GLOBAL WATER Sustainability Center

ConocoPhillips

Water is an important resource

Water is vital to the survival of the human race. It is also vital to the energy industry. Throughout the world, demands for fresh water are increasing while supplies are decreasing. As with any valuable resource, there is an obligation to conserve and use water wisely.

Petroleum reservoirs frequently contain large amounts of formation water which comes to the surface along with the oil or natural gas. The amount of this "produced water" can increase over time as the oil or natural gas is depleted. Produced water is usually highly saline and may contain hydrocarbons or minerals from the reservoir. Exploration and production operations yield three to four barrels of produced water per barrel of oil generated. Treating the produced water is an opportunity for the petroleum industry to demonstrate leadership in water conservation and recycling.

The ConocoPhillips Global Water Sustainability Center

The ConocoPhillips Global Water Sustainability Center (GWSC) is located at Qatar Science & Technology Park (QSTP) in Doha. QSTP provides a unique facility where a cluster of premier companies work under one roof to research critical local and global issues. The close proximity to the Education City at Qatar Foundation provides opportunities for QSTP partners to collaborate with top scientists, have access to key facilities and employ graduates from world-class universities.

GWSC aims to develop innovative and cost-effective treatment technologies for the treatment of petroleum by-product water, as well as other projects relating to industrial and municipal water sustainability. Proposed uses for treated water include crop irrigation, livestock watering, wildlife habitats and industrial applications. This reuse could potentially leave more fresh water available for domestic use. The GWSC expertise includes strong analytical capabilities and process engineering experience in both petroleum and water fields, which is necessary to deliver innovative solutions to the Middle East region and other regions around the globe.

Vision and Mission

Vision: Be an internationally renowned Center of Excellence for key water technologies related to produced water management and desalination.

Mission: Develop innovative solutions for treating and recycling by-product water from oil and gas operations.

Scope of work

The GWSC team comprises professionals with expertise in:

- Applied research
- Analytical chemistry
- Process engineering
- Treatment optimization

The primary focus of the GWSC team is to use this expertise to develop innovative solutions for water and wastewater treatment processes for the oil & gas industries. These solutions may include membrane technologies, oxidation processes, and/or biological treatment. A critical element of any industrial wastewater treatment is desalination of high salinity waters. Thus, a secondary area of focus for the GWSC is to develop innovative desalination processes for the petroleum and/or municipal water industries.

Each project conducted at the GWSC will address one or more of the following issues:

- Reducing freshwater consumption
- Lower operating costs related to water and wastewater treatment
- Minimize the environmental impact due to wastewater discharge

The facility

The GWSC encompasses 1,000 square meters of space and includes offices, state-of-the-art analytical laboratories, advanced bench-scale testing equipment and a Visitor Center. Pilot testing can be conducted at ConocoPhillips' global operational facilities or at local treatment plants.

The laboratory analytical equipment includes:

- Gas chromatography – mass spectrometry (GC-MS)
- High-performance liquid chromatography (HPLC)
- Liquid chromatography – mass spectrometry (LC-MS)
- Ion chromatography (IC)
- Inductively coupled plasma (ICP)
- Fourier transform infrared (FTIR)
- X-Ray diffraction (XRD)

Community awareness and the Visitor Center

The GWSC also serves to enhance awareness of water conservation in the State of Qatar. The center includes a 300-square-meters Visitor Center with interactive, hands-on exhibits to educate local school children and other members of the public about methods of conserving water at home and in the workplace. The Visitor Center also explains where and how fresh water is produced in Qatar. Technical workshops are also sponsored by the GWSC to educate professionals and public officials about novel treatment technologies and their application in water-scarce regions like Qatar.

About ConocoPhillips

ConocoPhillips explores for, produces, transports and markets crude oil, natural gas, natural gas liquids, liquefied natural gas and bitumen on a worldwide basis. ConocoPhillips conducts exploration activities in 19 countries and produces hydrocarbons in 13 countries, with proved reserves located in 15 countries as of Dec. 31, 2011. As of May 1, 2012, the company had more than 16,000 employees worldwide.

Since 2003, ConocoPhillips has collaborated with Qatar Petroleum on Qatargas 3, a large-scale liquefied natural gas (LNG) project located in Ras Laffan Industrial City, Qatar, with a capacity of 7.8 million tons per annum (mta). Qatargas 3 also executed the development of the onshore and offshore assets as a single integrated project with Qatargas 4.

ConocoPhillips produces and utilizes water in its operations. We are committed to the development of water management practices that conserve and protect freshwater resources and enhance the efficiency of water utilization at our facilities. We will assess, measure and monitor our freshwater usage and will manage our consumption and strive to reduce the potential impact to the environment from wastewater disposal.

For more information, visit *www.conocophillips.com*.

About Qatar Science & Technology Park

Qatar Science & Technology Park fosters the development and commercialization of technology in Qatar, a rising star in the Arabian Gulf with the world's third-largest gas reserves and a vision for human development. As part of the renowned Qatar Foundation, founded by the country's Emir, the science park is co-located with the university campuses of Carnegie Mellon, Texas A&M, Weill Cornell and other premier institutions. The science park provides research-friendly premises for companies from around the world, plus an incubator and investment for technology startups. In addition to ConocoPhillips, GE, ExxonMobil, Microsoft, Rolls-Royce, Shell and Total have joined Qatar Science & Technology Park.

For more information, visit *www.qstp.org.qa*.

Contact information

To learn more about the Global Water Sustainability Center, please visit our website at *www.globalwsc.com* or call us at +974 4409-4701.