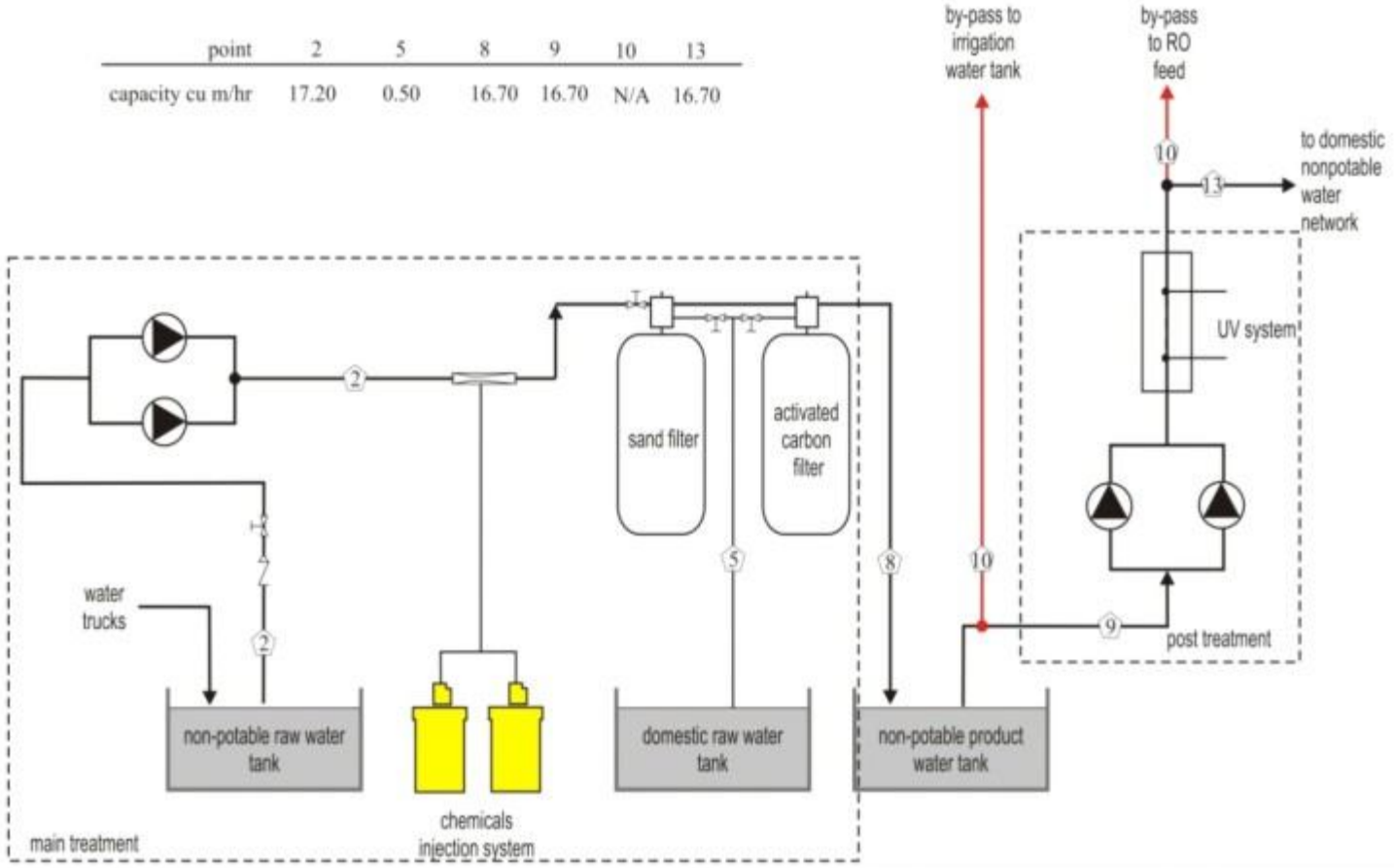
Water Treatment Plant WTP
GANTEC Housing Compound
At Orabi Farms, North Cairo, Egypt
Capacity non-potable water: 410 cu m/day

Completed: 2000

EPECO designed, manufactured the components and built a water Treatment plant WTP at GANTEC Housing Compound, at Orabi Farms, North Cairo, Egypt.
The WTP based on **epecoUSA**'s media filtration-floking and ultraviolet sterilization-UVindu is producing nearly 410 cu m/day of non-potable water for domestic applications. From time to time, preliminary treated non-potable water is used irrigation. In emergency cases, post treated non-potable water is also used to feed the RO desalination system . All preliminary and post treated non-potable water diversion is automatically controlled.

Ref 01007

point	2	5	8	9	10	13
capacity cu m/hr	17.20	0.50	16.70	16.70	N/A	16.70



1	rev	drawn by		title	Non-Potable Water Treatment plant at GANTEC Residential Compound,Orabi Agri Socity Capacity: 410 cu m/day Process Flow Diagram
0502068	drwng#	checked by			
meb	approved by	approved by meb	date 6/1/2006	to	G.A.Naser Trading & Contracting Co., GANTEC
6/1/2006	date	scale	none		
		original issue	7/18/1999	drwng# 0201000-04	rev 1

Ref 01007

Water Desalination Plant epRO 100 b
GANTEC Housing Compound
At Orabi Farms, North Cairo, Egypt

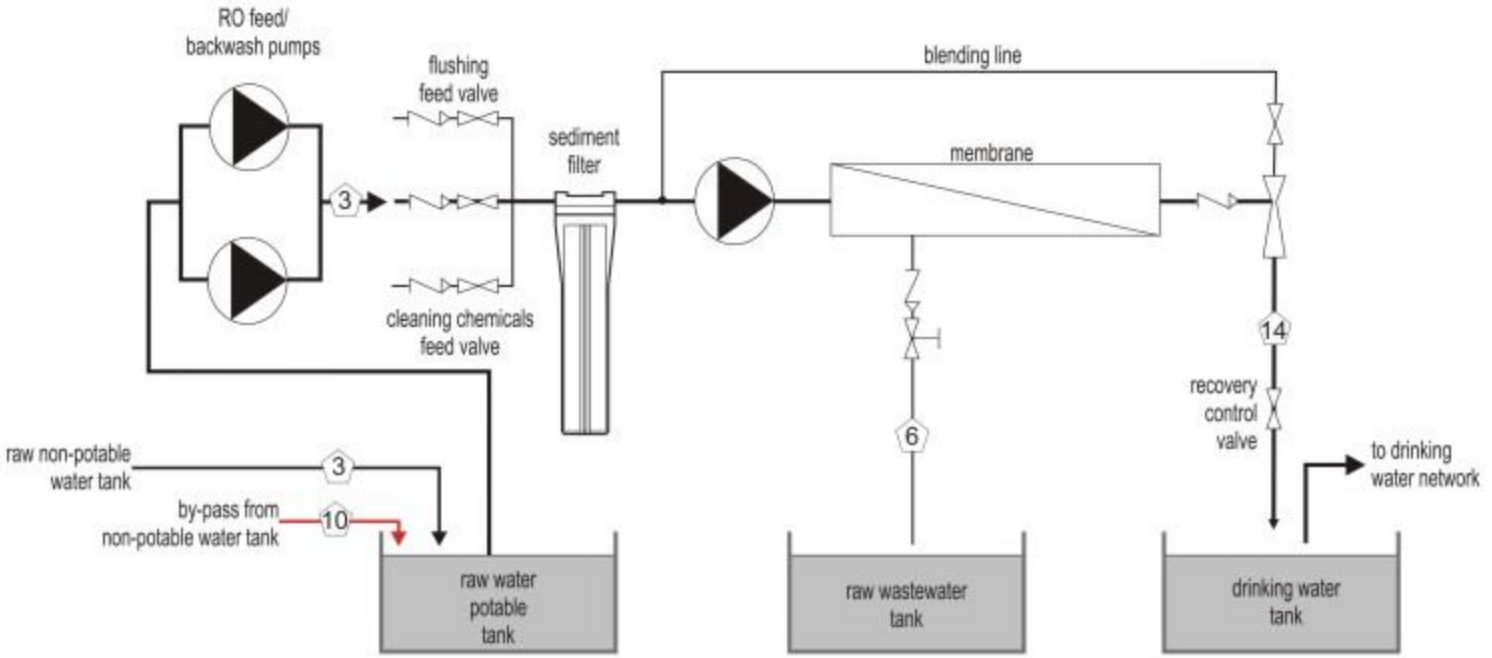
Completed: 2000

Capacity drinking water: 72 cu m/day

EPECO designed, manufactured and built a wastewater Treatment plant at GANTEC Housing Compound, at Orabi Farms, North Cairo, Egypt.
The epRO 100 b system from **epecoUSA** is capable of producing up to 100 cu m/day of fresh water suitable for drinking. Backwash & inse water from the backwashable prefilter system along with the RO reject water is recycled to the WWTP for treatment & reuse. The epRO 100 b can treat the “treated” non-potable water and still can secure the product quality (Total Dissolved Solid=300 mg/l or less) and economics. This feature can be automatically utilized upon shortage of potable water feed to the RO system.

Ref 01006

point	3	6	10	14
capacity cu m/hr	4.30	1.30	N/A	3.00



1	rev	drawn by		title	epRO 100 b at GANTEC Residential Compound,Orabi Agri Society Capacity: 100 cu m/day Process Flow Diagram
0502068	drwng#	checked by			
meb	approved by	approved by meb	date 6/1/2006		
6/1/2006	date	scale	none	to	G.A.Naser Trading & Contracting Co., GANTEC
		original issue	7/18/1999	drwng# 0201000-05	rev 1

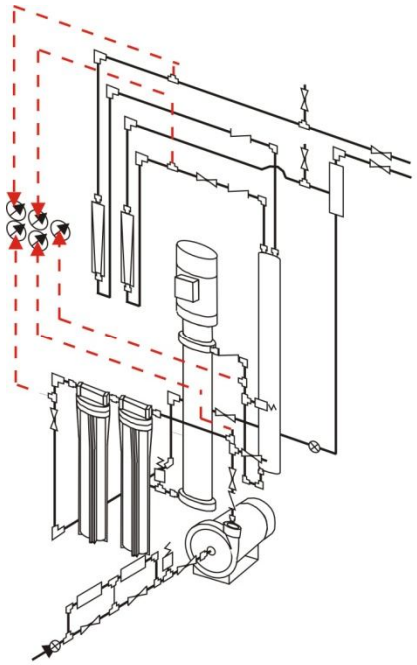
Ref 01006

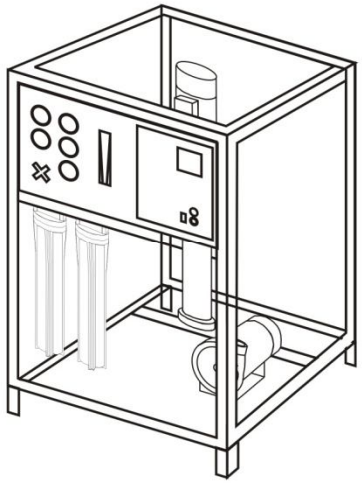
Reverse Osmosis Desalination Plant
epRO50 m
SharafChem Co.
10th of Rabadan Industrial City, Egypt

Completed: 2003
Capacity: 50 cu m/day

EPECO installed its manufactured desalination plant epRO 50m at SharfChem Factory at the 10th of Ramadan Industrial city, Egypt. The epRO 50 m is receiving raw water from the city municipal supply, however the client needs lower salinity water for chemicals manufacturing. epRO 50 m is producing permeate water with less than 50 mg/l salinity which can be blended to achieve the required salinity level.

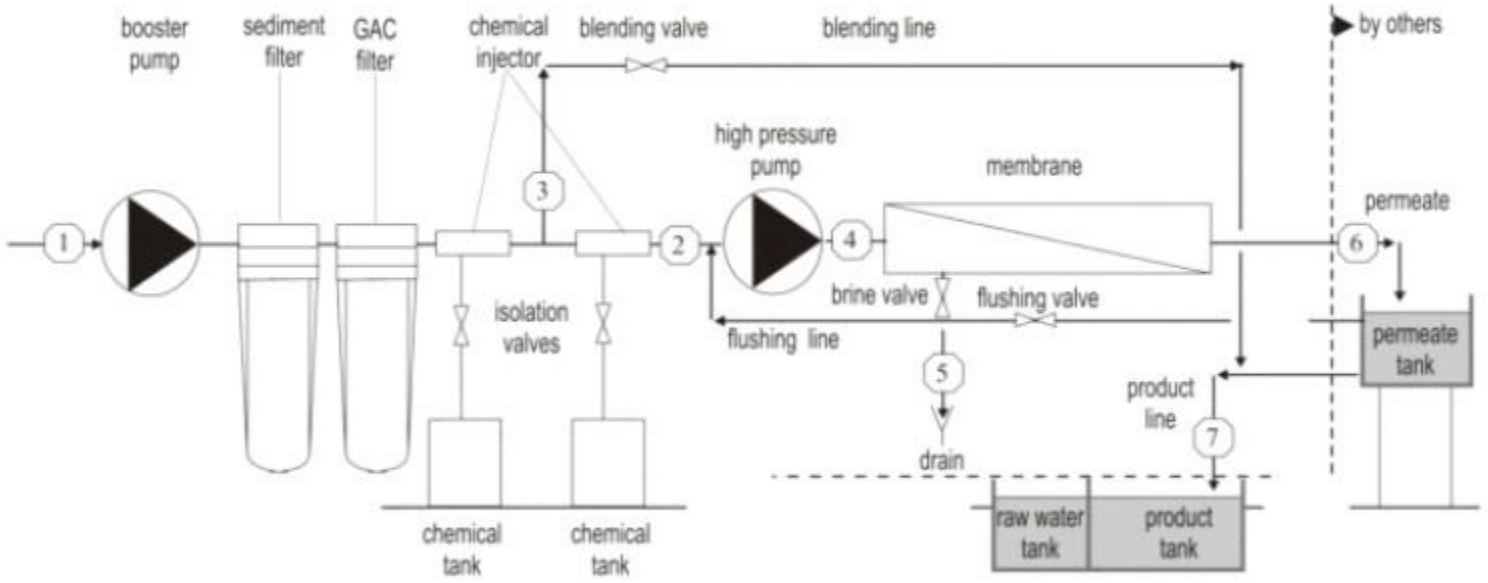
Ref 01005





Ref 01005

Point	1	2	3	4	5	6	7
flow l/min	64.4	61.6	2.2	61.6	50.4	11.1	13.0
pressure kpa	0	200	200	1100	1030	0	0
TDS mg/l	500	500	500	500	606	15	100



				2	1	Original	REV
				1/4/2006	5/2/2006	16/1/2006	date
				HM	HM	HM	drawn by
				MK	MK	MK	chk'd by
				MB	MB	MB	apprv'd by

Title: P & I Diagram epRO 16 m

To: Tabarak Industries

DRWG # 0301002-01

Ref 01005

Industrial Water Filtration System

MAC Carpet Co.
10th of Ramadan, Egypt
Completed: 2005
Capacity: 500 cu m/day

EPECO was awarded a contract to design, manufacture and install an industrial water treatment system with average daily capacity 500 cu m/day.

Ref 01004

Cont'd

Industrial Water Filtration System

The industrial water treatment system consists of back washable filtration system epFILTRA 350 b followed by micro sediment filtration system epFILTRA 350 s. The epFILTRA 350 b can filtrate 21 cu m/hr of industrial water up to 50 microns quality. The epFILTRA 350 b work cycle includes automatic (time and/or pressure drop) operate, backwash and rinse. The system has 3 independent parallel streams which allows for cleaning & rinsing one stream while other streams are in "operate" mode. The epFILTRA 350 s can filtrate 21 cu m/hr up to 5 microns quality. As soon as the epFILTRA 350 s cartridges are blocked (differential pressure monitored), cartridges can be easily replaced. The replacement process can be carried-out in one stream while other streams are in "operate" mode.
Filtered water is sterilized by **EPECO**'s model UVindu 350, which produces germ free water for delicate industrial applications.

Water Filtration & Sterilization System

el Salam Poultry Farm
el Salehia el Gadida, Egypt
Completed: 2002
Capacity: 500 cu m/day

EPECO was awarded a contract to design, manufacture and install water treatment system for el Salam Poultry Farm at el Salehia el Gadida, Egypt.

Ref 01003

Cont'd

Water Filtration & Sterilization System

The system with average daily capacity 500 cu m/day is receiving raw water from a near-by water canal. The raw water is highly polluted with hydrocarbons which is discharged directly into the canal from a near-by gas station. The raw water is also rich in suspended solids and oils. The raw water is aerated to remove the volatile hydrocarbons, followed by **EPECO 's** enhanced Dissolved Air Flotation DAF system (including a lamella clarifier) which flocculates the oils and silt. DAF system separates the floatable and the settle able matters to the maximum. Water is chlorinated and filtered in **e EPECO '**s media filters-sand & activated carbon in series. The filtered water is nearly free of hydrocarbon and the total suspended solids content is low. The water is polished by micro sediment filters epFILTRA 350 s and sterilized by UV350 indu, prior to use in poultry feed and other applications.

Water Filtration & Sterilization System

Egyptian Silos Co.
Mansoura, Egypt

Completed: 1998
Capacity: 2000 cu m/day

The Egyptian Silos Co., awarded **EPECO** a contract to design, manufacture and install water filtration & sterilization system for the Wheat Silos Complex in Mansourah, Egypt.

Ref 01002

Cont'd

Water Filtration & Sterilization System

Egyptian Silos Co.

The system consists of two independent streams, each includes **EPECO '**s the cleanable filter "Filtra 700 b" the sediment filter "Filtra 700 s" and the ultraviolet water sterilizer "UV 700". The system produces 1400 liter/m of filtered (5 micron) and sterilized water,

Reverse Osmosis Desalination Plant epRO50 m

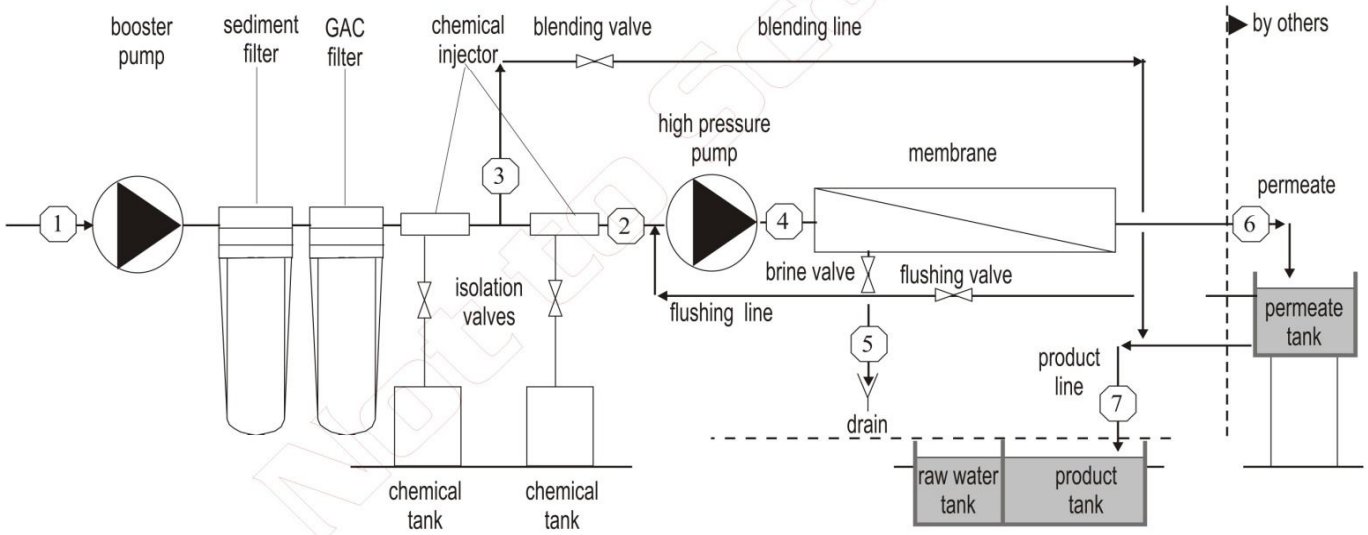
Tabarak Industries Co.
10th of Rabadan Industrial City, Egypt

Completed: 2006
Capacity: 32 cu m/day

EPECO installed its manufactured desalination plant epRO 16 m (quantity 2) at Tabarak Industries Factory-the 10th of Ramadan Industrial city, Egypt. The epRO 16 m is receiving raw water from the city municipal supply, however the client needs lower salinity water for food manufacturing. epRO 16 m is producing permeate water with less than 50 mg/l salinity which can be blended to achieve the required salinity level.

