



QUALIFICATIONS
&
REFERENCE INSTALLATIONS

ODOUR CONTROL SYSTEMS



EVOQUA CONTACT

Evoqua Water Technologies LLC
Mr. Devang Pujara
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CONTENTS OF THIS DOCUMENT ARE CONFIDENTIAL

QUALIFICATIONS

No supplier of odour control equipment can provide the financial and technical strength and stability that Evoqua Water Technologies Unit brings to this project.

We would like to underline Evoqua Water Technologies experience and reputation in the odour control industry. We are a leading supplier in the industry offering a full line of bioscrubbers, biofilters, chemical scrubbers, and activated carbon odour control systems. Evoqua Water Technologies, through its predecessor companies Siemens Water Technologies, USFilter and RJ Environmental have been supplying odour control systems to the municipal wastewater treatment business for over 25 years. Since 1991, EVOQUA has provided over 2,000 odour control systems worldwide, including over 700 biological odour control systems.

Background – Municipal Odour Control:

Evoqua Water Technologies (formerly Siemens Water Technologies) has been designing and building odour control systems for municipal and industrial customers since 1991. Our principal engineers have been working in the odour control field since its inception in the 1970's.

Evoqua offers a full range of odour control technologies including biofilters, bio-trickling filters, chemical scrubbers and a variety of activated carbon adsorption systems.

Our standard odour control products include:

- ZABOCS-BTF and ZABOCS-P series bio-trickling filters
- ZABOCS inorganic media, two-stage packaged hybrid biofilter
- Multi-stage LO/PRO chemical scrubber systems
- Multi-stage Polystage chemical scrubber systems
- Conventional or custom packed tower chemical scrubbers
- Modular, skid-mounted activated carbon systems
- Conventional dual bed activated carbon systems
- Custom V-bank activated carbon systems (for high air flow applications)
- MIDAS OCM high H₂S capacity odour control media (patented catalytic carbon media)

In addition to our standard odour control products we offer a complete line of emergency scrubber systems for containment and treatment of accidental releases of chlorine and other toxic gases. Since 1991, EVOQUA has provided close to 700 emergency scrubber systems worldwide. We have also designed degasifier systems for removing H₂S from ground water. These systems incorporate an air stripper tower followed by an H₂S chemical scrubber or biological scrubber. We also routinely custom-engineer systems for special odour control applications.

Odour Control Installations:

The following table summarizes over 2,000 odour control system worldwide installations we have supplied since 1991. No other supplier has close to our depth of experience designing, building, commissioning and servicing of different odour control technologies.

Odour Control Products	Air Flow Capacities, m3/hr		Number of Installations
	Low	High	
Conventional Chemical Scrubbers	1,700	110,000	195
LO/PRO & Polystage Chemical Scrubbers	1,700	51,000	540
ZABOCS Inorganic Media Biofilters	170	8,500	531
ZABOCS Bio-trickling Scrubbers	3,400	27,500	179
Activated Carbon Adsorbers	100	110,000	644
		Total :	2,089



EXPERIENCE STATEMENT

CERTIFICATE OF EXPERIENCE LETTERS

CERTIFICATION OF EXPERIENCE, DESIGN AND MANUFACTURING

Evoqua certifies and affirms that we have been designing, manufacturing and providing odour control systems for greater than 10 years. Evoqua's odour control teams originate with the Westates Carbon and RJ Environmental brands.

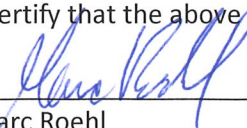
Westates Carbon started in the US in the 1980s providing vapor phase odour control solutions and systems to industrial markets and municipal wastewater facilities. The Westates portfolio consists of over a dozen patents and technologies associated with vapor phase odour control. Under the Westates legacy name, Evoqua continues to manufacture, supply, regenerate and handle activated carbon products for systems all over the world.

RJ Environmental started in the US in 1991 and provides vapor phase odour control solutions and systems dedicated to municipal and industrial wastewater. With installations in more than 45 countries, our technologies include biological, activated carbon and chemical scrubber systems for wastewater plants and lift stations. Evoqua's RJ Environmental brand includes the largest installation base, largest technology offering, numerous patents and more experience with wastewater odour applications than any other manufacturer.

