



CASE STUDY

# Understanding Wastewater Management in the Oil and Gas Industry



**Client**

A Consulting Firm



**Industry**

Industrials



**Solution**

Competitive Landscape



**Region**

Global





## OBJECTIVE AND SCOPE

The client, a risk and management consulting firm wanted to understand the regulatory landscape and best practices related to wastewater management in the oil and gas upstream and downstream operations in the US, UK, Canada, Germany, and France. For this, the client wanted Benori's help to understand the following:

- Regulatory landscape for target countries related to treatment and disposal of wastewater, water reuse, sludge treatment, and discharge
- Best practices across the upstream and downstream industries





## APPROACH

We conducted extensive secondary research within government bodies, industry associations, articles, and journals to understand the regulatory landscape for wastewater treatment. We studied annual reports, press releases sustainability reports, etc. to understand the degree of implementation and available technology for wastewater management. We also connected with 1-2 stakeholders of wastewater processing in oil & gas companies who provided deeper insight.



## METHODOLOGY



**Secondary  
Research**



**Primary  
Research**



**Data  
Modelling**





## Impact


The detailed insights helped the client to:

- Gain a deeper understanding and best practices related to wastewater management in the target geography
- Understand the authorities responsible for monitoring and reporting methodology
- Assess how the leading O&G companies are disposing of their wastewater and the technology they are using



# Sample Output

## Best practices across upstream and downstream

Best practices across upstream and downstream 

	WW generation and treatment	WW disposal strategy	Technology used	Monitoring techniques
Reuse of WW Ultra Resources (Texas)	<ul style="list-style-type: none"> <li>WW is recycled with the flowback treatment process, which captures heavy particles with the help of sand trap on the flowback fluid</li> <li>The treated WW is then transferred to a 3-phase separator, which separates liquids, condensate, and gases</li> </ul>	<ul style="list-style-type: none"> <li>Reusing water from flowback fluids helps to reduce the amount of water required from alternate sources</li> <li>By using this on-site treatment system, the company claims to have not used any fresh water since 2007</li> </ul>	<ul style="list-style-type: none"> <li>To aid in the separation of particles in the water, agents such as flocculant and coagulant are added to the fluid stream ahead of the first tear drop tank</li> </ul>	<ul style="list-style-type: none"> <li>Ultra Resources conducts continual collaborative groundwater monitoring across the field, including agency oversight and involvement, as well as annual program assessments</li> </ul>
Cost-effective Produced Water Treatment (Midland Basin, West Texas)	<ul style="list-style-type: none"> <li>In 2019, WaterTectonics was entrusted with a turn-key XX barrels per day (BPD) produced water recycling plant that could operate at XX BPD</li> <li>The client (O&amp;G Operator) was looking for a cost-effective water treatment solution.</li> </ul>	-	<ul style="list-style-type: none"> <li>Filtration, polymer addition, separation (DAF), pH adjustment, and H2O2 injection were among the treatment steps used during the process</li> </ul>	<ul style="list-style-type: none"> <li>Advanced system controls and monitoring using remote system operations viewing, reporting and update capabilities with alert/alarm notifications</li> <li>Electronic reporting and communication with client regarding changing conditions for maintaining uptime and eliminating upsets</li> </ul>

Source: [Ultra Resources1](#), [West Texas Storm Water](#), [Ultra Resources2](#), [Uma Refinery1](#), [Uma Refinery2](#)

## Best practices – Reuse and discharge of produced water

Best practice – Reusing and discharging produced water

	Details
What is the challenge?	<ul style="list-style-type: none"> <li>Managing the reuse and discharge of produced water, for companies global onshore operations</li> </ul>
How are they handling it?	<ul style="list-style-type: none"> <li><b>Reuse</b>- By treating the produced water for reuse within additional wells in a single field, especially for drilling or hydraulic fracturing</li> <li><b>Discharge</b>- When recycling is not reasonably practical or volumes exceed operational needs, the water is stored for the other producers or otherwise disposed as per the standards</li> <li><b>Example: QGC Plant, Australia</b> – Company delivered the treated water from this plant to two major irrigation schemes on the Condamine and Dawson Rivers</li> </ul>
What technologies are used?	<ul style="list-style-type: none"> <li>Company is using hydro soil and bacteria to construct wetlands for treating produced water globally, as a part of its Green Infrastructure Programme</li> <li>The company also utilises reverse osmosis to treat WW, <b>(currently done at the QGC Plant, Australia)</b></li> </ul>
What monitoring systems are in place?	<ul style="list-style-type: none"> <li>Stormwater quality improvement devices (SQID), World Resources Institute's Aqueduct Water Risk Atlas, forecasting produced water usage through statistical means, Monitoring Certification Scheme (MCERTS) and self-monitoring of effluent flow are the monitoring systems in place</li> </ul>
How are they reporting to the management?	<ul style="list-style-type: none"> <li>The Water Treatment and Integration department reviews the technology and addresses technical, commercial, environmental, and health and safety-related risks. The team comprises engineers, an environment manager, and a program manager who oversee multiple WW plant locations and help improve the processes. This team reports and shares ideas with the senior management</li> </ul>
How are they reporting to the regulators?	<ul style="list-style-type: none"> <li>For onshore operations, reporting is done to the EA (for UK) via the Pollution Inventory or to the Scottish Environment Protection Agency (for Scotland) via Scottish Pollutant Release Inventory. Company also reports to the Offshore Petroleum Regulator for Environment and Decommissioning via EEMS to meet requirements for offshore operations</li> <li>In the UK, company also publishes an Annual Environmental Statement to meet multiple regulations</li> </ul>

Source: [Link 1](#), [Link 2](#), [Link 3](#), [Link 4](#), [Link 5](#), [Link 6](#), [Link 7](#)

## About us:

Benori is a trusted partner for knowledge solutions across the globe, serving clients from a wide range of industries including Professional Services, Financial Services, Consumer & Retail, Technology & Internet, Industrials & Manufacturing, and more. Our customized solutions strengthen the insights value chain of our clients, empowering them with key insights needed to drive intelligent decision-making and accelerate growth.

Headquartered in India, Benori is uniquely positioned to deliver multilingual research needs of global clients, powered by its digital agility, deep research capabilities and a highly experienced leadership team. Adopting a 360-degree approach, our team employs a combination of diverse methodologies including primary research, secondary research and data modeling, and offers detailed foresight on market trends, competitive shifts, regulatory changes and technological advancements.

## Powering Growth Through Knowledge

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