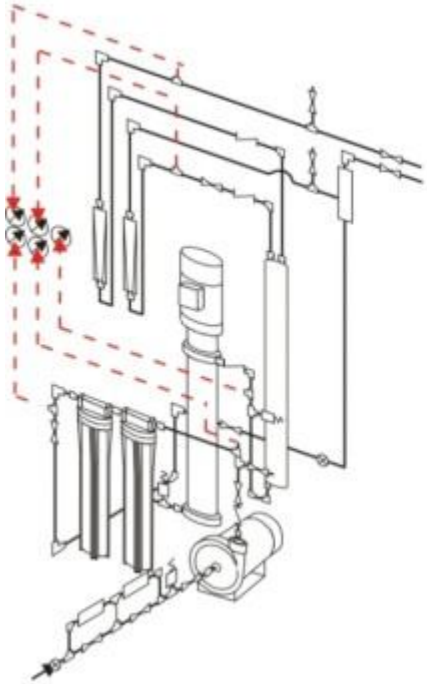
Ref 01001

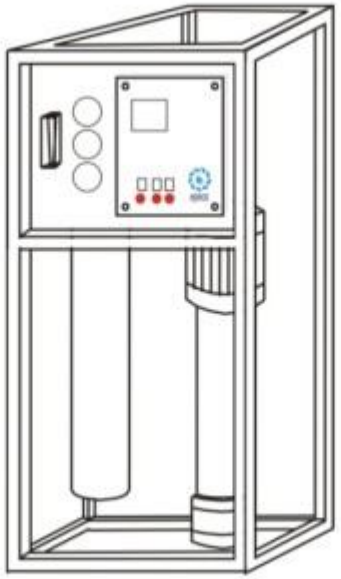
Point	1	2	3	4	5	6	7
flow l/min	64.4	61.6	2.2	61.6	50.4	11.1	13.0
pressure kpa	0	200	200	1100	1030	0	0
TDS mg/l	500	500	500	500	606	15	100



				2	1	Original	REV	Title	P & I Diagram epRO 16 m
				1/4/2006	5/2/2006	16/1/2006	date		
				HM	HM	HM	drawn by	To	Tabarak Industries
				MK	MK	MK	chk'd by		
				MB	MB	MB	apprv'd by	DRWG #	0301002-01

Ref 01001





Ref 01001

epeco

wastewater treatment

Wastewater Treatment Plant WWTP

Aramco
Dhahran, Saudi Arabia
Flow Capacity: 20 cu m/day/plant/Total 5

Completed: 1991

EPECO designed, a unique residential wastewater treatment & reuse plant, working on Sequence Batch Reactor technology for use in villas, hotels, palaces, housing compounds, campuses, and construction sites. As **EPECO** was under incorporation that time, the plant was manufactured by Cromaglass Corp., Williamsport, Pennsylvania, USA. First unit model CA 50 was delivered and installed at Dhahran, Saudi Arabia. Several CA systems were delivered to customers in Saudi Arabia under the same program.

Ref 02014

WILLIAMSPORT SUN-GAZETTE
Northcentral Pennsylvania's Sunday Newspaper

Business/Classified

May 5
1991

Egyptian Contract Allows Expansion At Local Factory

By ANN PAVKOVIC
Sun-Gazette Staff

A local manufacturer last week landed a contract with an Egyptian businessman who will provide developers in the Middle East with water treatment systems to protect the region's sparse fresh water from contamination.

That contract will also increase Cromaglass Corp.'s sales by two-thirds, said the company's president, Allan N. Young Jr.

As a result, Cromaglass Corp. has plans to expand its plant at the Williamsport Industrial Park during the next two or three months, and will add at least six more production positions to its staff of 12, Young said.

Young declined to discuss the privately-owned company's annual sales or the amount of the contract.

Cromaglass, founded in 1965, manufactures treatment systems small enough to treat water used by a small development of six to eight houses or small towns of up to 1,000 people, said Young. Additional capacity is added by linking several units, Young said.

Magdi M. El Beheiri, a partner of Environmental Projects and Engineering Co. (EPECO), said, Cromaglass' small water treatment systems are needed in areas where "officials are encouraging people to live outside the cities. This is one of the best products that can serve communities outside of a central municipal system."

"Because of the geography of the Middle East, people are crowding into cities," which has caused serious congestion problems, he said.

One such city is Cairo, Egypt, where the population is about 14 million, Beheiri said. Cairo is the home base of EPECO.

EPECO's goal is "to clean up the environment in the Middle East," thereby improving the quality of living for residents there, Beheiri said. "The environment is very polluted in the Middle East.

"We are mainly concerned with water quality and recycling wastewater right now," he said, adding that installing one efficient treatment system "means we have one environmentally clean spot in the Middle East."

Beheiri also hopes to sell Cromaglass systems to some of the 200 resorts that have been proposed along the shores of the Red and Mediterranean Seas, he said.

That water can then be recycled and used for such uses as irrigation and firefighting.

Recycled wastewater was used to create a man-made lake at one resort center, Beheiri said. "It is really expensive to do it, but it is worth conserving our water resources," Beheiri said.

Young said EPECO will also market the systems in Kuwait, where an international coalition is working to rebuild the small country recently devastated by Iraqi forces and later by U.S.-led allied forces driving the Iraqis out.

"We would help with the (country's) reconstruction by supplying systems to outlying areas," Young said. "They do need us there," he said, adding that the systems would be suitable for temporary settlements for troops and the battery of consultants and technical experts because the durable, fiberglass systems can be easily transported to a new location.

EPECO, which Beheiri said may be the only company based in the Middle East that provides such a comprehensive package of environmental services, also markets the environmentally oriented products of about a dozen other companies, Beheiri said. The company's current emphasis is on water quality and "recycling," or reusing wastewater, Beheiri said.

Beheiri said EPECO is involved in organizing a consortium of businesses to build 46 municipal sewage treatment plans, which at a projected cost of $250 million one of the biggest projects ever in the Middle East. The smallest of those municipalities is about the size of Williamsport, he said.

That project will cleanse about 250 million gallons of water per day, enough to grow a million acres of wheat, Beheiri said, noting that wastewater recycling could drastically reduce the region's reliance on imported food. In Egypt, about 60 to 65 percent of the wheat is imported, Beheiri said.

Many Middle Eastern countries have been implementing environmental regulations during the last several years similar to the ones established in the United States during the 1970s, Beheiri said.

"This is the right way of doing business – filling the gap between regulations and the application of regulations," Beheiri said.

Beheiri believes the five-year-old company will see business continue to expand at about 25 percent annually as it has for the last several years. He expects that expansion to continue through the 1990s, although profits might not increase at the same pace as overall sales, he said.

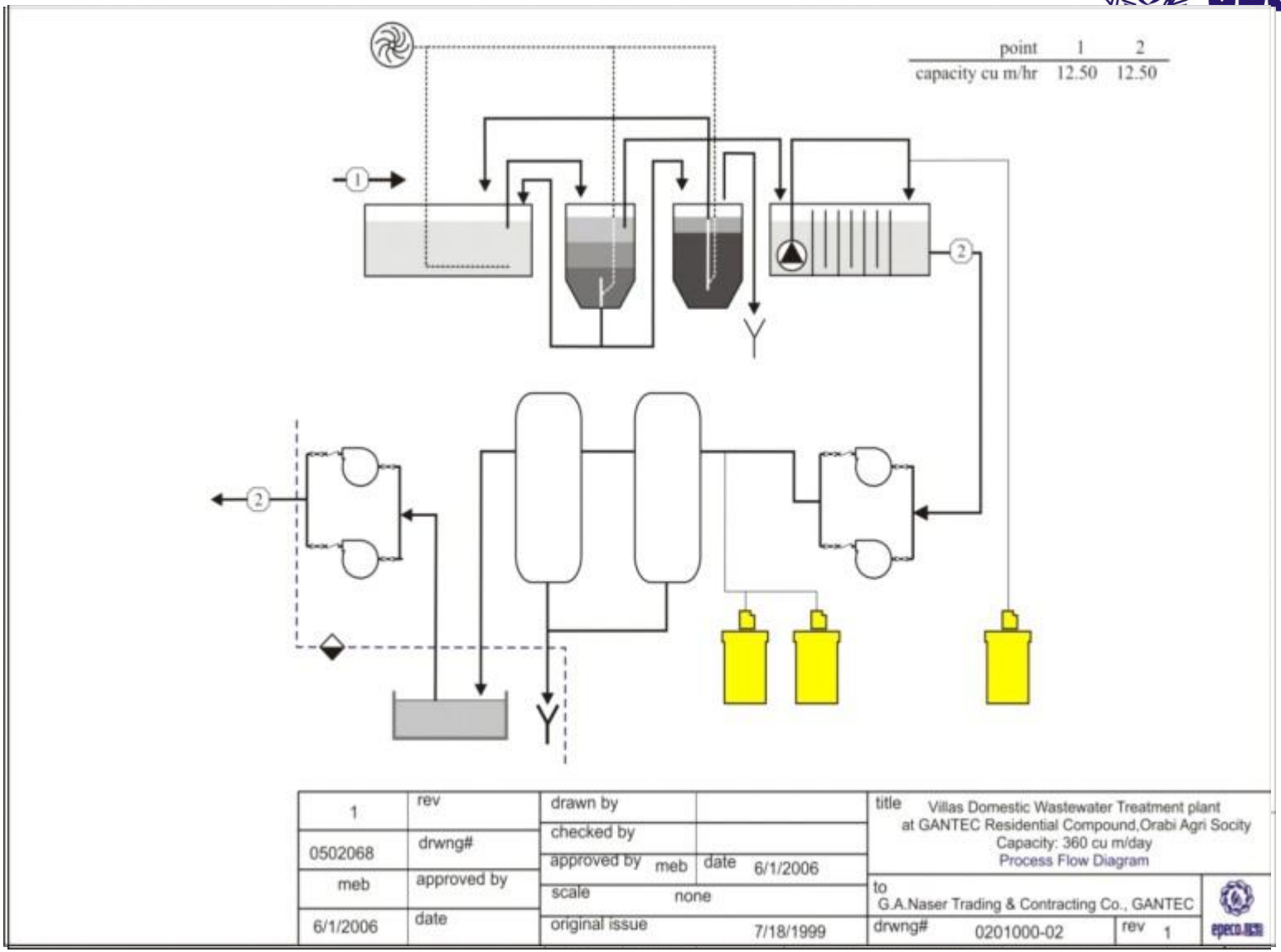
EPECO has four branch offices and plans to add six more in the next two years, Beheiri said.

Young said the Middle East, mostly in Saudi Arabia, comprised about 50 percent of Cromaglass' business in the late 1970s, but that figure legged off when development needs were met.

Still, exports have comprised about half of the company's business during the last six or seven years, thanks to word of mouth from satisfied customers, Young said.

EGYPTIAN BUSINESSMAN MAGDI EL BEHEIRI, LEFT, TALKS ABOUT THE APPLICATIONS ... of a Cromaglass water treatment system with Frank Moltz, the local firm's vice president

Ref 02014



1	rev	drawn by		title	Villas Domestic Wastewater Treatment plant at GANTEC Residential Compound,Orabi Agri Socity Capacity: 360 cu m/day Process Flow Diagram
0502068	drwng#	checked by			
meb	approved by	approved by meb	date 6/1/2006	to	G.A.Naser Trading & Contracting Co., GANTEC
6/1/2006	date	scale	none		
		original issue	7/18/1999	drwng# 0201000-02	rev 1

Ref 02014

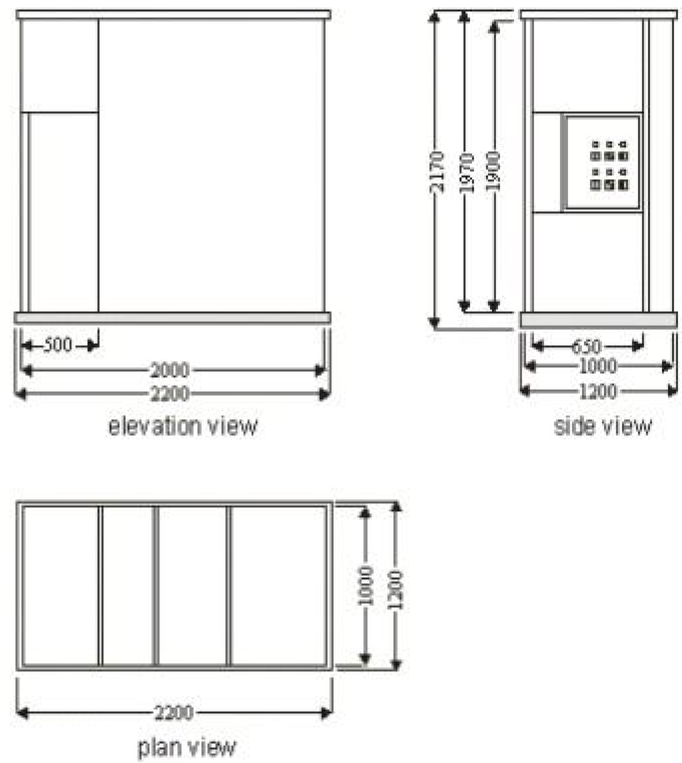
Wastewater Treatment Plant WWTP

Aluminum Factory/Union Group
Ras al Khaimah/United Arab Emirates
Flow Capacity: 50 cu m/day

Completed: 2010

EPECO designed, manufactured and installed a pilot plant to investigate the performance of the epMBR j,s &c wastewater treatment systems. The pilot plant was built with the same configuration of the epMBR10j-steel structure for above ground installation, with capacity range up to 50 cu m/day and peak flow of 6.25 cu m/hr. The pilot plant-epMBR mathmode50, is working jointly with epecoUSA's epMATHMODE mathematical model & scale prototype, specially designed to test and investigate the performance of a wide range and multiple parameters of membrane bioreactor wastewater treatment systems.

Ref 02013



Material: Mild steel, high commercial grade.

Sheet Metal Thickness: 3 mm.

Internal Coating: Two layers coal tar epoxy coating.

External Coating: Two layers polyester epoxy coating.

For cost estimation proposal use only.
Not intended for fabrication.

Rev	Description	Drawn	Date	Checked	Approved	Projection	Scale	Project: [illegible] for above-ground installation [illegible]
	Revision					[illegible]	[illegible]	Title: [illegible]
								To: [illegible]
								Size: A4 / Document No: 1010-01 EP / Sheet: 1 / No of Sheets: [illegible]

Ref 02013

Wastewater Treatment Plant WWTP

RAKIA Industrial Zone-Ras el Khaimah Investment Authority

Ras al Khaimah/United Arab Emirates

Flow Capacity: 2400 cu m/day

Completed: 2009

EPECO designed and built a domestic wastewater treatment and recycling plant at RAKIA industrial zone at Ras al Khaimah, UAE. The WWTP based on epRBC 2400 c product from epecoUSA, has been designed to serve the industrial users in the area. The average flow is 200 cu m/hr and the peak flow capacity is 600 cu m/hr.

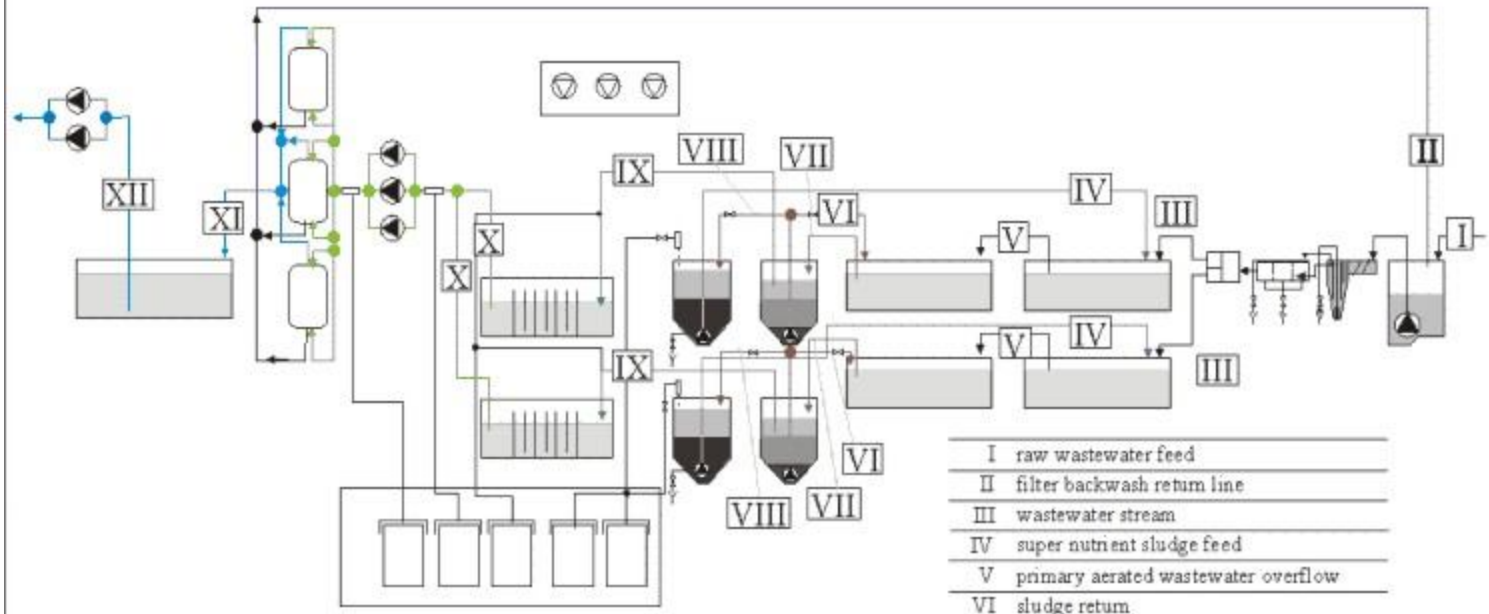
Ref 02012

cont'd

Wastewater Treatment Plant WWTP
RAKIA Industrial Zone-Ras el Khaimah
Investment Authority

The epRBC 2400c plant is working with Sequence Batch Reactor SBR principle, however the process has been enhanced by adding the epecoUSA innovative super nutrition system, which allows the plant to operate at hydraulic loading as low as 15% and as high as 150% odf the average daily flow with no sacrifice of efficiency or effluent quality. The epRBC 2400c is built in 2 similar but independent streams which will allow the plant to work at 50% capacity any time. This is an important feature, especially in case of service stopping.