Timeline of Odour Control Technologies within Evoqua

- 1996 - Westates Carbon was acquired by USFilter Corporation.
- 1997 - RJ Environmental was acquired by USFilter Corporation
- 1999 - US Filter Corporation was acquired by Vivendi Water; name later changed to Veolia Environment
- 2004 - Veolia Environment was acquired by Siemens and renamed Siemens Water Technologies
- 2014 - Siemens Water Technologies was acquired by private equity group AEA Investors, LP. Upon acquisition, the name was changed to Evoqua Water Technologies, LLC
- 2017 - Evoqua Water Technologies, LLC becomes publicly traded on the New York Stock Exchange under ticker "AQUA".

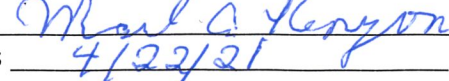
I certify that the above information is true and correct to the best of my knowledge and belief.



Marc Roehl

Vice President and General Manager - Municipal Division

This signature was acknowledged before me on November 12, 2018
by Marilyn Kenyon in the State of Wisconsin, County, of Waukesha.

Notary Signature 
My commission expires 4/22/21



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August 9, 2018

Certificate of Equipment Experience Record

The undersigned Owner/ Authorized Representative of the Owner of the Collier County, located in Naples Florida representing the same do hereby certify that the Bio-trickling Filter, furnished by Evoqua Water Technologies has been installed at our facility's Headwork's, Eq tanks, MLE process and sludge processing building since 2007 and has been operating satisfactory since that time.

North County Water Reclamation Facility

The design airflow rate is for a 24.1 MGD Treatment Facility

1 Bio-trickling Filter Servicing Headworks Systems at 10,500 CFM

Sincerely,

Juan Arteaga III
Odor Control Specialist

Phone: Cell: 239-272-9644

Email: Juan.Arteaga@colliercountyfl.gov





August 9, 2018

Certificate of Equipment Experience Record

The undersigned Owner/ Authorized Representative of the Owner of the Collier County, located in Naples, Florida representing the same do hereby certify that the LO/PRO scrubber systems, furnished by Evoqua Water Technologies has been installed at our facility's Headwork's, Eq tanks, MLE process and sludge processing building since 2007 and has been operating satisfactory since that time.

North County Water Reclamation Facility

The design airflow rate is for a 24.1 MGD Treatment Facility

2 LO/PROS Servicing 2 EQ Systems at 17,500 CFM

2 LO/PROS Servicing Headworks, 2 Digesters and 2 Aerated Sludge Process at 25,000 CFM

2 LO/PROS Servicing 14 MLE Passes at 35,000 CFM

South County Water Reclamation Facility

The design airflow rate is for a 16 MGD Treatment Facility

1 LO/PRO Servicing 2 EQ Systems at 25,000 CFM

1 LO/PRO Servicing 1 Headworks Process at 7,500 CFM

2 LO/PROS Servicing 12 MLE Passes at 25,000 CFM

1 LO/PRO Servicing Bio Solids Systems at 7,500 CFM

Sincerely,

Juan Arteaga III
Odor Control Specialist

Phone: Cell: 239-272-9644

Email: Juan.Arteaga@colliercountyfl.gov





CITY OF TAMPA

Bob Buckhorn, Mayor

Wastewater Department

Eric A. Weiss, P.E.
Director

August 10, 2018

Mr. Daryl Bond
Technical Sales Manager
Evoqua Water Technologies LLC
Odor Control Systems - Municipal
Sinking Spring, PA 19608

RE: Equipment Experience Record

Dear Mr. Bond,

I am confirming that Evoqua Water Technologies LLC has installed Bio Trickling Filter systems at Kinnan Pumping Station, East Tampa Pumping Station, Perry Pumping Station, and at Fleet Maintenance in the City of Tampa wastewater treatment system during the past several years and that all of the systems have been operating satisfactorily since their installations.

LOCATION NAME	Location Address	Leased or Owned	Process Air Flow	Inlet H2S Concentration
KINNAN PUMPING STATION	18225 Kinnan St.	Leased from EVOQUA	2,000 CFM	150-300 ppm
EAST TAMPA PUMPING STATION	1201 N. 39th St.	Leased from EVOQUA	13,500 CFM	300-500 ppm
PERRY PUMPING STATION	2900 Perry St.	Leased from EVOQUA	1,500 CFM	10-150 ppm
FLEET MAINTENANCE	1508 N. Clark Ave.	Leased from EVOQUA	350 CFM	10-150 ppm

Evoqua Water Technologies LLC has also satisfactorily maintained the systems leased by the City of Tampa since their installations.

