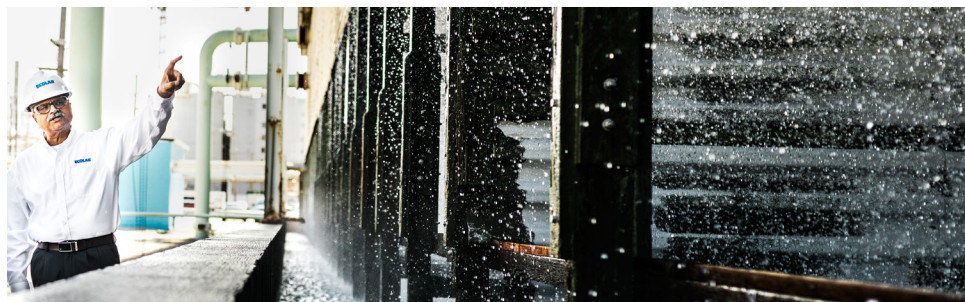


Ecolab's Nalco Water Plant in Garyville, Louisiana, Certified as Water Stewardship Leader



Implementation of Alliance for Water Stewardship (AWS) Standard Case Study



BACKGROUND

Ecolab's manufacturing facility located in Garyville, Louisiana, is a reaction plant that primarily produces water treatment chemical blends and polymers. The Garyville facility is located in the Lower Mississippi River Basin, which is part of the largest watershed in the United States, the Mississippi River Watershed. Process water is pulled directly from the Mississippi River and treated on site.

The facility is Ecolab's second largest water user and relies on potable water from St. John's Parrish which sources water from the Lions Water Treatment plant pulling from the Mississippi River. Wastewater is treated on site and discharged directly to the Mississippi River, while stormwater is discharged to the Garyville canal which drains to Lake Maurepas.

In alignment with Ecolab's commitment to a holistic approach to water management across its manufacturing facilities, the company implemented the Alliance for Water Stewardship (AWS) International Water Standard at its Garyville plant.

SITUATION

The team at Ecolab's Garyville plant assessed the facility for opportunities to decrease water use across operations to meet the team's objective to reduce water use per ton of product by 32% from its 2016 baseline by 2020. Water reduction opportunities were identified in the following areas: condensate return, cooling tower optimization, demineralizer regeneration, wastewater recycle, production campaigning, sand filter backwashing and washout optimization. Prioritization of these opportunities involved collaboration across the Nalco Water Commercial Engineering, Corporate Sustainability and Garyville Engineering and Safety, Health and Environment (SHE) teams.

Feasibility studies were performed to chart the water reduction impact, capital and operating cost of solutions. Ecolab's Smart Water Navigator was also utilized to understand the water risk at the plant. Implementation of water reduction projects was prioritized throughout the plant to achieve savings. Of the five water outcomes of the AWS Standard, Garyville focused on sustainable water balance, good water quality status and important water related areas (IWRA) balancing relevancy and risk to the site.

ANNUAL SAVINGS



WATER

42 MILLION
gallons of water reduced

TOTAL VALUE DELIVERED

\$472,000
Risk-adjusted cost savings

Ecolab's Water Stewardship Position formalizes Ecolab's global commitment to responsible water stewardship by identifying opportunities for the company and its customers to use water resources in a manner that benefits business.



**ALLIANCE FOR
WATER STEWARDSHIP**

SOLUTIONS

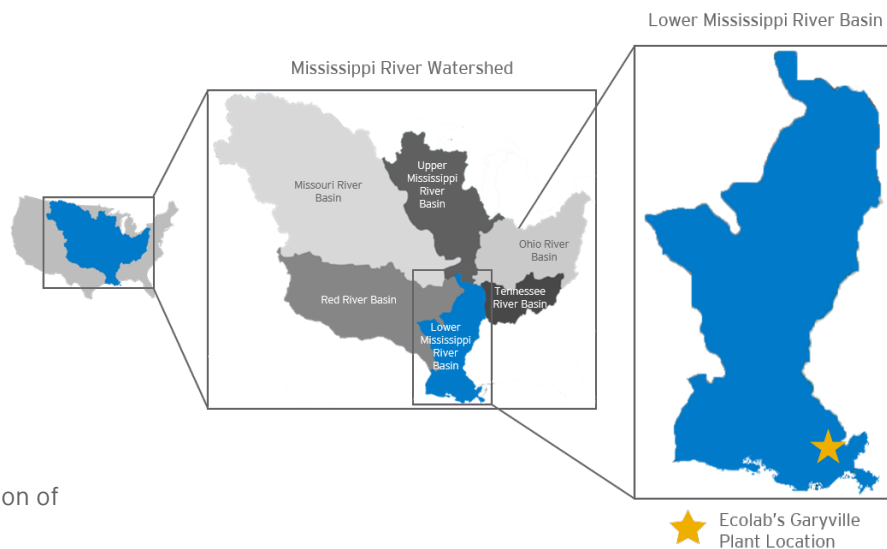
The solutions below contributed to the Garyville plant's progress toward its 32% water reduction goal. The following projects help improve the facility's water balance and have been completed to reduce overall water use:

- Reuse of sand filter backwash to reduce the plant's intake of river water by 12% of overall water use
- Reduction of washouts from campaigning in the latex area to reduce water use by 2%
- Standardization of washout times for railcars and reaction vessels resulting in a 2.5% reduction of overall water use
- Recovery of spent caustic from deionized water unit regenerations resulting in a savings of 2,000 gallons per day
- Restroom upgrades, including waterless urinals to reduce potable water use by 0.5%
- Pilot study on a full plant recycling system that could recover up to 45% of the site's wastewater

The following projects are ongoing:

- Condensate recovery, with the goal of recovering 70-80% of all condensate on-site
- Cooling tower replacement
- Vessel washout standardization and optimization
- Pump seal flush replacements and pump seal pot installation
- Multiple small recycle streams throughout the plant including reuse of the plant's cooling tower blowdown

To maintain good water quality of both process water and wastewater, internal daily water testing is carried out in addition to weekly third-party wastewater testing to comply with Garyville's wastewater permit. The plant has a strict testing regimen and detailed environmental spill emergency response plan which were further strengthened through AWS Standard implementation. Because the water is directly discharged to the Mississippi River, efforts in achieving good water quality status help contribute to the health of the most important IWRA in the Garyville facility's catchment.



PERFORMANCE

- Total water reduction of 42 million gallons, equivalent to \$472,000 in risk-adjusted cost savings.
- 1.4% reduction of water use per ton of product realized in 2019 from 2016 baseline.
- 31% reduction in absolute water use realized in 2020 from a 2018 baseline.

WATER GOVERNANCE

At the plant level, the Utilities Team leader, Dave Moore, is ultimately responsible for incoming and outgoing water treatment. The site's environmental engineer, Rodney Bourgeois, is responsible for wastewater permit compliance and environmental or water-related issues on site. In both cases, the site's plant manager, Jim Kulesa, is ultimately accountable.

The Sustainability Team is guided and advised by the Sustainability Executive Advisory Team, which is made up of the company's most senior business and divisional leaders. In addition, Ecolab's Water Stewardship Position and Global SHE Position are publicly available and serve as commitments to and guidance on water-related issues and compliance.

Ecolab's Water Stewardship Position formalizes Ecolab's global commitment to responsible water stewardship by identifying opportunities for the company and its customers to use water resources in a manner that benefits business, communities and nature. Ecolab's SHE position outlines the

company's commitment to excellence in safety, health and environmental practices and performance across global operations.

In early 2021, Ecolab's Garyville facility received a stormwater permit violation notice as a result from an on-site spill. The plant team completed a root cause analysis and implemented corrective and preventative actions to avoid future violations.

WATER STEWARDSHIP JOURNEY

In addition to internal operational improvements, Ecolab's Garyville facility's external water stewardship activities are ongoing. The largest IWRA in Garyville's catchment is the Mississippi River, which is crucial to plant operations and users in the area. Shared challenges between the plant and relevant, local stakeholders include natural disasters, such as hurricanes and tropical storms, flooding, water pollution, subsidence, water infrastructure and loss of wetlands and native species. To address these shared issues, Ecolab collaborates with other water users in the basin.

Ecolab is an active participating company in the Louisiana Water Synergy Project (LWSP). Founded by the US Business Council for Sustainable Development (USBCSD), the LWSP

works with over 20 companies in the Lower Mississippi River Basin to address a wide range of water supply, water quality, stormwater and coastal resiliency issues. As part of quarterly meetings, Ecolab shares their water stewardship strategy and journey while championing the AWS Standard.

Ecolab also participates bimonthly in the Community Action Panel (CAP), a group created by Nalco Water and Marathon in 1996 to engage local stakeholders, including local business and community members, on water-related issues. Ecolab continually shares its AWS journey with CAP and seeks feedback on practices in the five outcome areas of the AWS Standard.

Moreover, the Ecolab Foundation supports the Loch Leven project in partnership with The Nature Conservancy (TNC) to restore and enhance 10,000 wetland acres and provide 12.1 billion gallons of flood storage capacity to local communities.

In addition to local water stewardship efforts, Ecolab's global giving program, Solutions for Life, enhances the company's mission to conserve and protect fresh water through partnership with two global non-governmental organizations (NGOs): TNC and Project WET Foundation.

This case studied was created to comply with AWS indicators 5.1.1, 5.2.1, 5.3.1, 5.4.1, 5.5.1, 5.5.2, 5.5.3. For more information, please contact sustainability@ecolab.com.

1 Ecolab Place
St. Paul, MN 55102

ecolab.com

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