Ref 02012



piping diagram

I	raw wastewater feed
II	filter backwash return line
III	wastewater stream
IV	super nutrient sludge feed
V	primary aerated wastewater overflow
VI	sludge return
VII	secondary aerated wastewater overflow
VIII	excess sludge disposal
IX	clear water overflow
X	filter feed lines
XI	filtrate discharge line
XII	irrigation water feed line

Rev	Description	Drawn	Date	Checked	Approved
	Revision				

epeco USA

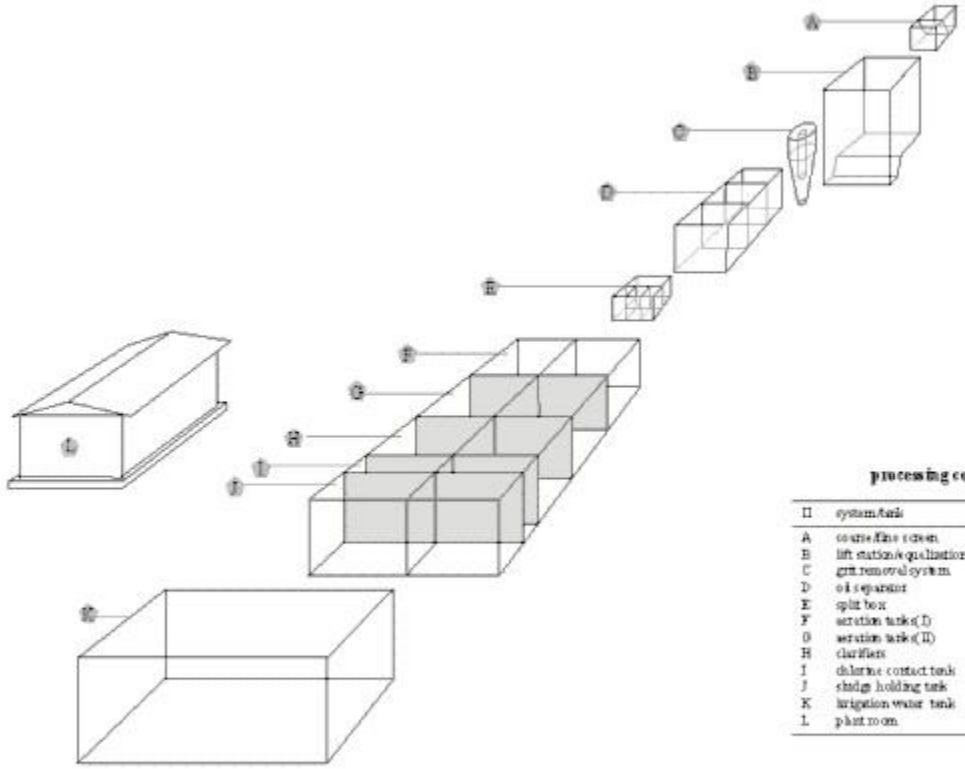
Project: WWTP & Recycling 2400 m3/day RAK Ind. Area Phase (I) & (II)

Title: Piping Network

To: The Government of Ras Al Khaima

Projection	Scale	Size	Document No	Sheet	No of Sheets
None	None	A3	07004-03	1	50
	Unit: Meter				

Ref 02012



processing compartments & rooms

Π	system/tank	Qty.	remarks
A	coarse/fine screen	1	
B	lift station/equalization tank	1	
C	grit removal system	1	
D	oil separator	1	
E	split box	1	
F	aeration tanks(I)	2	
G	aeration tanks(II)	2	
H	clarifiers	2	
I	chlorine contact tank	2	
J	sludge holding tank	2	
K	irrigation water tank	1	
L	plant room	1	

Important

This drawing is not intended to construction & building permition.
Detailed constructional design and drawings must be prepared by professional - certified engineer.

Horiz. scale.

All tanks are covered and have appropriate manholes for each compartment.

Concrete works are not included in EPECO's scope of work.

Rev	Description	Drawn	Date	Checked	Approved
	Revisions				

epecUSA

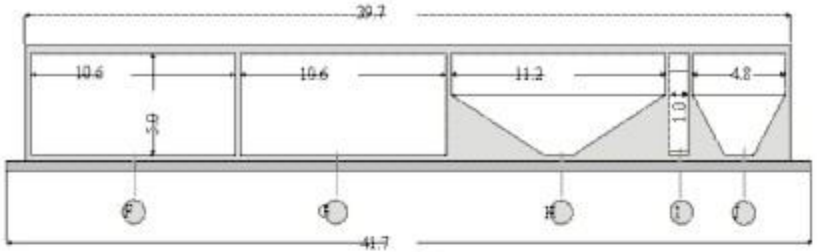
Project: WWTP & Recycling 2400 m3/day
RAK Ind. Area Phase (I) & (II)

Title: Air Supply Network

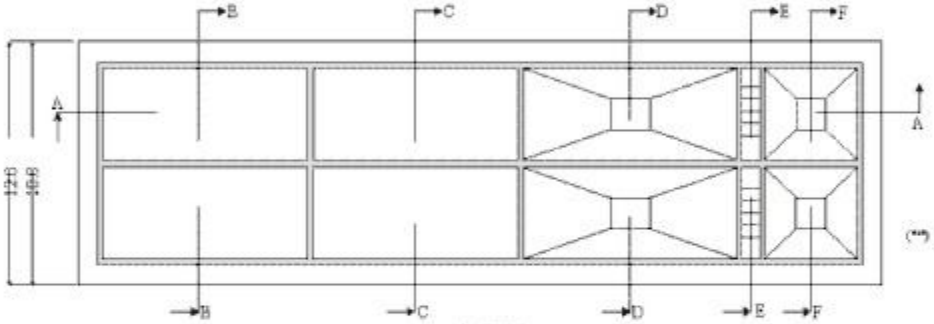
To: The Government of Ras Al Khaima

Projection	Scale	Size	Document No	Sheet	No of Sheets
None	None	A3	07004-04	1	50
	Unit: Meter				

Ref 02012



section A-A



plan view

Required
Proposal for turn key civil works for construction of the indicated tank for above ground installation.
Proposal must cover the concrete works and the coating.
Assume thickness of walls= 300 mm, reinforced concrete till design verification is completed.
Assume thickness of the roof =400 mm, reinforced concrete till design verification is completed.
Assume thickness of the base= 300 mm, reinforced concrete till design, verification is completed.
Assume thickness of the foundation sub-layer base= 300 mm, regular concrete, till design, verification is completed.

Alternative proposal for under ground tank is also required, consider excavation of medium soft loose soil.

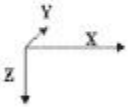
#	Tank (*)	Qty	Unit dimensions (**) X	Y	Z
F	aeration compartment (I)	2	10.6	4.5	5.0
G	aeration compartment (II)	2	10.6	4.5	5.0
H	clarifiers	2	11.2	4.5	5.0
I	chlorine contact tank	2	1.0	4.5	5.0
J	sludge holding tank	2	4.8	4.5	5.0

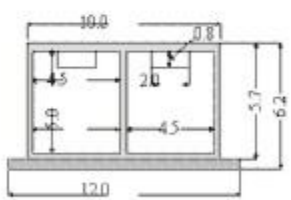
(*) All dimensions in meters.
(**) X: Length Y: Width Z: Depth

reinforced concrete volume= 600 m3
regular concrete volume= 265 m3

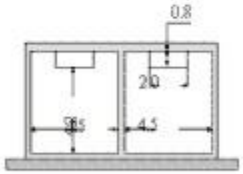
coatings- coal tar epoxy-3 layers-total= 8700 m2

excavation volume (optional)=4600 m3

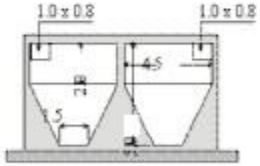




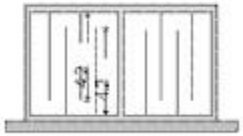
section B-B

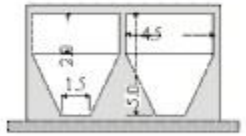


section C-C



section D-D


section E-E



section F-F

Rev	Description	Drawn	Date	Checked	Approved
Revision					

epeco USA

Project: WWTP & Recycling 2400 m3/day RAK Ind. Area

Title: Constructional Outlines- Main Tank

To: The Government of Ras Al Khaima

Projection	Scale	Size	Document No	Sheet	No of Sheets
None	None	A3	07004-05	1	50
	Unit: Meter				

Ref 02012

Industrial WastewaterTreatment Plant IWWTP
Wastewater Collection Lagoon at Muwailah
Sharjah / United Arab Emirates
Flow Capacity: 3000 cu m/day

Completed: 2008

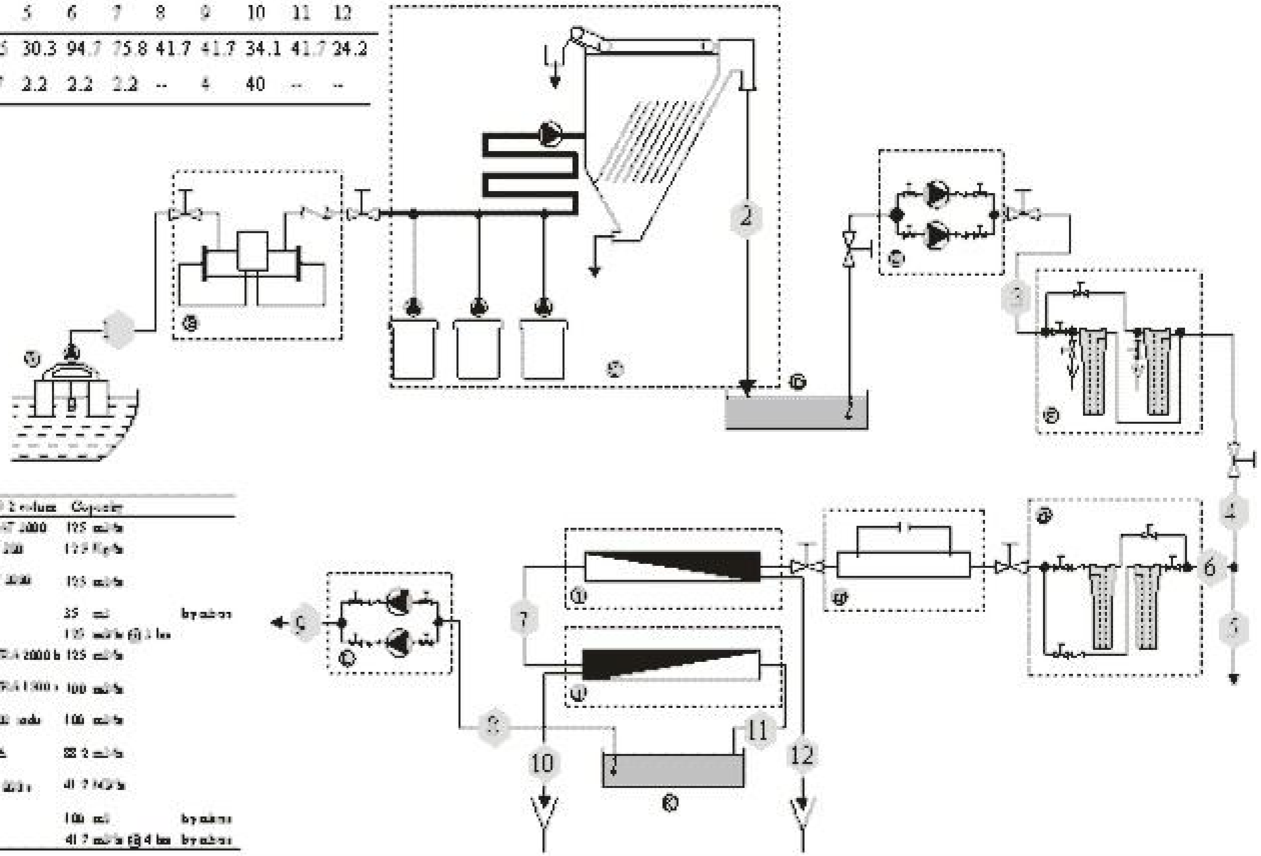
In March 2007, **EPECO** was awarded a design-build & operate contract to construct a wastewater treatment & recycling plant at Muwailah/Sharjah, United Arab Emirates.

The raw wastewater influent from Muwailah lagoon, filled with substandard treated domestic wastewater effluent dumped into sanitary dump area. The wastewater lagoon was rich in heavy metals, microbial contamination and algae. Many metal ions, such as mercury, lithium, iron, manganese and many others are existing in the lagoon water. The aquamarine life near the lagoon is totally terminated.

Ref 02011

epeco

	1	2	3	4	5	6	7	8	9	10	11	12
m3/hr	125	125	125	125	30.3	94.7	75.8	41.7	41.7	34.1	41.7	24.2
bar	1.9	--	3	2.7	2.2	2.2	2.2	--	4	40	--	--



#	Item	EPECO Product	Capacity	
A	[illegible]	epFLOAT 2000	125 m3/h	
B	electrolytic sodium hypochlorite generation	epCHL 200	[illegible] Kg/h	
C	DAF/lamella clarifier [illegible]	epDAF 2000	125 m3/h	
D	clear water tank		35 m3	by others
E	booster pump station		125 m3/h @ 3 bar	
F	backwashable sediment removal filters	epFILTRA 2000 b	125 m3/h	
G	[illegible] sediment removal filter	epFILTRA 1500 [illegible]	100 m3/h	
H	ultraviolet water [illegible] disinfection [illegible]	UV 1500 [illegible]	100 m3/h	
I	ultrafiltration waste water treatment system	epUF [illegible]	88.2 m3/h	
J	reverse osmosis [illegible] desalination system	epRO [illegible]	41.7 m3/h	
K	irrigation water tank		100 m3	by others
L	irrigation pump station		41.7 m3/h @ 4 bar	by others

Rev	Description	Drawn	Date	Checked	Approved
1	change in epROs, epUF capacity & others		11-03-07		MsB

Revision

epecoUSA

Title	Process Flow Diagram		
Project:	WWTP 3000 m3/day-UAE		
Project #:			
Projection: none	Scale: none	Unit: none	
Size: A3	Document No: 07009-001-R1	Sheet: 1	No of Sheets: 10

Ref 02011

cont'd

Industrial WastewaterTreatment Plant IWWTP

epecoUSA designed, built and operated a treatment system to treat the lagoon water and convert it into fresh water suitable for irrigation and domestic non-potable applications. **epecoUSA** carried –out many tests and investigations which indicated that 1000 cu m/day of fresh water can be produced from the lagoon water. The lagoon water volume was estimated at 600'000 cu m, with seasonal seepage add-up. **epecoUSA** designed the process that minimized the reject water to be discharged to the open seas. The reject water was free of algae, oil, grease and /or biological contaminants.

cont'd

Industrial WastewaterTreatment Plant IWWTP

epecoUSA designed and manufactured a mathematical model and built a bench top scale prototype **epWASTE leachate 07 UAE** to simulate the system performance. All other equipment including: open intake **epFLOAT3000**, An electrolytic Sodium Hypochlorite generator- **epCNS 150k,** dissolved air flotation/lamella clarifier/tube mixer **epDAF 3000,** backwashable microfine filtration system-**epFilter 2000 b,** microfine filtration system-**epFilter 2000 s**, ultraviolet wastewater disinfection & bio-degradation system **epUV2000 indu,** Ultrafiltration (UF) system, wastewater treatment system **epUF 2k** and Seawater Reverse Osmosis Desalination System **epRO 1000s**

Ref 02011

Wastewater Treatment & Reuse

Banyan Tree Resort
Rakeen Investment Co.
Ras al Khaimah/United Arab Emirates
Flow Capacity: 1000 cu m/day

Completed: 2007

epecoUSA designed and built a domestic wastewater treatment and recycling plant at Banyan Tree Resort, Ras al Khaimah, United Arab Emirates. The WWTP based on epMBR 1000c design,from epecoUSA, has been designed to serve the luxary resort of Banyan Tree. The average flow is 1000 cu m/day and the peak flow capacity is 125 cu m/hr.

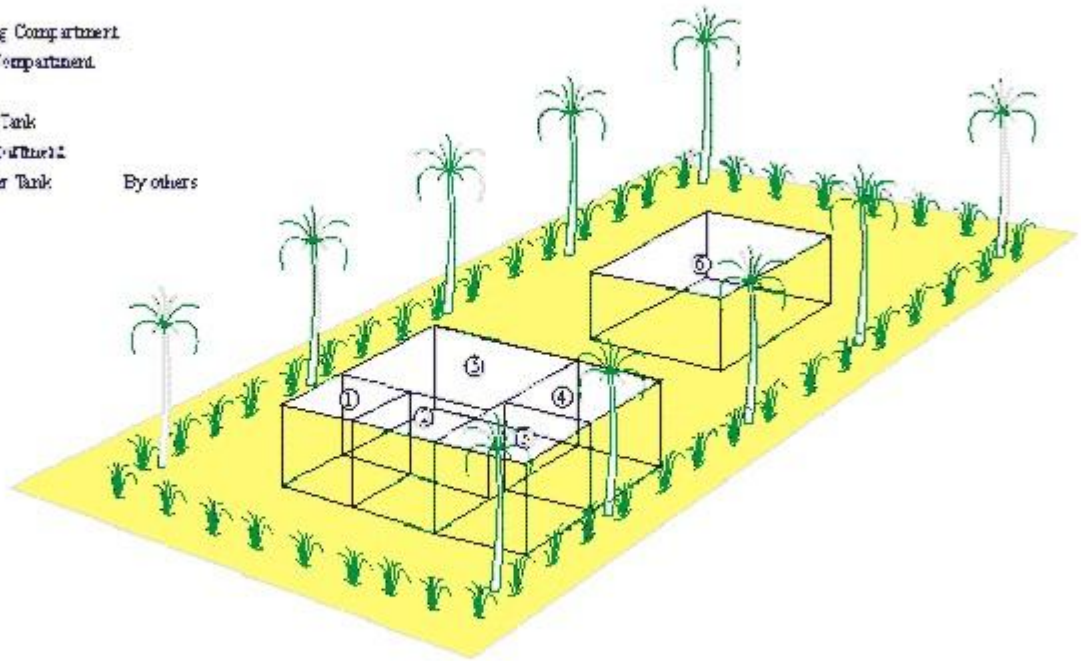
Ref 02010

cont'd

Wastewater Treatment & Reuse

The epMBR 1000c is built in 2 similar but independent streams which allows for work at 50% capacity any time. This is an important feature, especially in case of service stopping. epMBR 1000c process has been enhanced by adding the epecoUSA innovative "super nutrition" system, which allows the plant to operate at hydraulic loading as low as 15% and as high as 150% of the average.

1 Sludge Holding Compartment
2 Equalization Compartment
3 Plant Room
4 Treated Water Tank
5 Aeration Compartment
6 Irrigation Water Tank By others



Rev	Description	Drawn	Date	Checked	Approved
	Revision				

epecoUSA

Project: WWTP & Recycling 1000 m3/day
Banyan Tree Resort Project Rakeen.