Regards,

John Daily

Environmental Lab Supervisor, Wastewater Department
City of Tampa / 2700 Maritime Blvd. / Tampa, FL 33605
p: (813) 247-3451, ext. 55222 / c: (813) 918-6577
John.Daily@tampagov.net



Date: 9-4-18

Devang Pujara, Engineering Manager
Evoqua Water Technologies LLC
12310 World Trade Drive, Suite 108
San Diego, CA 92128, USA

**NORTH WASTEWATER TREATMENT PLANT
CITY OF BATON ROUGE & PARISH OF EAST BATON ROUGE
ODOR CONTROL SYSTEMS**

This serves to confirm that Evoqua Water Technologies (formerly Siemens Water Technologies) was contracted through the General Contractor in 2010 to design, manufacture and commission following Odor Control Systems:

- **Force Main Headworks**
One (1) Biotrickling Filter, Design Air Flow: 8,750 cfm
- **Gravity Sewer Headworks**
One (1) Biotrickling Filter, Design Air Flow: 11,750 cfm

Their support and service were satisfactory and the equipment installed has been operating satisfactorily since 2011.

Yours faithfully,

Justin Sharper, P.E.
WWTP Engineering Mgr.
225-389-3136
jsharper@brrla.gov



Date: 9-4-18

Devang Pujara, Engineering Manager
Evoqua Water Technologies LLC
12310 World Trade Drive, Suite 108
San Diego, CA 92128, USA

**SOUTH WASTEWATER TREATMENT PLANT, PHASE 1
CITY OF BATON ROUGE & PARISH OF EAST BATON ROUGE
ODOR CONTROL SYSTEMS**

This serves to confirm that Evoqua Water Technologies (formerly Siemens Water Technologies) was contracted through the General Contractor in 2010 to design, manufacture and commission following Odor Control Systems:

- **Gravity Influent PS**
Two (2) Biotrickling Filters, Total Air Flow: 13,410 cfm
- **Raw Wastewater PS & Preliminary Treatment Facility**
Six (6) Biotrickling Filters, Total Air Flow: 51,000 cfm
- **Equalization Tanks**
Four (4) Dual Bed Activated Carbon Adsorbers, Total Air Flow: 44,000 cfm

Their support and service were satisfactory and the equipment installed has been operating satisfactorily since 2014.

Yours faithfully,

Justin Sharper, P.E.
WWTP Engineering Mgr.
225-389-3136
jsharper@brla.gov



Date: 9-4-18

Devang Pujara, Engineering Manager
Evoqua Water Technologies LLC
12310 World Trade Drive, Suite 108
San Diego, CA 92128, USA

**SOUTH WASTEWATER TREATMENT PLANT, PHASE 1
CITY OF BATON ROUGE & PARISH OF EAST BATON ROUGE
ODOR CONTROL SYSTEMS**

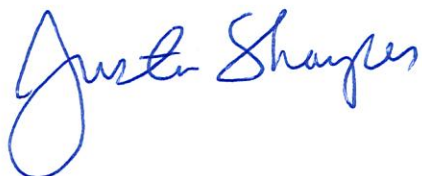
This serves to confirm that Evoqua Water Technologies (formerly Siemens Water Technologies) was contracted through the General Contractor in 2011 to design, manufacture and commission following Odor Control Systems:

- **Primary Settling Tank 1 & 2**
One (1) Biotrickling Filter, Total Air Flow: 2,800 cfm
- **Primary Settling Tanks 3&4 and 5&6**
Two (2) Biotrickling Filters, Total Air Flow: 4,100 cfm
- **Gravity Thickeners 1&4 and 2&3**
One (1) Biotrickling Filter, Total Air Flow: 4,600 cfm
- **Dewatering Building**
Two (2) LO/PRO Chemical Scrubbers, Total Air Flow: 3,250 cfm
- **Thickening Sludge Mixing**
One (1) LO/PRO Chemical Scrubber, Total Air Flow: 18,500 cfm

Their support and service were satisfactory and the equipment installed has been operating satisfactorily since 2014.