Title: Tanks & Compartments-Isometric

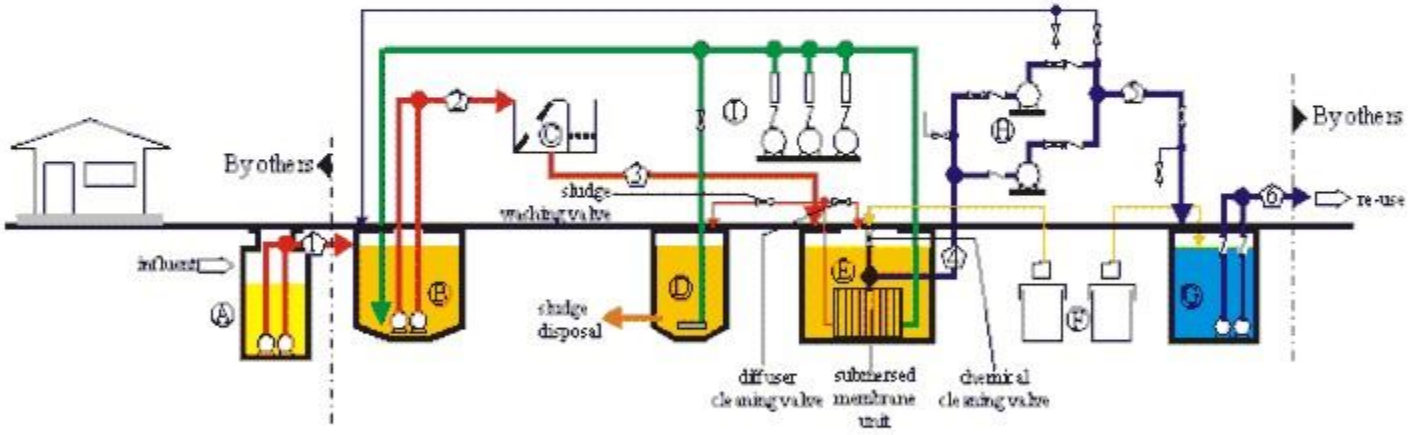
Rakeen

Projection	Scale	Size	Document No	Sheet	No of Sheets
None	None	A3	07007-04 E0	1	1
	Unit Meter				

Ref 02010

#	COMPARTMENT	EQUIPMENT	QTY.		REMARKS
A	Lifting Station	Lifting Pumps	2	1+1	Optional
B	Balancing Tank	Balancing Pumps	2	1+1	
C	Fine Screen Compartment	Fine Screen	1	1	
D	Sludge Holding Tank	Sludge Discharge Outlet	1	1	
E	Aeration Tank	Submersed Membrane Unit	1	1	
F	Chemical Injection Station	Chemical Dosing Systems	2	2	
G	Treated Effluent Tank	Treated Water Pumps	2	1+1	
H	Permeate Pumps Station	Permeate Pumps	2	1+1	
I	Air Blowers Station	Air Blowers	3	2+1	

		1	2	3	4	5	6
flow	m^3/hr	41.8	16.7	16.7	16.7	16.7	16.7
pressure	bar	--	1.1	--	--	1.8	--



Rev	Description	Drawn	Date	Checked	Approved
	Revision				

epecoUSA

Project: WWTP & Recycling 1000 m3/day Banyan Tree Resort Project-Rakeen

Title: Process Flow Diagram

To: Rakeen

Projection	Scale	Size	Document No	Sheet	No of Sheets
None	None	A3	07007-03 EG	1	20
	Unit Meter				

Ref 02010

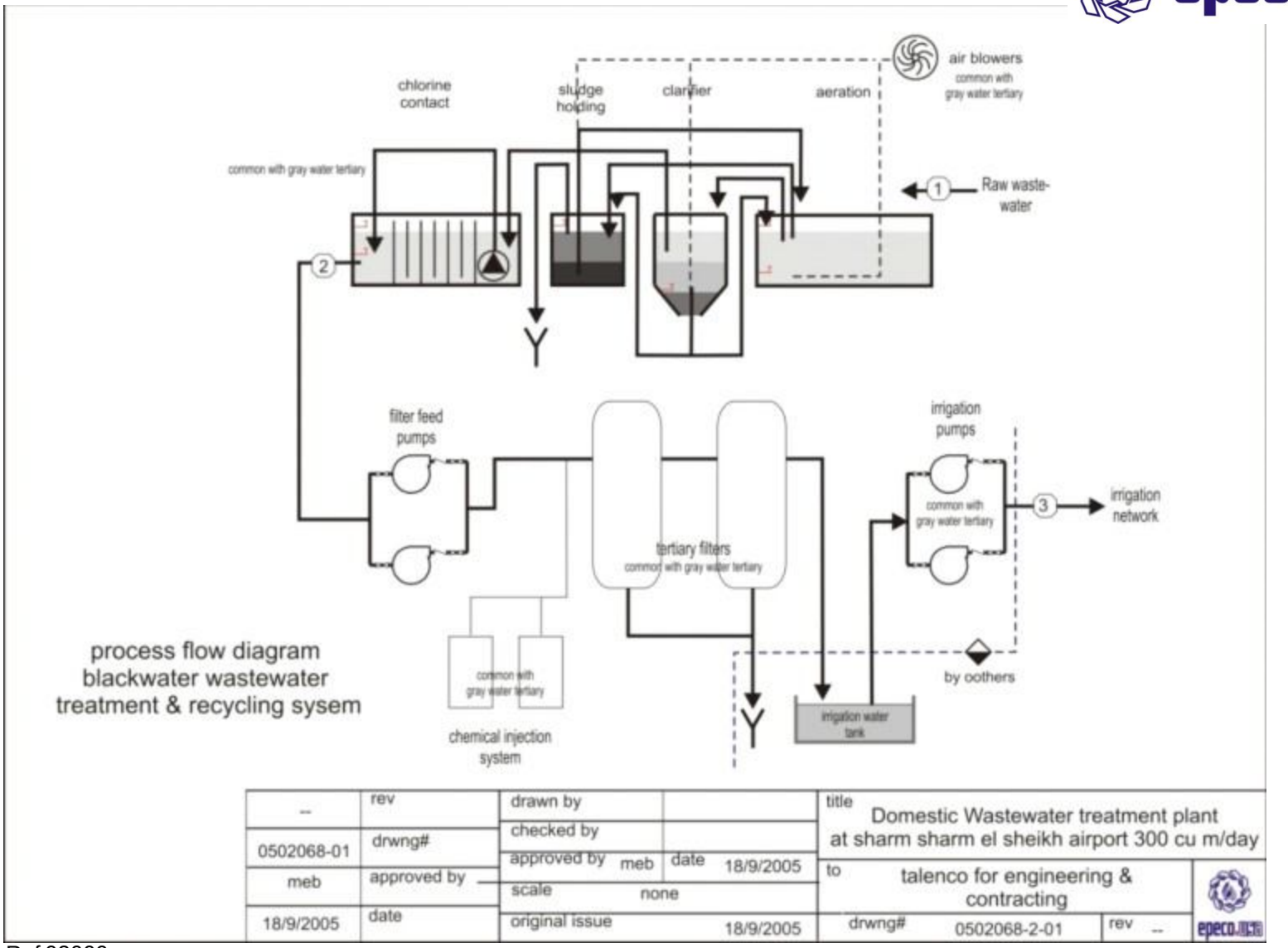
Domestic Wastewater Treatment & Reuse

EgyptAir Inflight Services
Sharm el Sheikh, Egypt
Capacity: 300 cu m/day

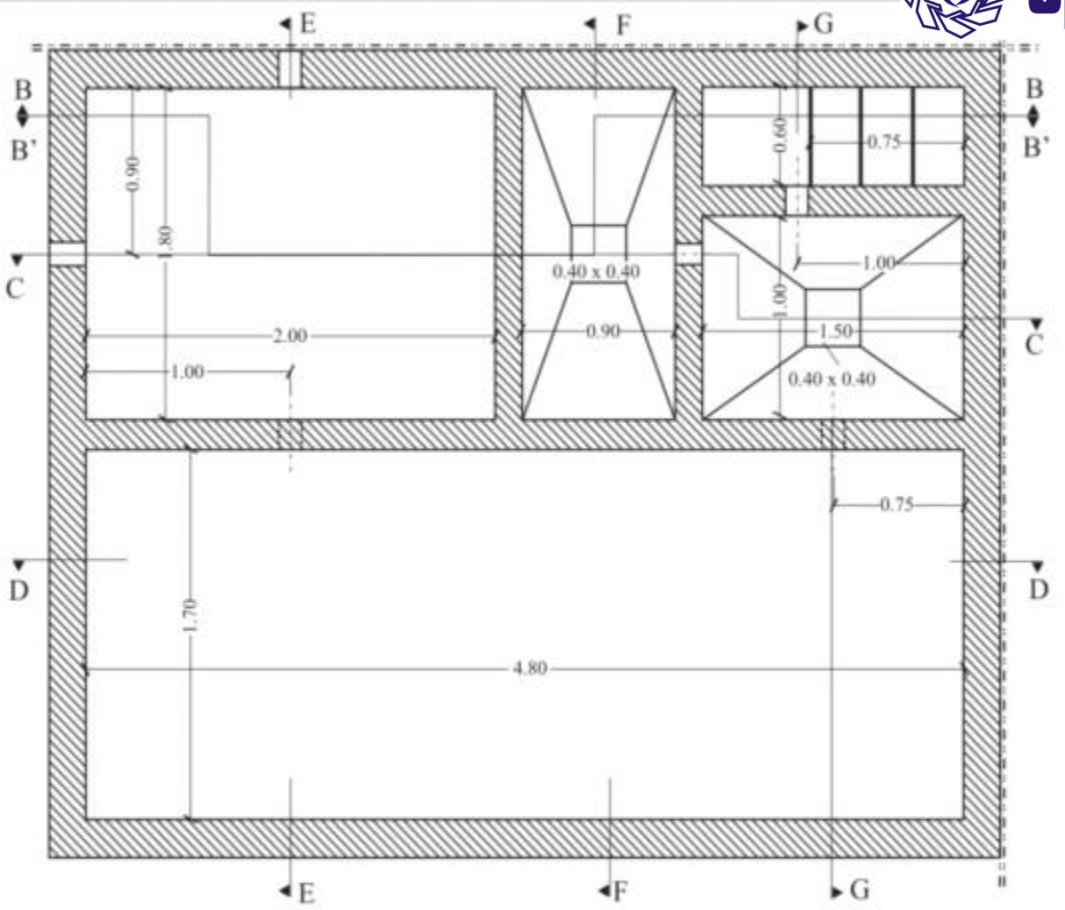
Completed: 2006

EPECO designed and built a domestic Wastewater Treatment and Recycling plant at Egypt Air Inflight Services Complex/Sharm el Sheikh Airport/Egypt. The treated effluent can be mixed with the treated industrial wastewater and the reject brine for disposal.

Ref 02009


air blowers
common with gray water tertiary
chlorine contact
sludge holding
clarifier
aeration
common with gray water tertiary
1
Raw waste-water
2
filter feed pumps
irrigation pumps
common with gray water tertiary
3
irrigation network
tertiary filters
common with gray water tertiary
by oothers
common with gray water tertiary
chemical injection system
irrigation water tank
process flow diagram
blackwater wastewater
treatment & recycling sysem
rev
--
drwng#
0502068-01
approved by
meb
date
18/9/2005
drawn by
checked by
approved by meb date 18/9/2005
scale none
original issue 18/9/2005
title
Domestic Wastewater treatment plant
at sharm sharm el sheikh airport 300 cu m/day
to
talenco for engineering & contracting
drwng# 0502068-2-01
rev --

Ref 02009



important notes

these are not executional shopdrawings they're guidelines for construction works, all included data and dimensions must be checked and verified by the contractor prior to starting construction works.

drawings are not to scale

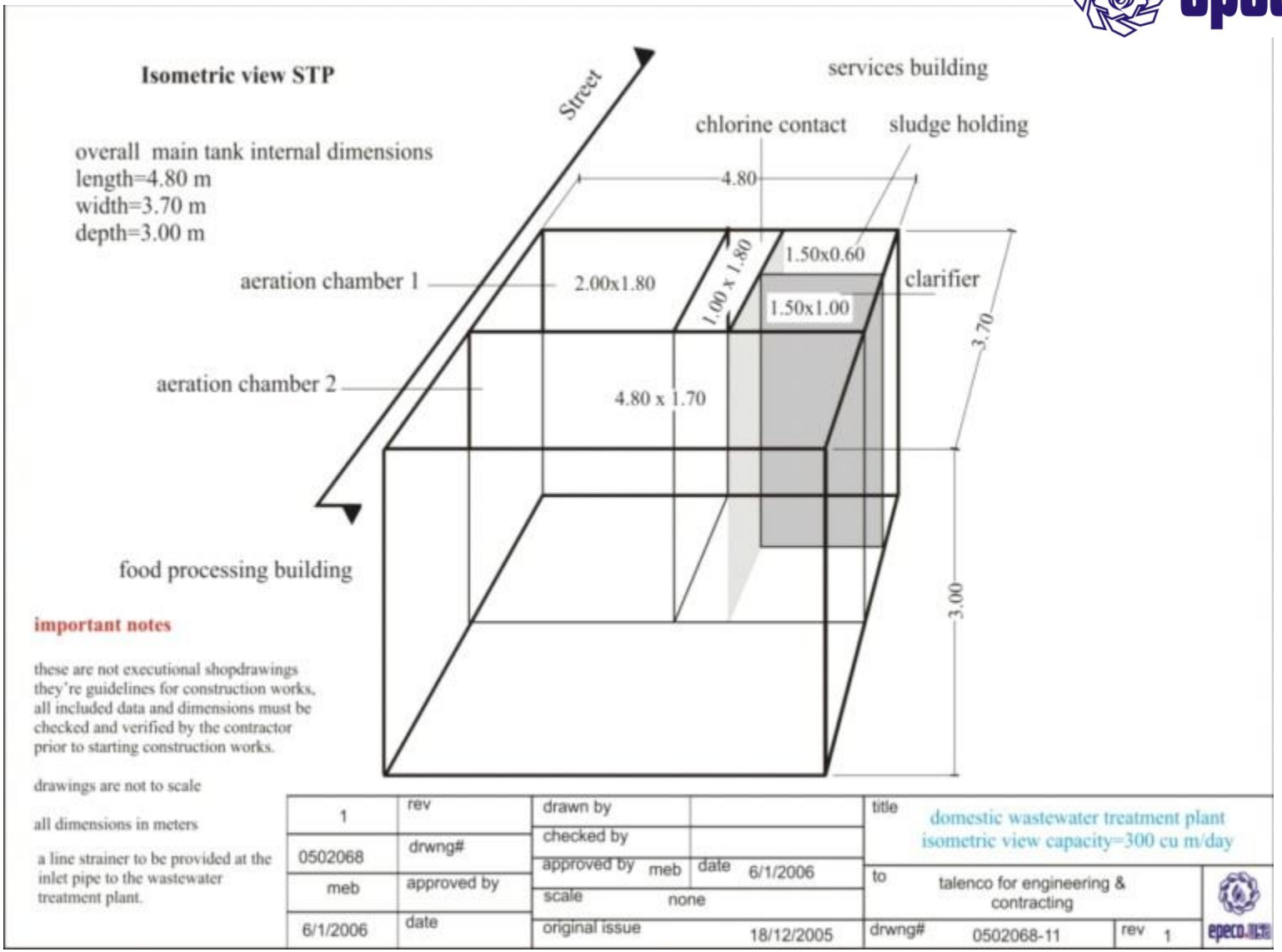
all dimensions in meters

a line strainer to be provided at the inlet pipe to the wastewater treatment plant.

1	rev	drawn by		title	Water,Wastewater & Industrial Wastewater treatmen plant at sharm sharm el sheikh airport
0502068	drwng#	checked by			wastewater treatment plant main tank-constr. Details
meb	approved by	approved by meb	date 6/1/2006		
6/1/2006	date	scale none		to	talenco for engineering & contracting
		original issue 18/12/2005		drwng# 0502068-13	rev 1

Section A-A

Ref 02009


Isometric view STP
Street
services building
chlorine contact
sludge holding
overall main tank internal dimensions
length=4.80 m
width=3.70 m
depth=3.00 m
4.80
1.50x0.60
aeration chamber 1
2.00x1.80
1.00 x 1.80
clarifier
1.50x1.00
3.70
aeration chamber 2
4.80 x 1.70
food processing building
3.00
important notes
these are not executional shopdrawings
they're guidelines for construction works,
all included data and dimensions must be
checked and verified by the contractor
prior to starting construction works.
drawings are not to scale
all dimensions in meters
a line strainer to be provided at the
inlet pipe to the wastewater
treatment plant.
1
rev
0502068
drwng#
meb
approved by
6/1/2006
date
drawn by
checked by
approved by meb date 6/1/2006
scale none
original issue 18/12/2005
title
domestic wastewater treatment plant
isometric view capacity=300 cu m/day
to
talenco for engineering &
contracting
drwng# 0502068-11
rev 1
epeco.jets

Ref 02009

Industrial Wastewater Treatment IWWTP & Reuse
EgyptAir Inflight Services
Sharm el Sheikh, Egypt
Capacity: 2000 cu m/day

Completed: 2006

EPECO designed and built an Industrial Wastewater Treatment and Recycling plant at Egypt Air Inflight Services Complex/Sharm el Sheikh Airport/Egypt.
The IWWTP based on epDAF 2000, the dissolved air flotation system and the specially designed settler & Fat, Oil & Grease FOG separator to meet the tough requirements of "industrial kitchen" operation. Biological treatment based on epSBR 2000c system follows the epDAF2000 for complete treatment.