Yours faithfully,

Justin Sharper, P.E.
WWTP Engineering Mgr.
225-389-3136
jsharper@brla.gov

A handwritten signature in blue ink that reads "Justin Sharper". The signature is fluid and cursive, with the first name "Justin" and last name "Sharper" clearly legible.



Date: Oct 30 , 2018

Devang Pujara, Engineering Manager
Evoqua Water Technologies LLC
12310 World Trade Drive, Suite 108
San Diego, CA 92128, USA

BURAIDAH STP, UNAIZAH STP, AL-RUSS STP - ODOUR CONTROL SYSTEMS

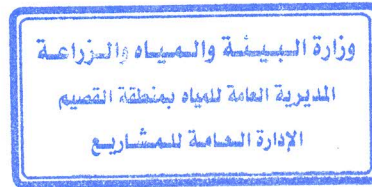
This serves to confirm that Evoqua Water Technologies (formerly Siemens Water Technologies) was contracted through our contractor, Randa Company in 2012 to design, manufacture and commission multiple **ZABOCS®**, **Bio-trickling Filters**, **Activated Carbon Adsorbers & Packed Tower Chemical Scrubbers Odour Control Systems** to treat odorous air generated inside the **Influent Splitter Tank**, **Inlet Works**, **Clarifiers**, **Screw Pump Chambers**, **Sludge Thickener Tanks**, and **Centrifugal Building** process areas.

- **Buraidah STP:** Total Treated Air Flow Rate = 89,339 m3/hr
- **Unaizah STP:** Total Treated Air Flow Rate = 41,422 m3/hr
- **Al Russ STP:** Total Treated Air Flow Rate = 19,265 m3/hr

Their support and service were satisfactory and the equipment installed has been operating satisfactorily.

Yours faithfully,

Aljamili, Abdulaziz Sayr
Plants Execution Department Manager
+966555880850
asjamili@gw.gov.sa



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REFERENCE INSTALLATIONS



Kingscliff, Queensland, Australia



**King Abdullah University of Science &
Technology, Jeddah, KSA**



Noman M. Cole, Jr. PCP, Fairfax County, VA, USA



Jebel Ali STP (Phase 1), Dubai, UAE

REFERENCE INSTALLATION

PLANT NAME/LOCATION:	ATHENS NORTH OCONEE, GEORGIA, USA
DATE IN SERVICE:	FEBRUARY, 2011
SOURCE OF ODOURS:	WWTP
TOTAL INSTALLED AIR FLOW CAPACITY:	105,000 M3/HR
NOS. OF ODOUR CONTROL SYSTEMS:	9
ODOUR CONTROL TECHNOLOGY:	BIOLOGICAL
H ₂ S REMOVAL EFFICIENCY:	99% FOR ≥ 10 PPM; ≤ 0.1 PPM FOR < 10 PPM
TOWER STRUCTURE:	PREMIUM VINYL ESTER RESIN



REFERENCE INSTALLATION

PLANT NAME/LOCATION:	BRIGHTWATER TREATMENT PLANT, SEATTLE, WA, USA
DATE IN SERVICE:	JUNE, 2011
SOURCE OF ODOURS:	WWTP
TOTAL INSTALLED AIR FLOW CAPACITY:	884,000 M3/HR
NOS. OF ODOUR CONTROL TRAINS:	13
ODOUR CONTROL TRAIN:	BIOLOGICAL + CHEMICAL + ACTIVATED CARBON POLISHING
OVERALL H ₂ S REMOVAL EFFICIENCY:	99.97%
TOWER STRUCTURE:	PREMIUM FIRE RETARDANT VINYL ESTER RESIN



REFERENCE INSTALLATION

PLANT NAME/LOCATION:	SOUTH WWTP, BATON ROUGE, LA, USA
DATE IN SERVICE:	JULY, 2013
SOURCE OF ODOURS:	WWTP
TOTAL INSTALLED AIR FLOW CAPACITY:	109,500 M3/HR
NOS. OF ODOUR CONTROL SYSTEMS:	8
ODOUR CONTROL TECHNOLOGY:	BIOLOGICAL
H2S REMOVAL EFFICIENCY:	99.0%
TOWER STRUCTURE:	PREMIUM FIRE RETARDANT VINYL ESTER RESIN