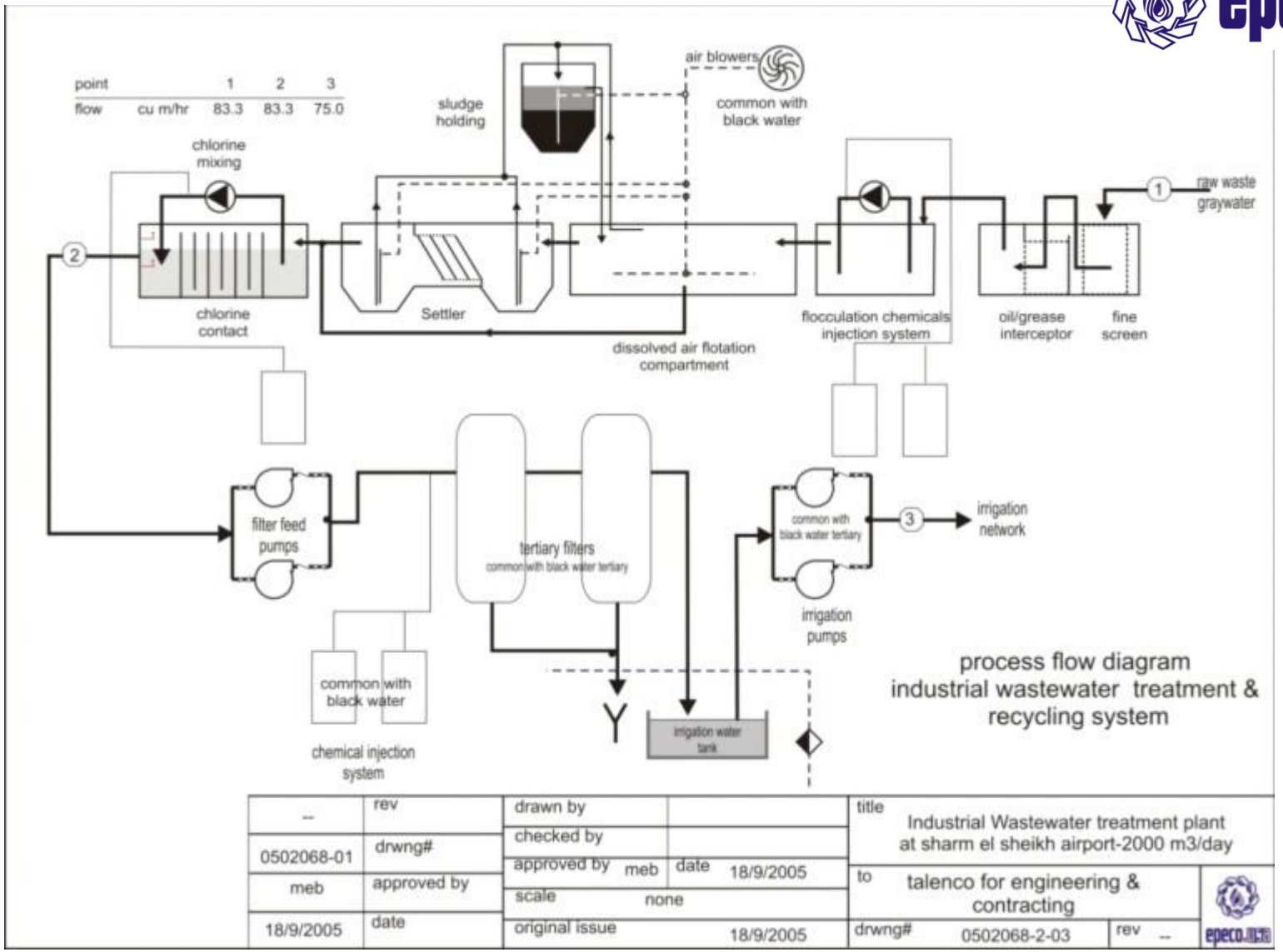


Ref 02008

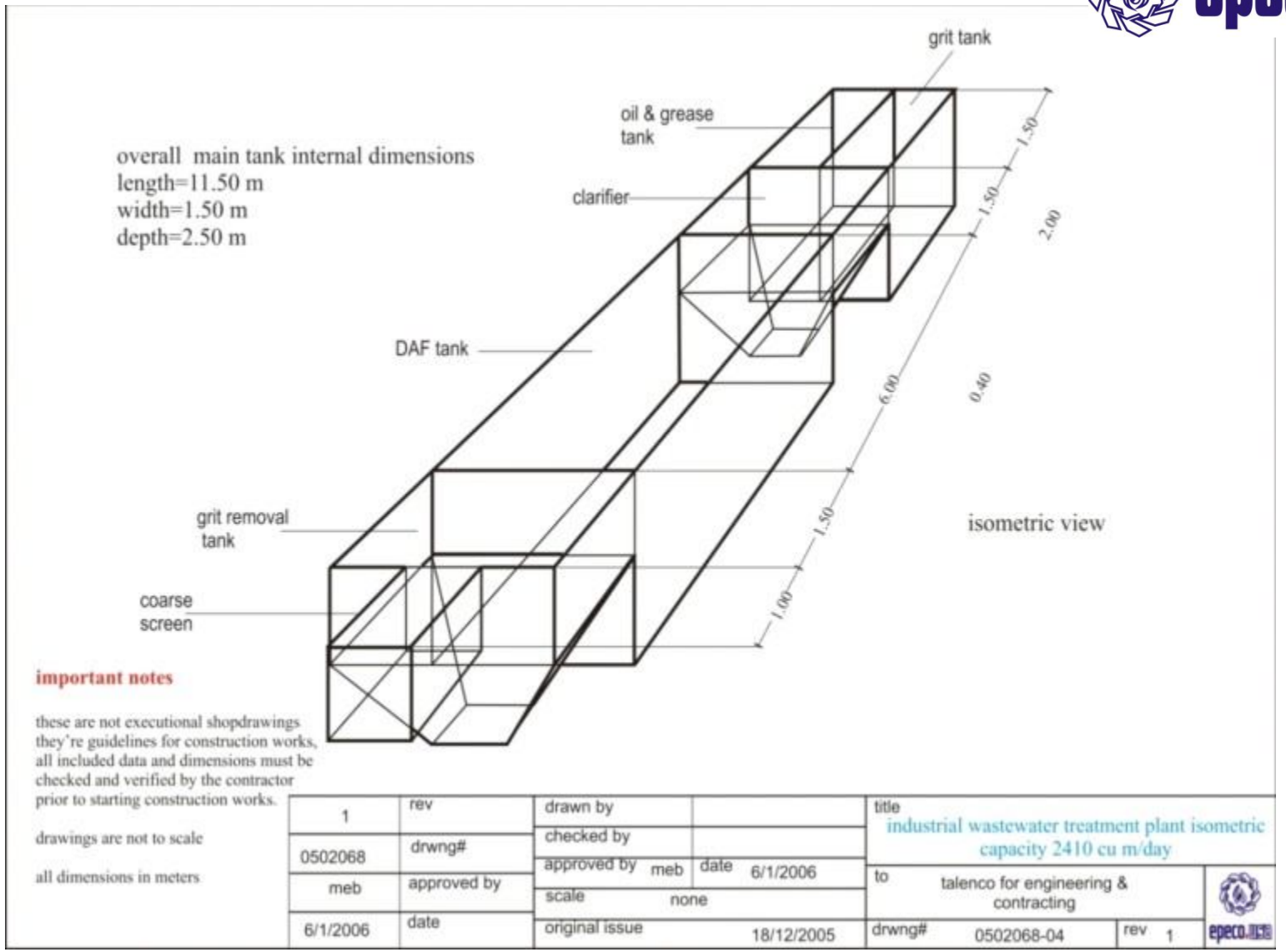
Industrial Wastewater Treatment IWWTP & Reuse

The IWWTP is built underneath the building. No smell, no odor or nuisence of any type what so-ever is noticed.

The IWWTP is producing-daily-hundreds of kilograms of waste grains (rice & wheat) and oil & grease in a solid form suitable sale. Clean effluent is either mixed with treated domestic wastewater for irrigation or as make-up water for the fire fighting system.


point 1 2 3
flow cu m/hr 83.3 83.3 75.0
sludge holding
air blowers
common with black water
chlorine mixing
raw waste graywater
chlorine contact
Settler
dissolved air flotation compartment
flocculation chemicals injection system
oil/grease interceptor
fine screen
filter feed pumps
tertiary filters
common with black water tertiary
irrigation network
irrigation pumps
common with black water
chemical injection system
irrigation water tank
process flow diagram
industrial wastewater treatment & recycling system
-- rev
0502068-01 drwng#
meb approved by
18/9/2005 date
drawn by
checked by
approved by meb date 18/9/2005
scale none
original issue 18/9/2005
title
Industrial Wastewater treatment plant at sharm el sheikh airport-2000 m3/day
to talenco for engineering & contracting
drwng# 0502068-2-03 rev --

Ref 02008



important notes

these are not executional shopdrawings they're guidelines for construction works, all included data and dimensions must be checked and verified by the contractor prior to starting construction works.

drawings are not to scale

all dimensions in meters

1	rev	drawn by		title	industrial wastewater treatment plant isometric capacity 2410 cu m/day
0502068	drwng#	checked by			
meb	approved by	approved by meb	date 6/1/2006	to	talenco for engineering & contracting
6/1/2006	date	scale	none		
		original issue	18/12/2005	drwng# 0502068-04	rev 1

Ref 02008

Wastewater Treatment Plant WWTP
GANTEC Housing Compound
At Orabi Farms, North Cairo, Egypt

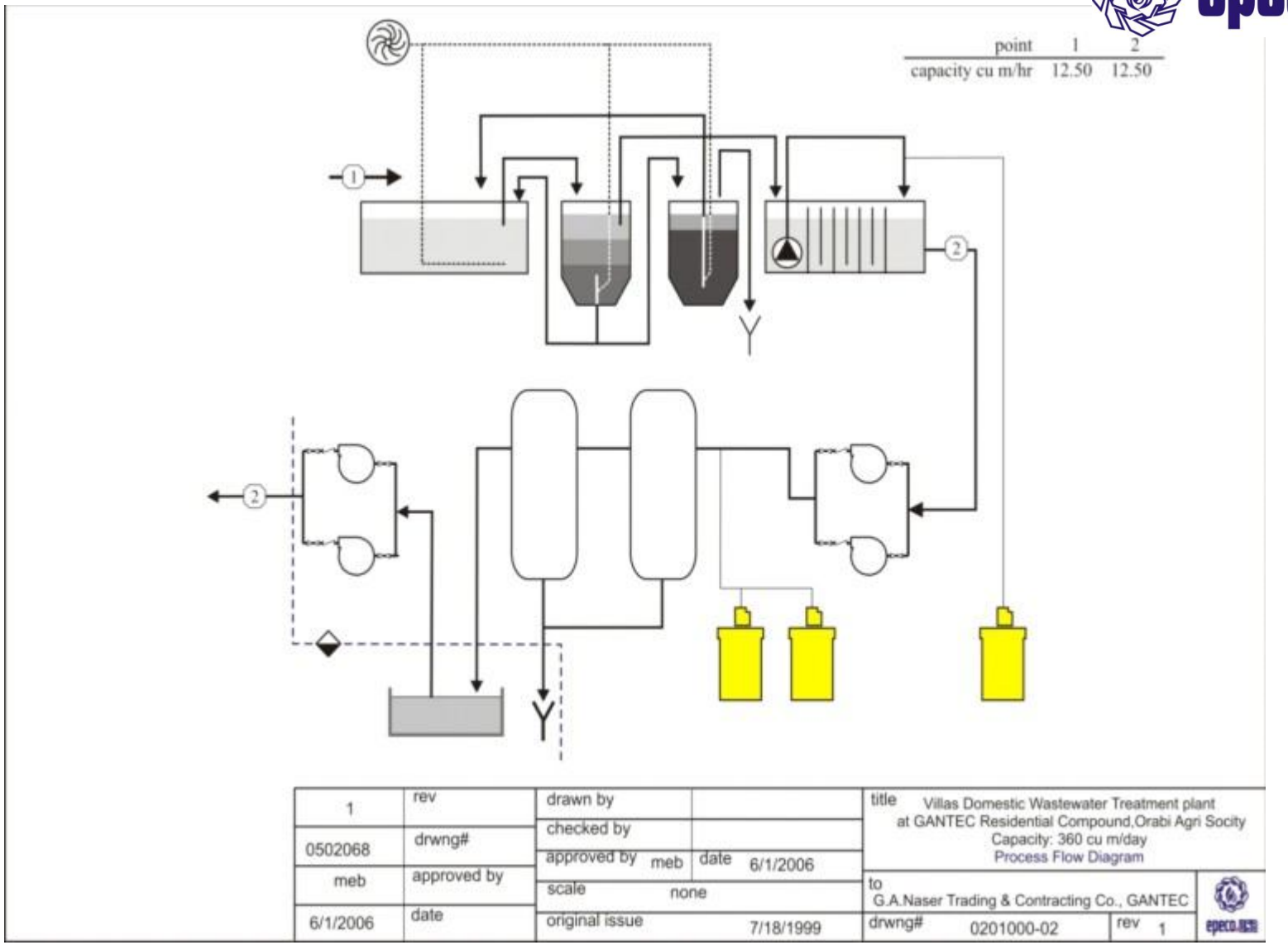
Completed: 2000

Capacity Wastewater: 360 cu m/day

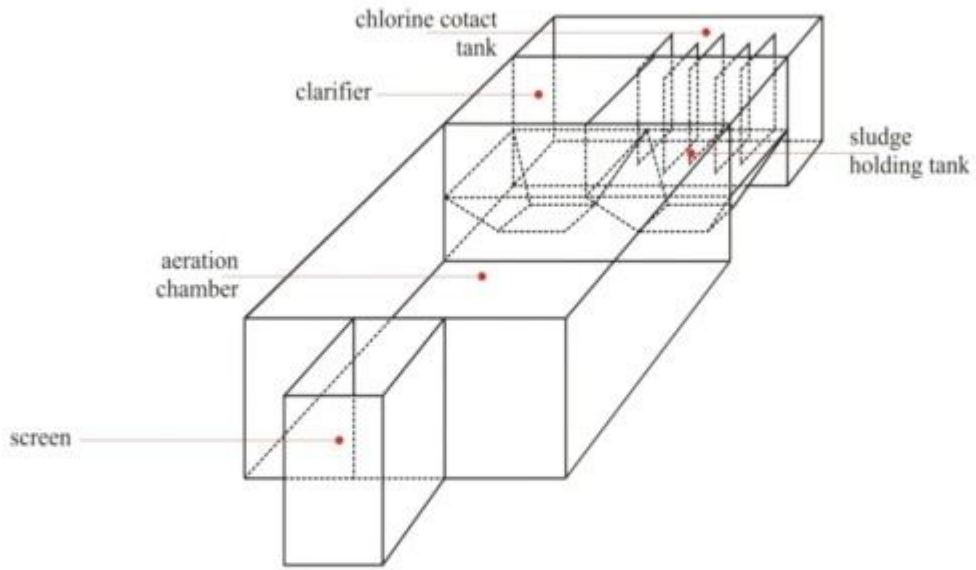
epecoUSA designed, manufactured the systems and built a wastewater Treatment plant at GANTEC Housing Compound, at Orabi Farms, North Cairo, Egypt.

The WWTP based on **epecoUSA**'s epSBR 400 c is redesigned to treat an average daily flow of 360 cu m consisting of nearly 300 cu m/day of domestic wastewater and 60 cu m/day of RO desalination system reject water , media filters backwash and rinse water. epSBR 400 c plant can work with 150 % of its nominal capacity for 48 hours and at 12.5 of its nominal capacity for 7 days with no sacrifice of product quality or economics. To achieve this performance, epecoUSA "super nutrition technology" has been implemented.
The epSBR 400 c treated effluent quality with biochemical oxygen demand BOD5=5, chemical oxygen demand COD=5 and suspended solids SS=5 is always guaranteed.
Product water is suitable for irrigating delicate landscape and green tennis courts.

Ref 02007


point 1 2
capacity cu m/hr 12.50 12.50
1
2
2
1 rev
0502068 drwng#
meb approved by
6/1/2006 date
drawn by
checked by
approved by meb date 6/1/2006
scale none
original issue 7/18/1999
title Villas Domestic Wastewater Treatment plant
at GANTEC Residential Compound,Orabi Agri Socity
Capacity: 360 cu m/day
Process Flow Diagram
to
G.A.Naser Trading & Contracting Co., GANTEC
drwng# 0201000-02 rev 1

Ref 02007



1	rev	drawn by		title	Villas Domestic Wastewater Treatment plant at GANTEC Residential Compound,Orabi Agri Socity Capacity: 300 cu m/day main tank isometric view
0502068	drwng#	checked by			
meb	approved by	approved by meb	date 6/1/2006		
6/1/2006	date	scale	none	to	G.A.Naser Trading & Contracting Co., GANTEC
		original issue	7/18/1999	drwng# 0201000-03	rev 1

Ref 02007

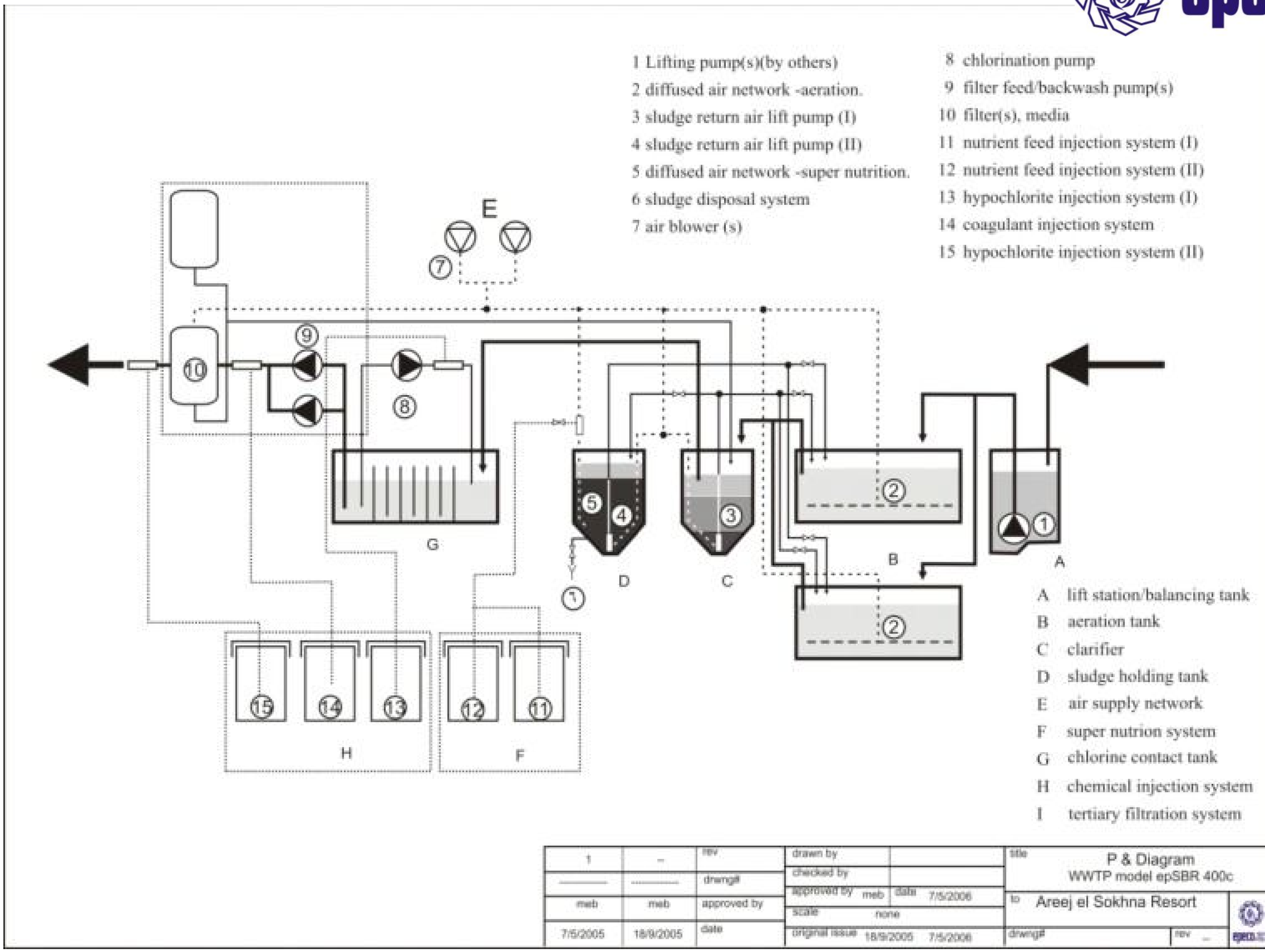
Wastewater Treatment Plant WWTP
Areej Resort el Sokhna, Egypt

Completed: 2006

Capacity Wastewater: 400 cu m/day

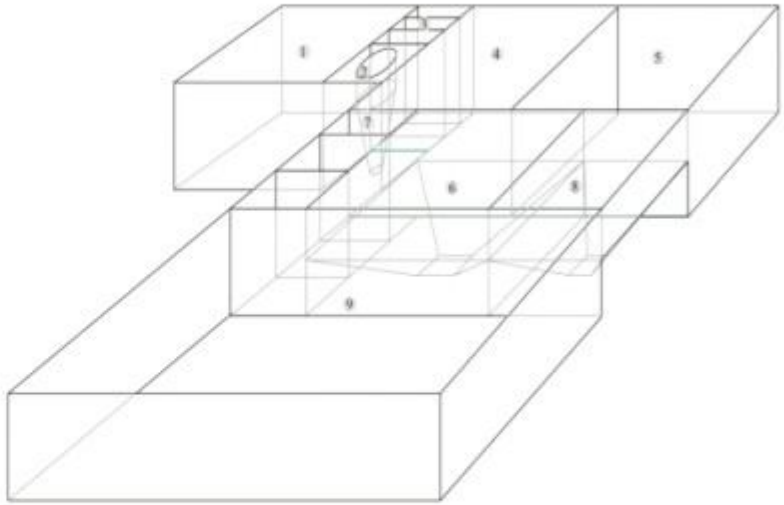
EPECO designed and built a wastewater Treatment plant at Areej Resort el Sokhna, Egypt. The WWTP based on **EPECO** 's epSBR 400 c is designed to treat an average daily flow of 400 cu m/day of domestic wastewater. epSBR 400 c plant can work with 150 % of its nominal capacity for 48 hours and at 12.5 of its nominal capacity for 7 days with no sacrifice of product quality or economics. To achieve this performance, **EPECO** "super nutrition technology" has been implemented. This will satisfy the extremely varying hydraulic loads of a typical "vacations & week ends resort". The epSBR 400 c treated effluent quality with biochemical oxygen demand BOD5=5, chemical oxygen demand COD=5 and suspended solids SS=5 is always guaranteed. Product water is suitable for irrigating delicate landscape and fountains.

Ref 02006


1 Lifting pump(s)(by others)
2 diffused air network -aeration.
3 sludge return air lift pump (I)
4 sludge return air lift pump (II)
5 diffused air network -super nutrition.
6 sludge disposal system
7 air blower (s)
8 chlorination pump
9 filter feed/backwash pump(s)
10 filter(s), media
11 nutrient feed injection system (I)
12 nutrient feed injection system (II)
13 hypochlorite injection system (I)
14 coagulant injection system
15 hypochlorite injection system (II)
E
G
D
C
B
A
H
F
A lift station/balancing tank
B aeration tank
C clarifier
D sludge holding tank
E air supply network
F super nutrion system
G chlorine contact tank
H chemical injection system
I tertiary filtration system
1
rev
drwng#
meb
meb
approved by
7/5/2005
18/9/2005
date
drawn by
checked by
approved by meb date 7/5/2006
scale none
original issue 18/9/2005 7/5/2006
title
P & Diagram
WWTP model epSBR 400c
to Areej el Sokhna Resort
drwng#
rev

Ref 02006

#	Compartment
1	lifting station
2	grit removal tank
3	fat, oil & grease removal tank
4	aeration tank I
5	aeration tank II
6	clarifier
7	chlorine contact tank
8	sludge holding & digestion tank
9	Irrigation tank



Important

This drawing is not intended for construction & building execution. Detailed constructional design and drawings must be prepared by professional and certified engineers.

Not to scale

All tanks are covered and have appropriate manhole for each compartment

Concrete works are not included in epeco/USA's scope of work

1	--	rev	drawn by		title: main tank isometric view WWTP model epSBR 400c
———	———	drwng#	checked by		
meb	meb	approved by	approved by meb	date 7/5/2006	to: Areej el Sokhna Resort
			scale none		
7/5/2005	18/9/2005	date	original issue 18/9/2005	7/5/2006	drwng# / rev --

Ref 02006

Wastewater Treatment Plant WWTP
al Waha Water Bottling
Wadi el Farigh,Egypt

Completed: 2004

Capacity Wastewater: 200 cu m/day

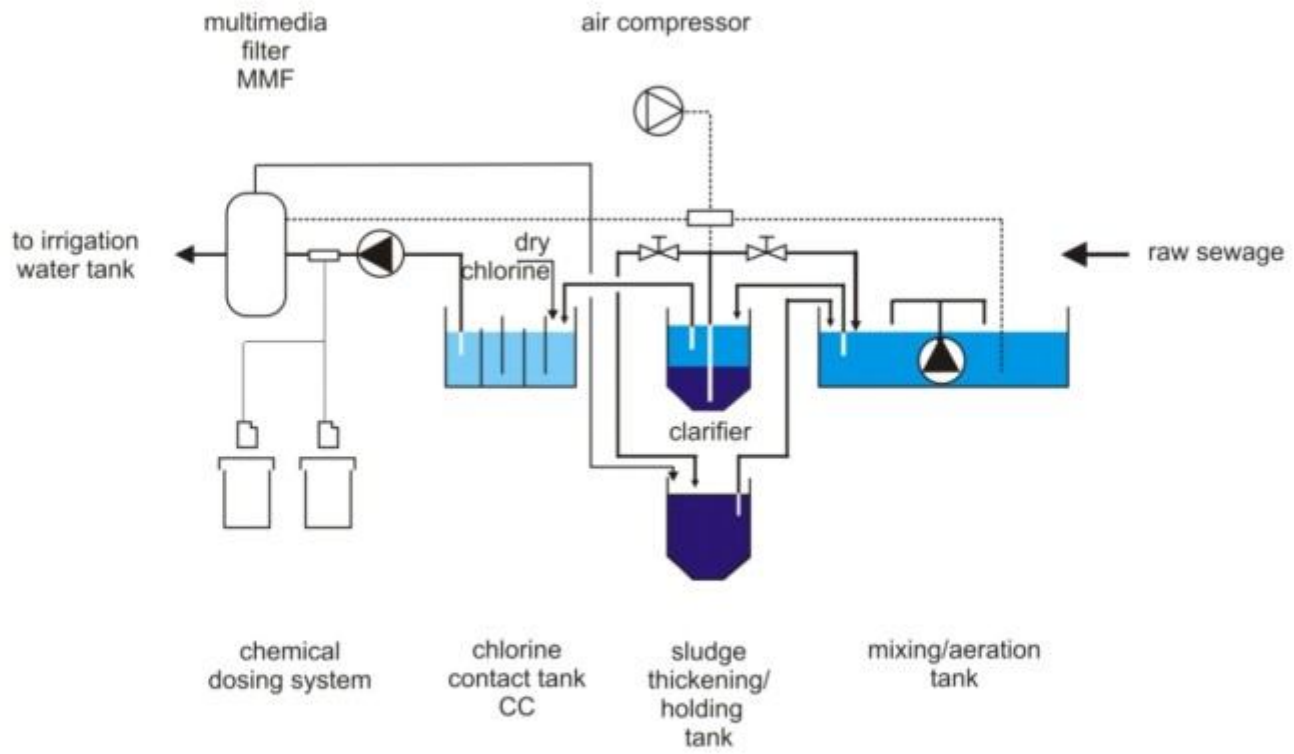
EPECO designed and built a wastewater Treatment plant at al Waha Bottling factory at Wadi el Farigh,70 km north east Cairo, Egypt. The WWTP based on **EPECO** 's epSBR 200 c is designed to treat an average daily flow of 200 cu m/day of domestic wastewater with 556 liter/m peak flow.

Ref 02005

Cont'd

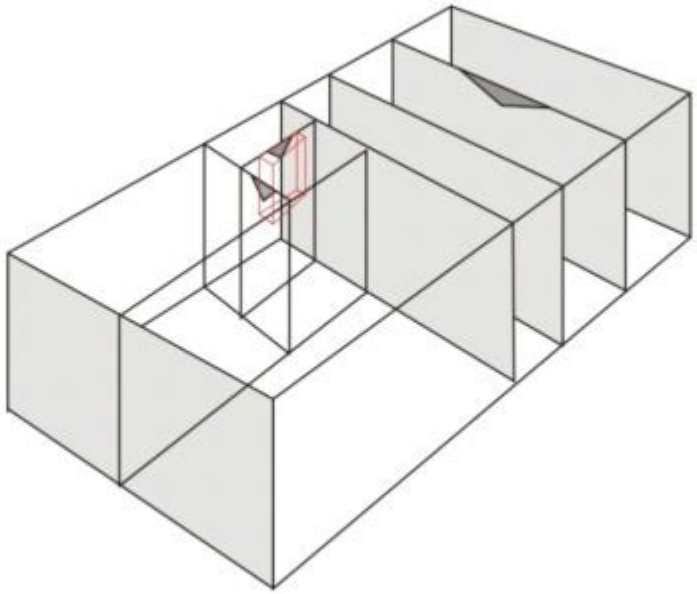
Wastewater Treatment Plant WWTP

EPECO designed the peak flow at the PF=4, as the factory is cleaned every 12 hours and large amounts of gray water is discharged into the sewer system. **EPECO 's** "super nutrition technology" has been implemented to compansate for the low strength wastewater feed during the peak loads. The epSBR 400 c treated effluent quality with biochemical oxygen demand BOD5=5, chemical oxygen demand COD=5 and suspended solids SS=5 is always achieved.



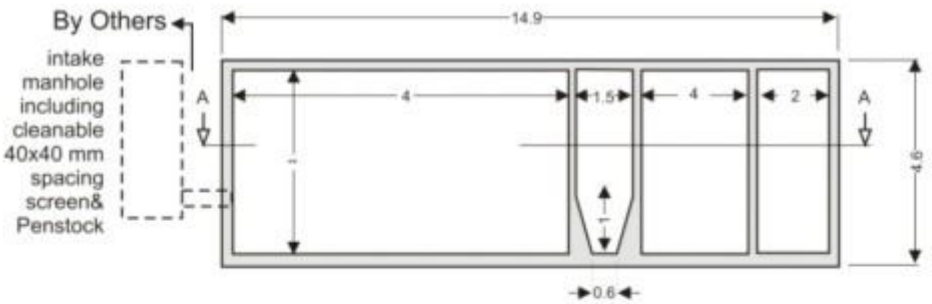
	REV 01	Drawn by:	Date: 28-2-2004	Title	WWTP epSBR 200 c Process Flow Diagram
	Drawn by:	Checked by:	Date: 28-2-2004		
	Checked by:	Approved by:	Date: 28-2-2004	el Waha Bottling	Project Name --
	Approved by:	Original Issue	28-2-2004		
	Date:	Scale NONE	Dimesions cm	DRWG # Waha05 REV 01	Project Number --

Ref 02005

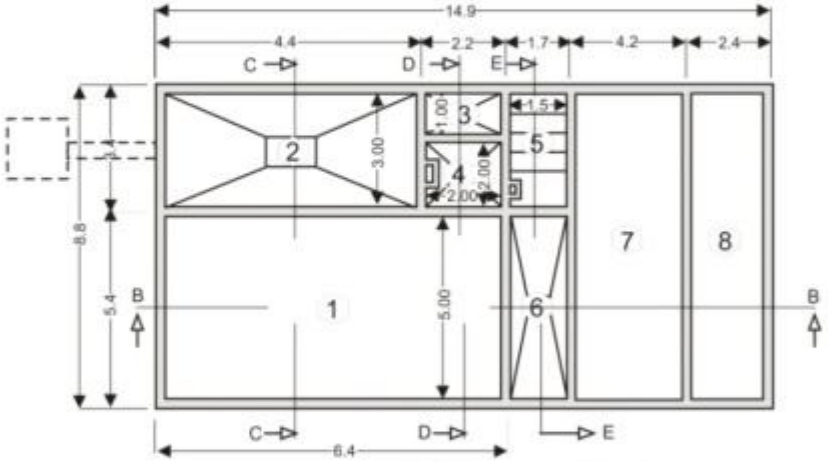


	REV 01	Drawn by:	Date: 28-2-2004	Title	WWTP epSBR 200 c isometric view	
	Drawn by:	Checked by:	Date: 28-2-2004			
	Checked by:	Approved by:	Date: 28-2-2004	el Waha Bottling		Project Name --
	Approved by:	Original Issue	28-2-2004			
	Date:	Scale NONE	Dimesions cm	DRWG # Waha15	REV 01	Project Number --

Ref 02005



section B-B



section A-A

#	tank
8	brine water tank
7	irrigation water tank
6	IWWTP, balancing tank
5	STP, chlorine contact tank
4	STP, clarifier
3	STP sludge hoding tank
2	STP, aeration tank
1	fire fighting water tank

Important

(1) Dimensions given are for guide only. Thicknesses of external and internal walls can be accurately sized as a part of structural design package (not included in epecoUSA scope of works)

(2) A manhole 60x60 cm to be constructed at the center of each tank.

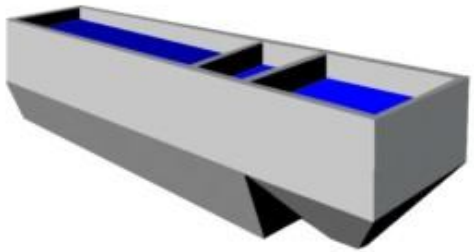
(3) Each manhole will be covered by steel door.

(4) Openings for imbeded parts, weirs and vents will be considered in detailed construction drawings according to the process designer recommendations.

	REV 01	Drawn by:	Date: 28-2-2004	Title	WWTP epSBR 200 c construction guidelines
	Drawn by:	Checked by:	Date: 28-2-2004		
	Checked by:	Approved by:	Date: 28-2-2004	el Waha Bottling	Project Name --
	Approved by:	Original Issue	28-2-2004		
	Date:	Scale NONE	Dimesions cm	DRWG # Waha19 REV 01	Project Number --

epeco.arch

Ref 02005



Wastewater Treatment Plant WWTP
Royal Paradise Resort
Sharm el Sheikh, Egypt

Completed: 2004

Capacity Wastewater: 1200 cu m/day

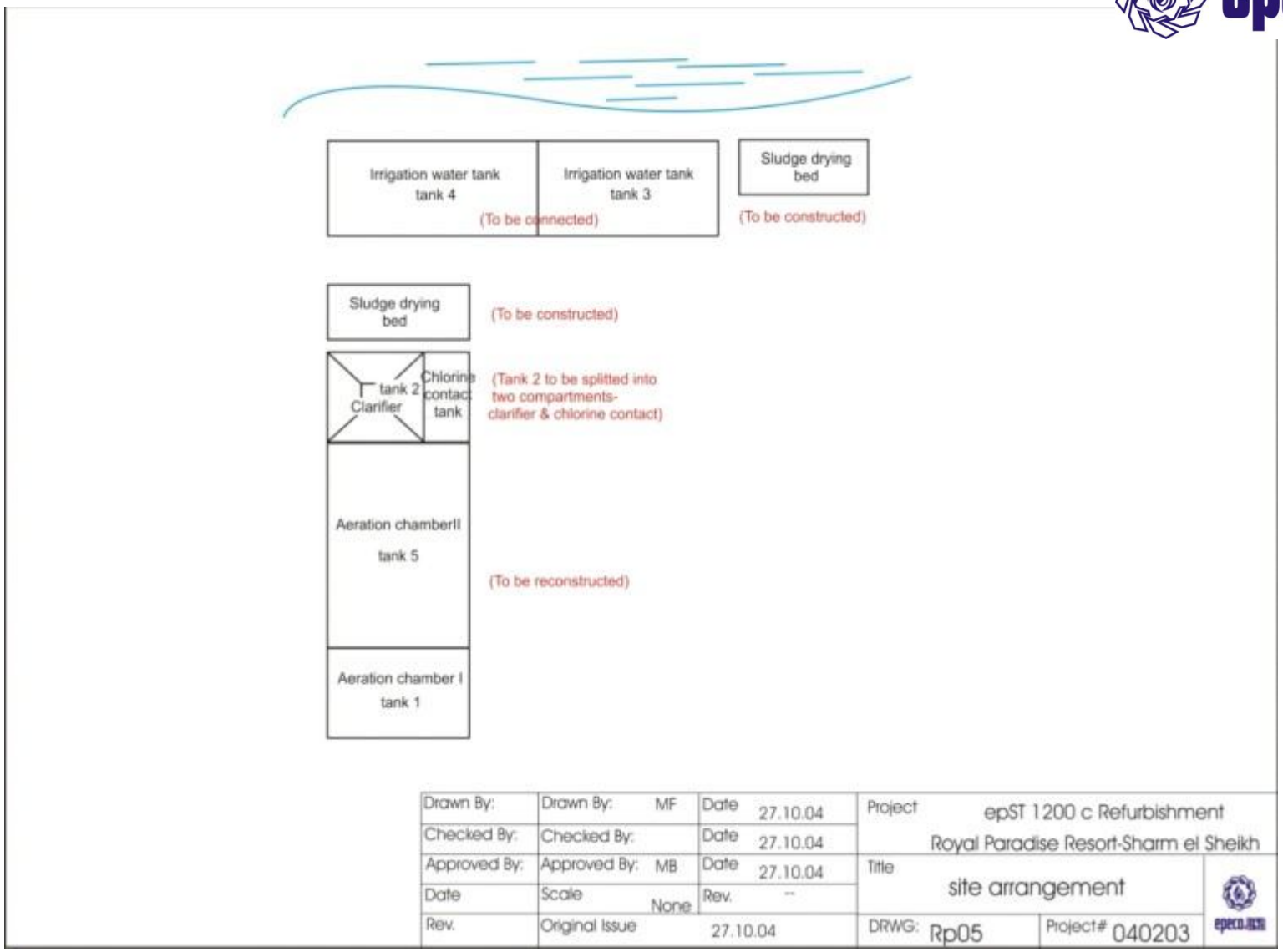
EPECO was awarded a contract to refurbish and upgrade the existing 400 cu m/day WWTP. The existing plant was built in fiberglass underground tanks (walls). All tanks were broken and wastewater seepage was every where and the plant was completely out of order. **EPECO** designed and built a wastewater Treatment plant based on **EPECO** 's epSBR 1200 c utilizing the existing equipment and adding more.

Ref 02004

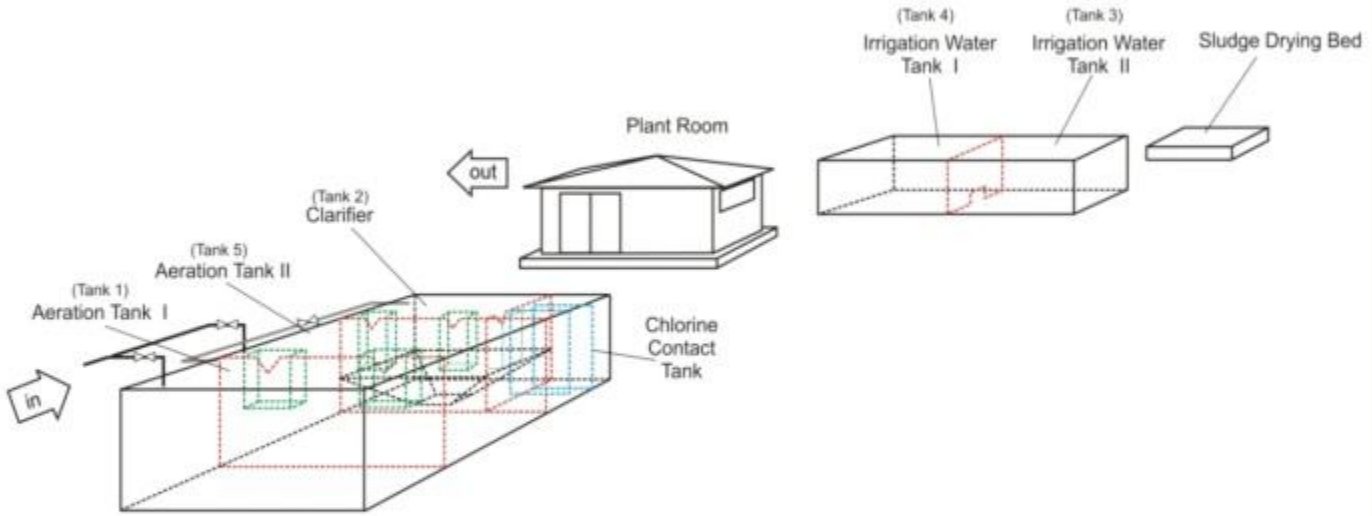
Cont'd

Wastewater Treatment Plant WWTP

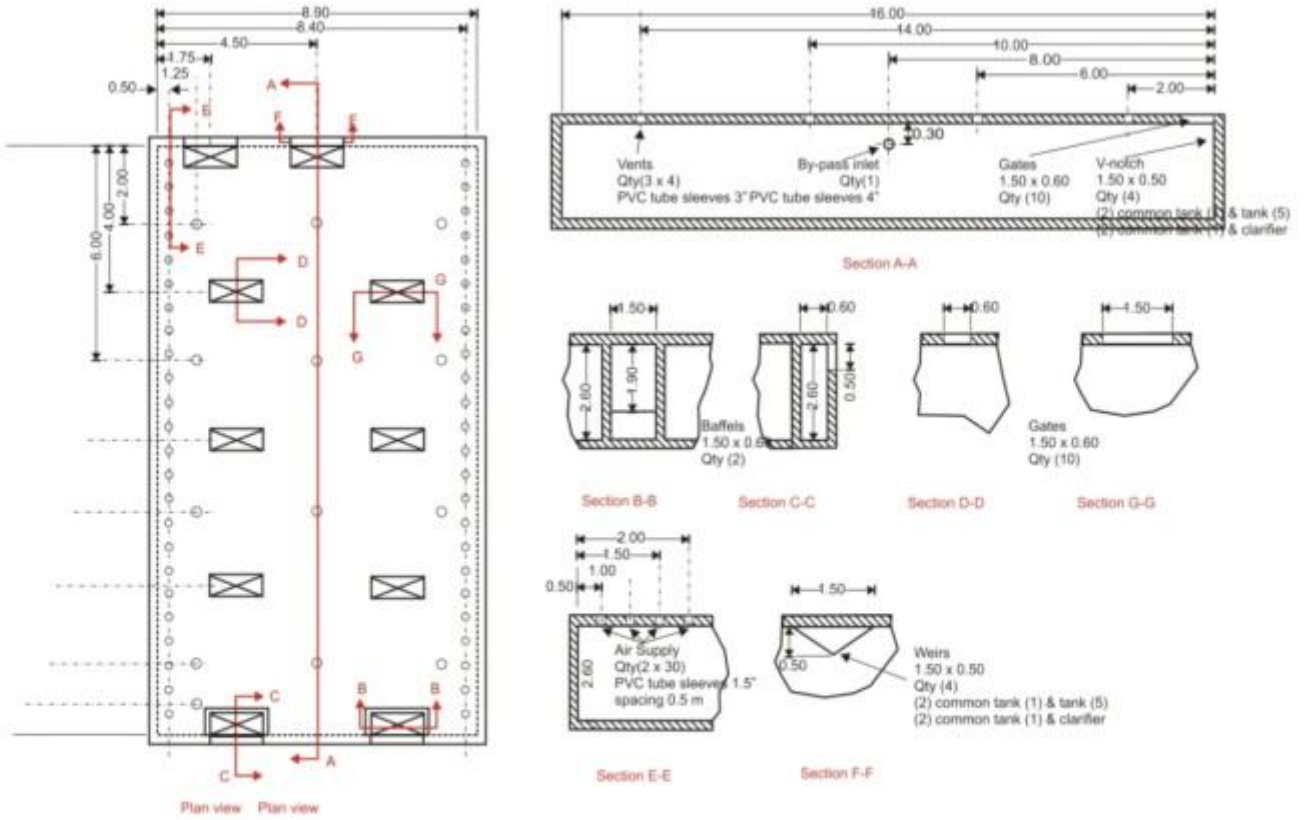
All damaged tanks were demoted, the soil was treated and new tanks were built instead. Many new tanks were added as will. The new epSBR 1200 c plant is fit with **EPECO 's** "super nutrition technology" which will allow for emergency operations at 150 % of plant's nominal capacity for 48 hours and at 12.5 of its nominal capacity for 7 days with no sacrifice of product quality or economics. This is an important feature for the dramatically varying hydraulic loading in Sharm el Sheikh resorts. The epSBR 1200 c treated effluent quality with biochemical oxygen demand BOD5=5, chemical oxygen demand COD=5 and suspended solids SS=5 is always guaranteed. Product water is suitable for irrigating delicate landscape and fountains in the resort.