REFERENCE INSTALLATION

PLANT NAME/LOCATION:	KINGSCLIFF STP, NEW SOUTH WALES, AUSTRALIA
DATE IN SERVICE:	FEBRUARY, 2008
SOURCE OF ODOURS:	WWTP
TOTAL INSTALLED AIR FLOW CAPACITY:	5,700 M3/HR
ODOUR CONTROL TECHNOLOGY:	BIOLOGICAL + ACTIVATED CARBON POLISHING
H ₂ S REMOVAL EFFICIENCY:	99.5%
TOWER STRUCTURE:	PREMIUM VINYL ESTER RESIN



REFERENCE INSTALLATION

PLANT NAME/LOCATION:	DELAWARE WWTP, DELAWARE, OH, USA
DATE IN SERVICE:	JULY, 2006
SOURCE OF ODOURS:	WWTP
TOTAL INSTALLED AIR FLOW CAPACITY:	20,400 M3/HR
ODOUR CONTROL TECHNOLOGY:	BIOLOGICAL
H ₂ S REMOVAL EFFICIENCY:	99%
TOWER STRUCTURE:	PREMIUM VINYL ESTER RESIN



REFERENCE INSTALLATION

PLANT NAME/LOCATION:	INA ROAD WWRF, TUCSON, AZ, USA
DATE IN SERVICE:	JULY, 2014
SOURCE OF ODOURS:	WWTP
TOTAL INSTALLED AIR FLOW CAPACITY:	21,250 M3/HR
ODOUR CONTROL TECHNOLOGY:	BIOLOGICAL
H ₂ S REMOVAL EFFICIENCY:	99%
TOWER STRUCTURE:	PREMIUM VINYL ESTER RESIN



REFERENCE INSTALLATION

PLANT NAME/LOCATION:	MAFRAQ STP, ABU DHABI, UAE
DATE IN SERVICE:	OCTOBER, 2003
SOURCE OF ODOURS:	WWTP
TOTAL INSTALLED AIR FLOW CAPACITY:	180,000 M3/HR
NOS. OF ODOUR CONTROL SYSTEMS:	7
ODOUR CONTROL TECHNOLOGY:	CHEMICAL SCRUBBERS
H ₂ S REMOVAL EFFICIENCY:	99.9%
TOWER STRUCTURE:	PREMIUM VINYL ESTER RESIN



REFERENCE INSTALLATION

PLANT NAME/LOCATION:	JABEL ALI STP (PHASE 1), DUBAI, UAE
DATE IN SERVICE:	OCTOBER, 2009
SOURCE OF ODOURS:	WWTP
TOTAL INSTALLED AIR FLOW CAPACITY:	159,000 M3/HR
NOS. OF ODOUR CONTROL SYSTEMS:	16 (12 BIOLOGICAL & 4 CHEMICAL)
ODOUR CONTROL TECHNOLOGY:	BIOLOGICAL + CHEMICAL SCRUBBERS
OVERALL H ₂ S REMOVAL EFFICIENCY:	99.5%
TOWER STRUCTURE:	PREMIUM VINYL ESTER RESIN



REFERENCE INSTALLATION

PLANT NAME/LOCATION:	QASSIM REGION STP, KINGDOM OF SAUDI ARABIA
DATE IN SERVICE:	SEPT. 2014 – MAR. 2015
SOURCE OF ODOURS:	WWTP
TOTAL INSTALLED AIR FLOW CAPACITY:	168,000 M3/HR
NOS. OF ODOUR CONTROL SYSTEMS:	62
ODOUR CONTROL TECHNOLOGY:	BIOLOGICAL, CHEMICAL SCRUBBER, ACTIVATED CARBON
OVERALL H ₂ S REMOVAL EFFICIENCY:	99.5%
TOWER STRUCTURE:	PREMIUM VINYL ESTER RESIN



REFERENCE INSTALLATION

PLANT NAME/LOCATION:	HYPERION WWTP, LOS ANGELES, CA, USA
DATE IN SERVICE:	JUNE 2005 - JAN. 2007
SOURCE OF ODOURS:	WWTP
TOTAL INSTALLED AIR FLOW CAPACITY:	204,000 M3/HR
NOS. OF ODOUR CONTROL SYSTEMS:	6
ODOUR CONTROL TECHNOLOGY:	CHEMICAL SCRUBBERS
H ₂ S REMOVAL EFFICIENCY:	99.5%
TOWER STRUCTURE:	PREMIUM FIRE RETARDANT VINYL ESTER RESIN