Irrigation water tank
tank 4
(To be connected)
Irrigation water tank
tank 3
Sludge drying
bed
(To be constructed)
Sludge drying
bed
(To be constructed)
tank 2
Clarifier
Chlorine
contact
tank
(Tank 2 to be splitted into
two compartments-
clarifier & chlorine contact)
Aeration chamberII
tank 5
(To be reconstructed)
Aeration chamber I
tank 1
Drawn By:
Drawn By: MF
Date 27.10.04
Project epST 1200 c Refurbishment
Checked By:
Checked By:
Date 27.10.04
Royal Paradise Resort-Sharm el Sheikh
Approved By:
Approved By: MB
Date 27.10.04
Title site arrangement
Date
Scale None
Rev. --
Rev.
Original Issue 27.10.04
DRWG: Rp05
Project# 040203

Ref 02004



Drawn By:	Drawn By: MF	Date 27.10.04	Project	epST 1200 STP Refurbishment	
Checked By:	Checked By:	Date 27.10.04		Royal Paradise Resort-Sharm el Sheikh	
Approved By:	Approved By: MB	Date 27.10.04	Title	Isometric View	
Date	Scale None	Rev. --			
Rev.	Original Issue	27.10.04	DRWG: Rp04	Project# 040203	



Drawn By:	Drawn By: MF	Date	27.10.04	Project	epST 1200 STP Refurbishment
Checked By:	Checked By:	Date	27.10.04		Royal Paradise Resort-Sharm el Sheikh
Approved By:	Approved By: MB	Date	27.10.04	Title	Construction Guidelines
Date	Scale None	Rev.	--		Aeration Chamber II (Tank 5)
Rev.	Original Issue	27.10.04		DRWG: Rp04	Project# 040203

Industrial Wastewater Treatment Plant

Food Ruckers Restaurants.
Cairo, Egypt
Completed: 2000
Capacity: 200 cu m/day (2 systems)

EPECO was awarded a contract to design, manufacture and install an industrial wastewater treatment system at Food Ruckers Restaurants at Mohandseen & Maadi

Ref 02003

Cont'd

Industrial Wastewater Treatment Plant

EPECO's epWASTE industrial wastewater treatment system with average daily capacity 200 cu m/day includes chemical injection, mixing flocculators and lamella clarifier. The epWASTE is designed to separate the emulsified, non emulsified oils and the suspended solids. The system will clean the "Kitchen" wastewater before dischage to the public sewer system.

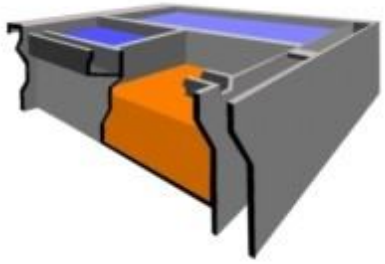
Ref 02003

Wastewater Treatment Plant WWTP
Police Resort
Marsa Matrouh, Egypt

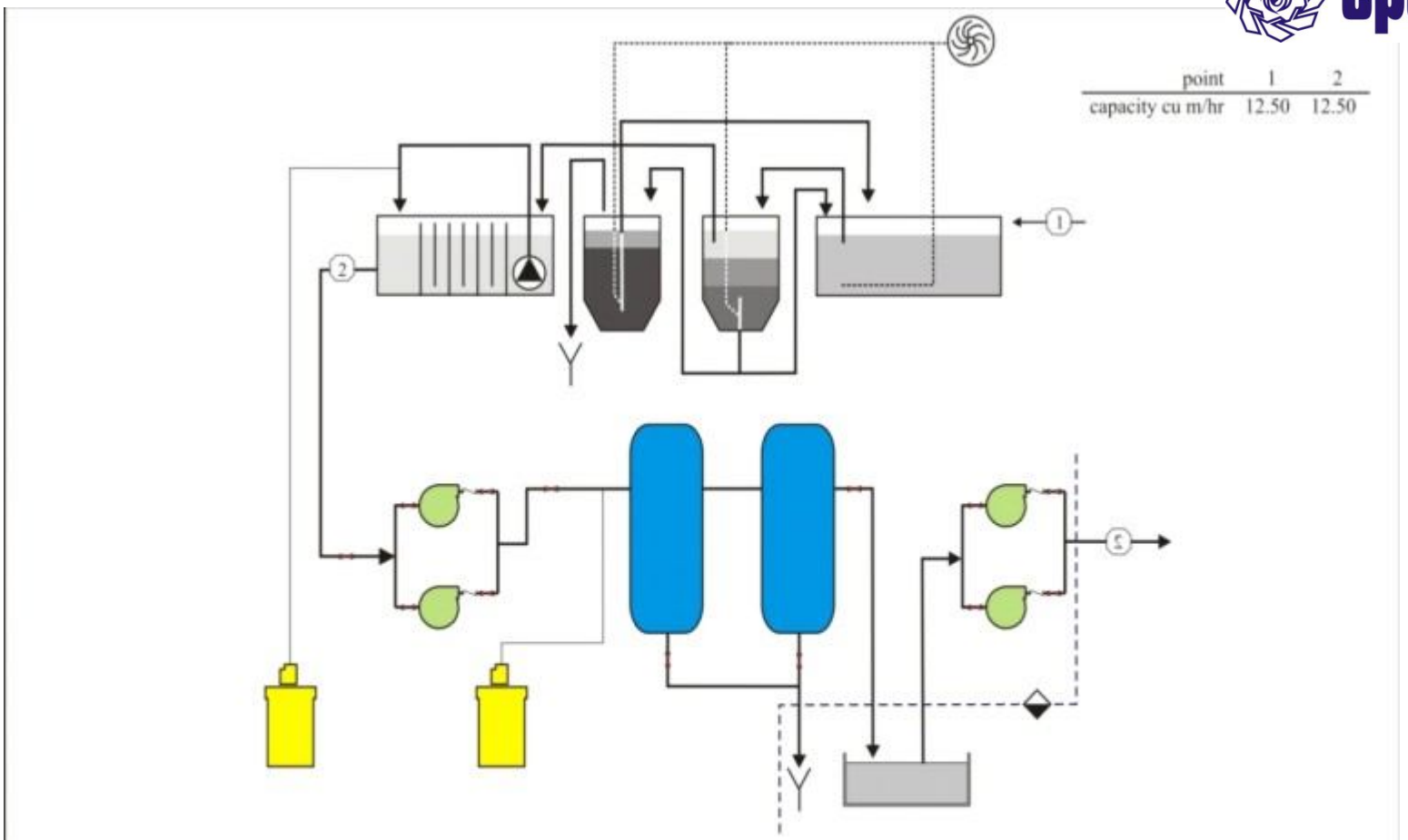
Completed: 2000

Capacity Wastewater: 400 cu m/day

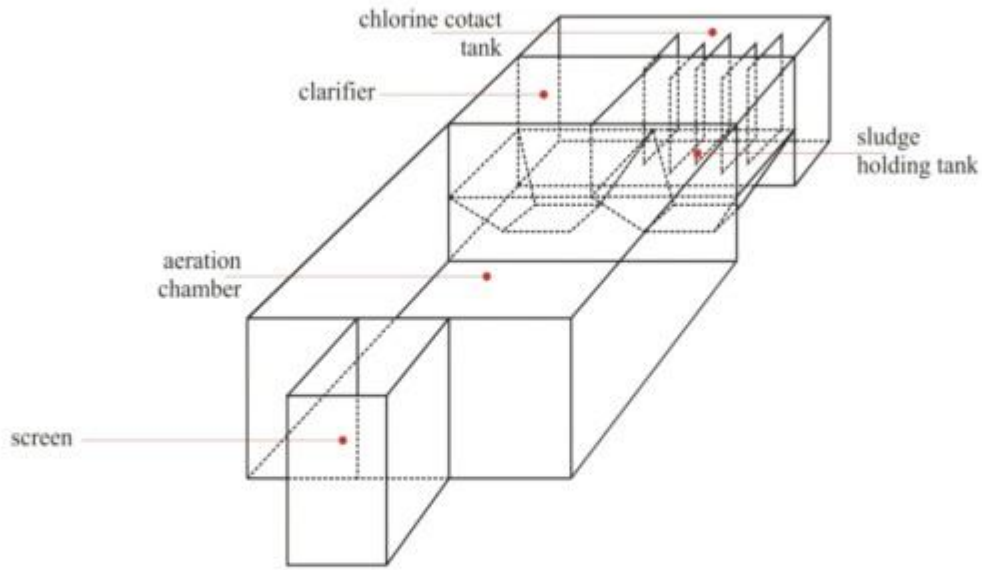
EPECO was awarded a contract to design and build a 450 cu m/day WWTP. **EPECO** designed and built an epST 400 c. . The epST 450c can work with 150 % of its nominal capacity for 48 hours and at 12.5 % of its nominal capacity for 7 days with no sacrifice of product quality or economics. To achieve this performance, **EPECO** "super nutrition technology" has been implemented. This will satisfy the extremely varying hydraulic loads of a typical "summer time resort". The epST 400 c treated effluent quality with biochemical oxygen demand BOD5=5, chemical oxygen demand COD=5 and suspended solids SS=5 is always guaranteed. Product water is suitable for discharge into the open sea.



Ref 02002

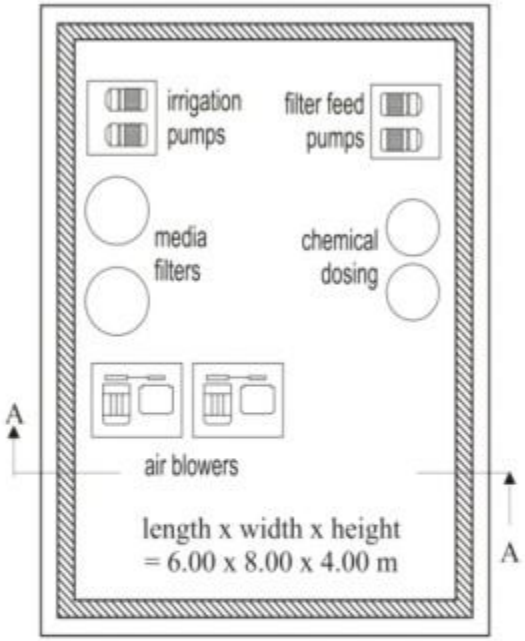


1	rev	drawn by		title	WWTP epST 450c at Police Camp-Marsa Matrouh Capacity: 400 cu m/day Process Flow Diagram
0502068	drwng#	checked by			
meb	approved by	approved by meb	date 9/23/1999		
6/1/2006	date	scale none		to al Riadh for Trading & Contracting Co.	
		original issue	7/18/1999	drwng# 01002-01	rev 1

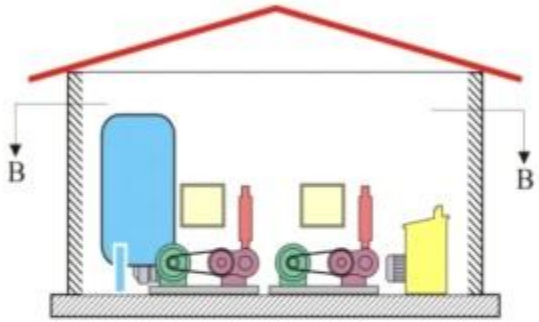


1	rev	drawn by		title	WWTP epST 450c at Police Camp-Marsa Matrouh Capacity: 400 cu m/day isometric view
0502068	drwng#	checked by			
meb	approved by	approved by meb	date 6/1/2000		
6/1/2006	date	scale none		to	al Riadh for Trading & Contracting Co.
		original issue	7/18/1999	drwng# 01002-02	rev 1

Ref 02002



Section B-B



Section A-A

1	rev	drawn by		title —	WWTP epST 450c at Police Camp-Marsa Matrouh Capacity: 400 cu m/day plant room arrangement
0502068	drwng#	checked by			
meb	approved by	approved by meb	date 6/1/2000		
6/1/2006	date	scale none		to al Riadh for Trading & Contracting Co.	
		original issue 7/18/1999		drwng# 01002-03	rev 1

Ref 02002

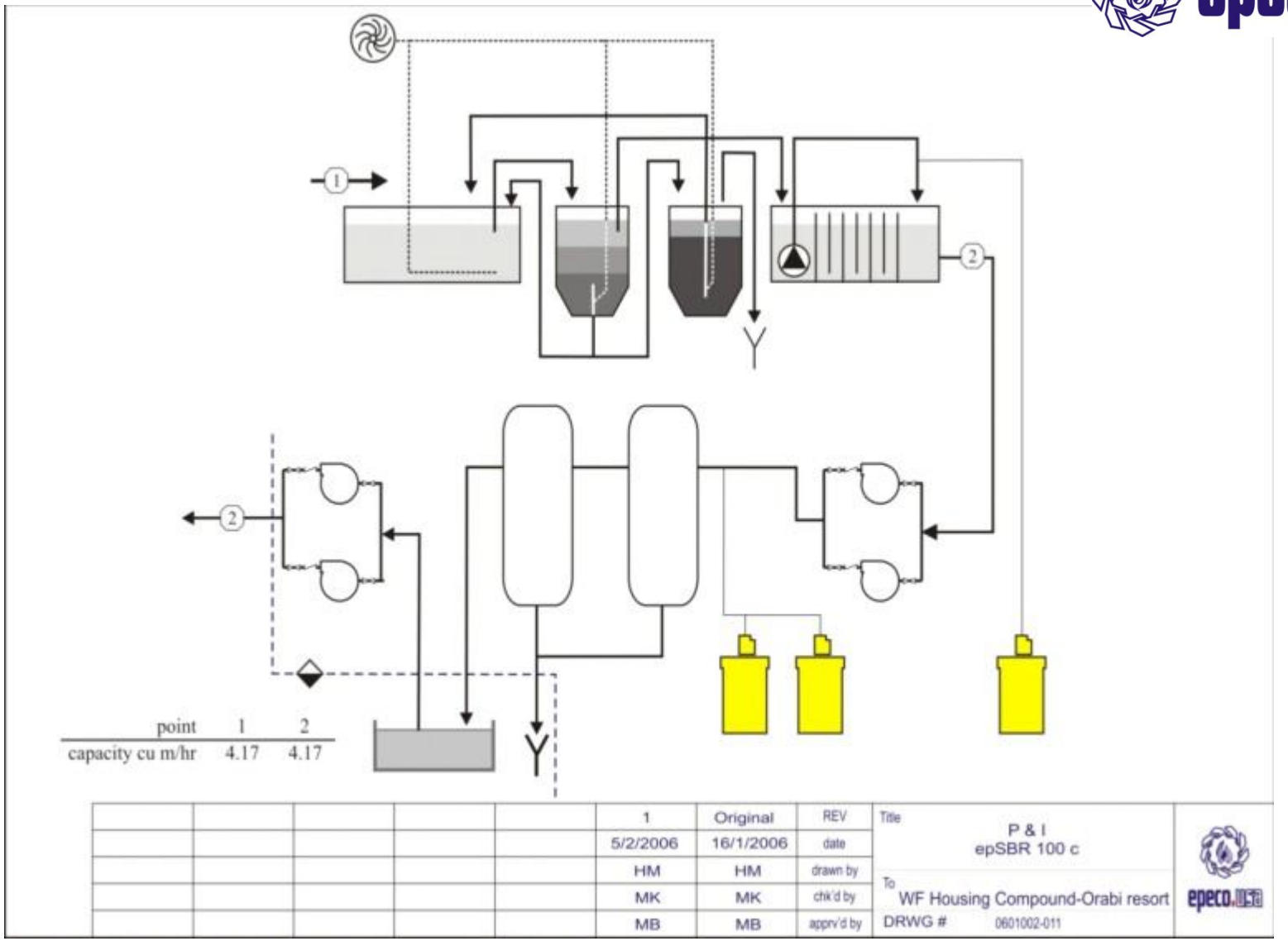
Wastewater Treatment Plant WWTP
WF Housing Compound at Orabi Resort
Cairo, Egypt

Completed: 2006

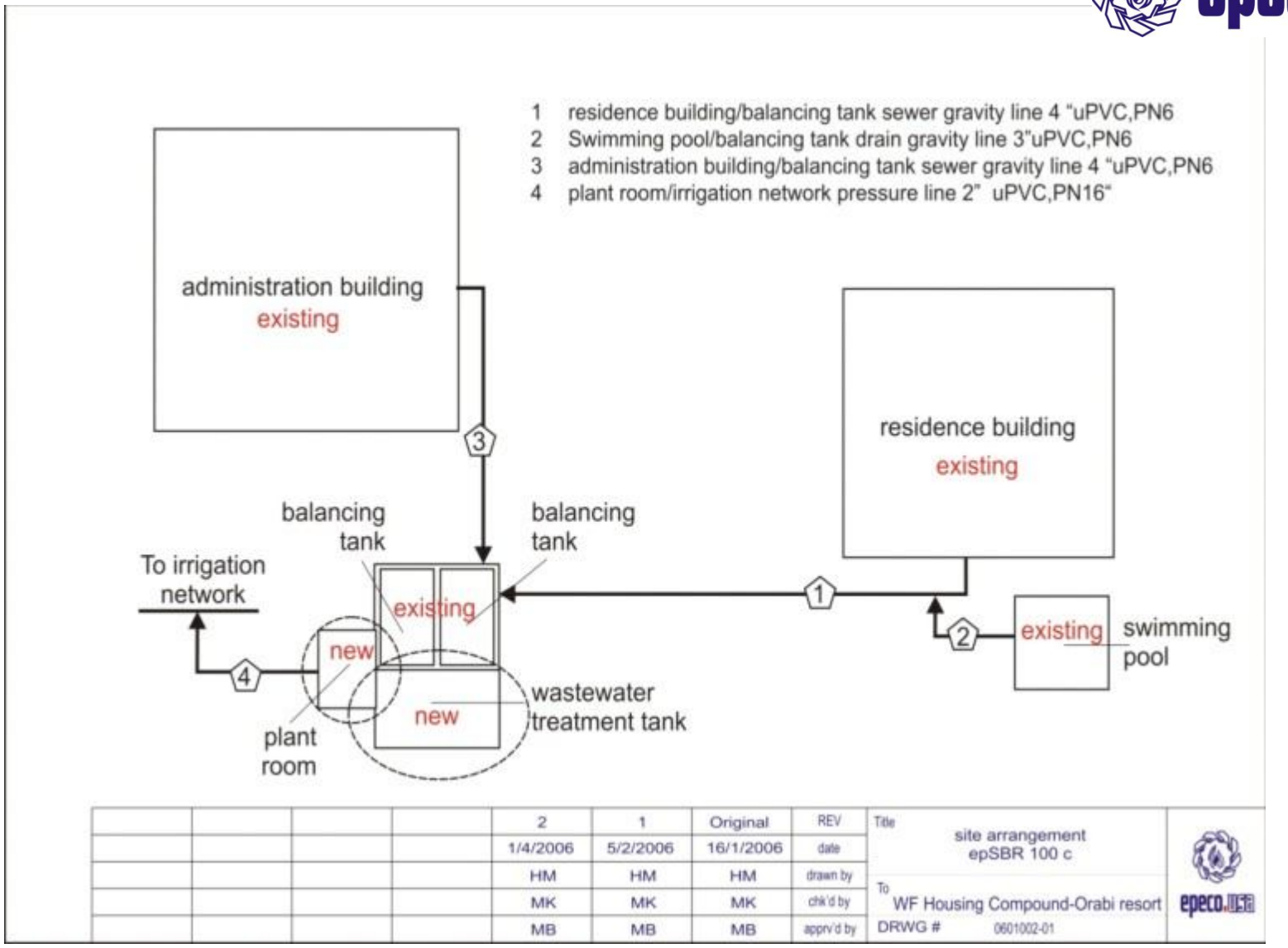
Capacity Wastewater: 100 cu m/day

EPECO was awarded a contract to design and build a 100 cu m/day WWTP at WF Housing Compound at Orabi Resort, North Cairo, Egypt. **EPECO** designed and built an epST 100 c plant . The epST 100c is enhanced by epecoUSA's "super nutrition technology" which allows for operation at 150 % of the nominal capacity for 48 hours and at 12.5 % for 7 days with no sacrifice of product quality or economics. The epST 100 c treated effluent quality with biochemical oxygen demand BOD5=5, chemical oxygen demand COD=5 and suspended solids SS=5 is always guaranteed. Product water is suitable for reuse for irrigation.

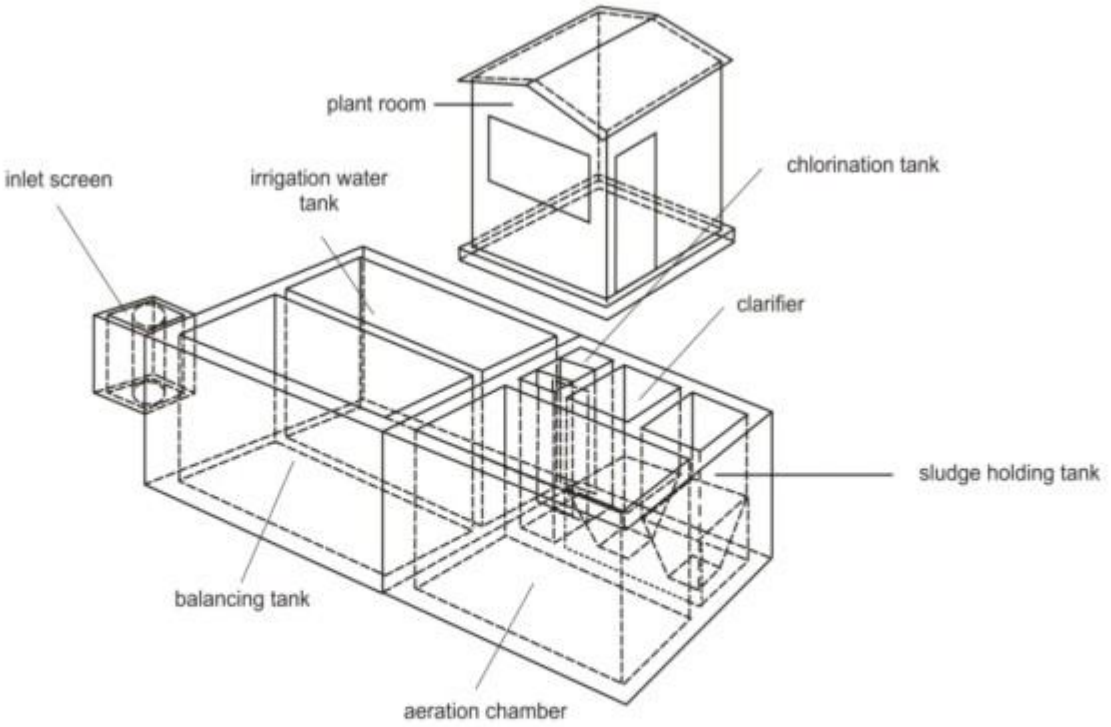
Ref 02001


1
2
2
point 1 2
capacity cu m/hr 4.17 4.17
1 Original REV
5/2/2006 16/1/2006 date
HM HM drawn by
MK MK chk'd by
MB MB apprv'd by
Title
P & I
epSBR 100 c
To
WF Housing Compound-Orabi resort
DRWG # 0601002-011
epeco

Ref 02001

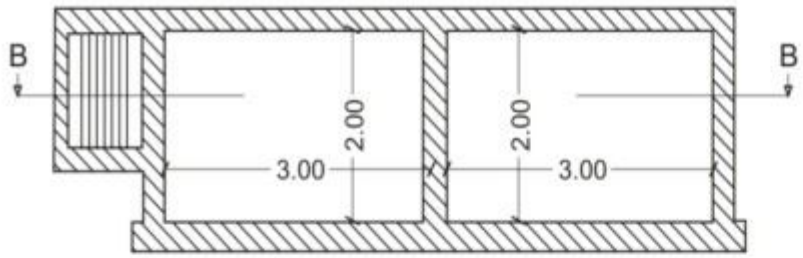

1 residence building/balancing tank sewer gravity line 4 "uPVC,PN6
2 Swimming pool/balancing tank drain gravity line 3"uPVC,PN6
3 administration building/balancing tank sewer gravity line 4 "uPVC,PN6
4 plant room/irrigation network pressure line 2" uPVC,PN16"
administration building
existing
residence building
existing
balancing tank
balancing tank
To irrigation network
existing
new
new
wastewater treatment tank
plant room
existing
swimming pool
1
2
3
4
2
1
Original
REV
1/4/2006
5/2/2006
16/1/2006
date
HM
HM
HM
drawn by
MK
MK
MK
chk'd by
MB
MB
MB
apprv'd by
Title
site arrangement
epSBR 100 c
To
WF Housing Compound-Orabi resort
DRWG #
0601002-01
epeco

Ref 02001

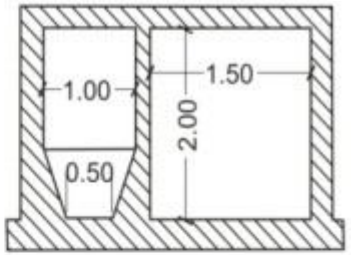


				2	1	Original	REV	Title: isometric view epSBR 100 c
				1/4/2006	5/2/2006	16/1/2006	date	
				HM	HM	HM	drawn by	
				MK	MK	MK	chk'd by	To: WF Housing Compound-Orabi resort
				MB	MB	MB	apprv'd by	DRWG # 0601002-05

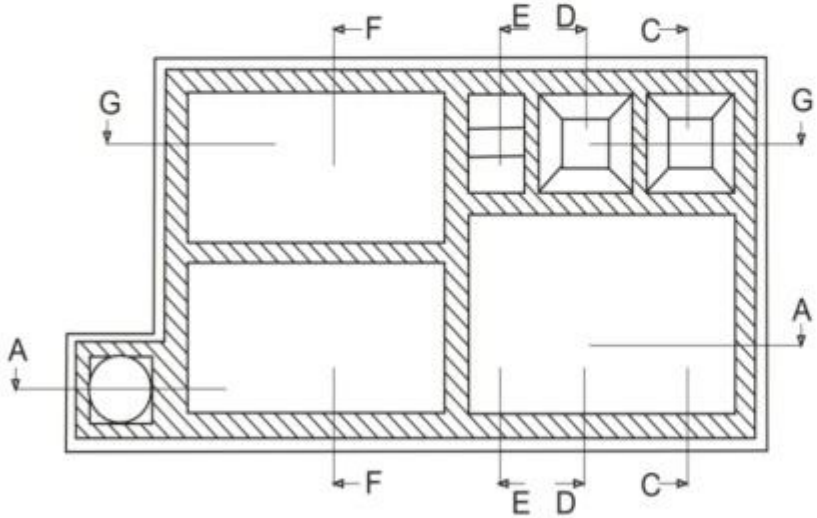
Ref 02001



section A-A



section C-C



section B-B

Not to Scale

					1	Original	REV	Title: construction guidelines epSBR 100 c
					5/2/2006	16/1/2006	date	
					HM	HM	drawn by	To: WF Housing Compound-Orabi resort
					MK	MK	chk'd by	
					MB	MB	apprv'd by	DRWG # 0601002-07

Ref 02001

vacuum wastewater collection & transfer

Wastewater Collection & Transfer System

RAKIA Industrial Zone-Ras el Khaimah Investment Authority
Ras al Khaimah/United Arab Emirates
Flow Capacity: 2400 cu m/day
Sewer Mains Length: 17400 m

Completed: 2009

EPECO designed and built a domestic wastewater collection and transfer vacuum sewer system at RAKIA industrial zone-Ras al Khaimah, UAE. The vacuum sewer system is based on **epVAC.VSS** design concept, however the sewer network was split into three independent networks and plant rooms, with 100% interlinking possibility.

Ref 03011

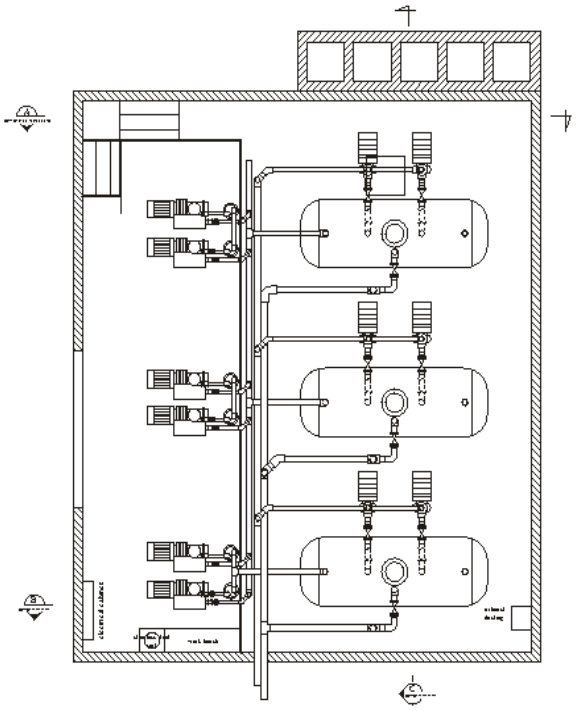
Cont'd

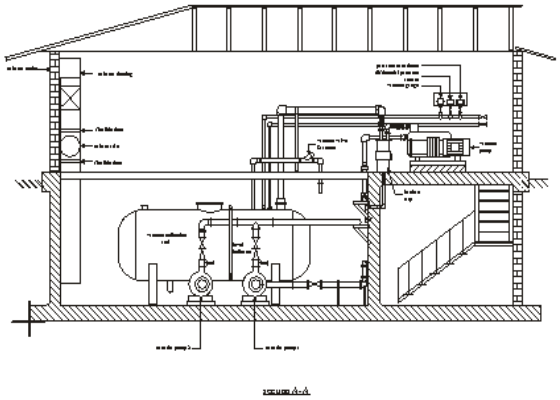
Wastewater Collection & Transfer System

The total sewer network mains length is 17'400 m with average daily capacity= 2400 cu m/day and peak hourly flow capacity =350 cu m/hr. The mains are made of high density polypropylene HDPE pipes with diameter range 200-250 mm and terminals are made of 90-110 mm diameter HDPE pipes.

According to the design, the total system can work as one integral sewer network or partially in one or two of the sub-networks (1/3 or 2/3 of the total) . Any of the sub networks be driven by the full system power (integrated plant room). This feature allows for collection and transfer of wastewater from any overloaded plot under fully automated hydraulic profile

Cont'd





Rev	Description	DRWN	CHKD	APRVL	DATE

Project: Vacuum Sewer System 2400 m3/day-KAK FZ	epecoUSA
Title: Vacuum Plant Room General Arrangement	
Projection:	Scale: None / Dimensions: Metric
Size: A3 / Document No: 07004-02-01-02-00 / Sheet: 1 / No of Sheets: 50	

Ref 03011

Vacuum Sewer Collection & Transfer System
GANTEC Housing Compound
At Orabi Farms, North Cairo, Egypt

Completed: 2007

Capacity : 500 cu m/day

EPECO designed and built a vacuum sewer **VSS** collection & transfer system at GANTEC Housing Compound, at Orabi Farms, North Cairo, Egypt.

The **VSS** from **EPECO** is capable of collection and transfer of an average of 500 cu m/day of wastewater with a peak flow capability of 1736 liter/min. The residents of the housing compound always have social events every week end (2 days a week) which **EPECO** considered in assuming the Peak Flow PF factor (PF=5) .

The vacuum sewer system mains length is 1016 m and terminals length 560 m. A total of 21 vacuum valve interfaces has been installed. epecoUSA

Ref 03010

Wastewater Collection
& transfer system
Areej Resort el Sokhna, Egypt

Completed: 2006
Capacity Wastewater: 1200 cu m/day

EPECO designed and built a vacuum sewer **VSS** collection & transfer system at Areej el Sokhna Resort, 150 km south-east Cairo, Egypt.
The **VSS** from **EPECO** is capable of collection and transfer of an average of 1200 cu m/day of wastewater with a peak flow capability of 2916 liter/min. The capacity of the VSS system is nearly 300% of the same for the WWTP, as the VSS is used to collect & transfer the drain water from several swimming pools, artificial lakes and fountains.
A total of 45 vacuum interfaces valves and 2000 mains are installed .

Ref 03009

Vacuum Sewer System/ Royal Evolution Sea Cruise Ship

Royal Emperor Int. Touristic Co./Mr. Yasser Moafi
Hurghada, Egypt
Completed: 2000
Capacity Wastewater: 12 cu m/day

EPECO was awarded a contract to design, manufacture and install a vacuum collection & transfer sewer system on Cruise Ship “Royal Evolution”.
The 80 ft ship Royal Evolution has12 double bed cabinets all fit with vacuum toilets and vacuum sink. One kitchen with 2 vacuum sinks and two floor drains are connected to the vacuum sewer systems. The vacuum sewer system collects and transfers the wastewater to the **EPECO** ’s wastewater treatment system marincelST 12.

Ref 03008

Vacuum Sewer System / Kareem II Sea Cruise Ship

Virgin Safari/Mr. Khaled Naguib
Hurghada, Egypt
Completed: 2000
Capacity Wastewater: 24 cu m/day

EPECO was awarded a contract to design, manufacture and install a vacuum collection & transfer sewer system on the Ship Cruise "Kareem II".
The 120 ft ship Kareem II has 18 double bed cabinets, 2 master bed rooms all fit with vacuum toilets and vacuum sink. One kitchen with 3 vacuum sinks and two floor drains are connected to the vacuum sewer systems. The vacuum sewer system collects and transfers the wastewater to the **EPECO** 's wastewater treatment system marincelST 24.

Ref 03007

Vacuum Sewer System/ AquaLine Sea Cruise Ship

AquaLine Diving Cuises Co.
Hurghada, Egypt
Completed: 2001
Capacity Wastewater: 12 cu m/day

EPECO was awarded a contract to design, manufacture and install a vacuum collection & transfer sewer system on Cruise Ship "AquaLink".
The 80 ft ship Aqualink has8 double bed cabinets all fit with vacuum toilets and vacuum sink. One kitchen with 2 vacuum sinks and two floor drains are connected to the vacuum sewer systems. The vacuum sewer system collects and transfers the wastewater to the **EPECO** 's wastewater treatment system marincelST 12.

Ref 03006

Vacuum Sewer System / Prince Ala'a el Deen Sea Cruise Ship

El Yassmin Beach for Touristic Projects/Mr. Sameh Hwaidak
Hurghada, Egypt
Completed: 2002
Capacity Wastewater: 12 cu m/day

EPECO was awarded a contract to design, manufacture and install a vacuum collection & transfer sewer system on the Ship Cruise "Ala'a el Deen".
The 80 ft ship Ala'a el Deen has 8 double bed cabinets, all fit with vacuum toilets and vacuum sink. One kitchen with 2 vacuum sinks and two floor drains are connected to the vacuum sewer systems. The vacuum sewer system collects and transfers the wastewater to the **EPECO**'s wastewater treatment system marincelST 12.

Ref 03005

Vacuum Sewer System/ Sara Divers Sea Cruise Ship

Mr. Abdul Fatah Ga'far
Hurghada, Egypt
Completed: 2002
Capacity Wastewater: 12 cu m/day

EPECO was awarded a contract to design, manufacture and install a vacuum collection & transfer sewer system on Cruise Ship "Sara Divers".
The 80 ft ship Sara Divers has 12 double bed cabinets all fit with vacuum toilets and vacuum sink. One kitchen with 2 vacuum sinks and two floor drains are connected to the vacuum sewer systems. The vacuum sewer system collects and transfers the wastewater to the **EPECO** 's wastewater treatment system marincelST 12.

Ref 03004

Vacuum Sewer System / Princess Rasha Barge

el Essra'a for Maritime Service
Port Tawfiq, Egypt
Completed: 2003
Capacity Wastewater: 36 cu m/day

EPECO was awarded a contract to design, manufacture and install a vacuum collection & transfer sewer system on the Princess Rasha Barge.
The 180 ft ship Princess Rasha has 3 single bed cabinets, and 4 sailors wards-4 beds each, in addition to one kitchen with 3 vacuum sinks and 2 floor drains All are connected to the vacuum sewer systems. The vacuum sewer system collects and transfers the wastewater to the **EPECO** 's wastewater treatment system marincelST 36.

Ref 03003

Vacuum Sewer System/ Lamination Sea Cruise Ship

Mr. Roland Heinz
Hurghada, Egypt
Completed: 2004
Capacity Wastewater: 24 cu m/day

EPECO was awarded a contract to design, manufacture and install a vacuum collection & transfer sewer system on the Cruise Ship "Lamination".
The 80 ft ship Lamination has 20 double bed cabinets all fit with vacuum toilets and vacuum sink. One kitchen with 3 vacuum sinks and two floor drains are connected to the vacuum sewer systems. The vacuum sewer system collects and transfers the wastewater to the **EPECO** 's wastewater treatment system marincelST 24.

Ref 03002

Vacuum Sewer System / Lady Nada Barge

el Rasheed for Maritime Service
Ras Ghareb, Egypt
Completed: 2007
Capacity Wastewater: 36 cu m/day

EPECO was awarded a contract to design, manufacture and install a vacuum collection & transfer sewer system on the Lady Nada Barge.
The 200 ft ship Lady Nada has 4 single bed cabinets, and 5 sailors wards-4 beds each, in addition to one kitchen, with 3 vacuum sinks and 2 floor drains All connected to the vacuum sewer systems. The vacuum sewer system collects and transfers the wastewater to the **EPECO** 's wastewater treatment system marincelST 36.

Ref 03001