

POWERED BY ECOLAB3D

# Refined Knowledge

Maximize performance, reliability and profitability in your refining and petrochemical operations with reliable smart data.



## ■ NEXT-GENERATION OPTIMIZATION

# Higher-performing and more affordable operations

For years, Nalco Water has offered Refined Knowledge™, an advanced digital program for driving efficiency and value in downstream operations. But your needs are changing, and our ability to add value is evolving with you. That's why we're driving optimization to the next level with Refined Knowledge, powered by ECOLAB3D™.

### COMPREHENSIVE REAL-TIME DATA

Refined Knowledge continuously monitors data from a variety of sources in real time, including remote sensors, field measurements, lab testing, corporate analyticals and customer digital control systems. The data is collected in one secure place and delivered through online dashboards, providing clear and complete visibility into your operations.

### FAST OPERATIONAL IMPROVEMENTS

ECOLAB3D™ is the digital engine that translates data collected by Refined Knowledge and turns it into actionable insights. Advanced algorithms and analytics enable you to make swift decisions that drive a wide range of improvements, including key enhancements:

- Reduce total cost of operations by upto ~10%
- Increase profitability by more than \$10million per site or installation
- Enable Turn Around to Turn Around (TA to TA) operations

### ACHIEVE YOUR OPERATIONAL GOALS

Refinery and petrochemical operators face significant challenges on the road to meeting operational goals:

- Increase profitability
- Run safe, efficient processes at maximum capacity
- Extend asset life
- Avoid unnecessary shutdowns and maintenance

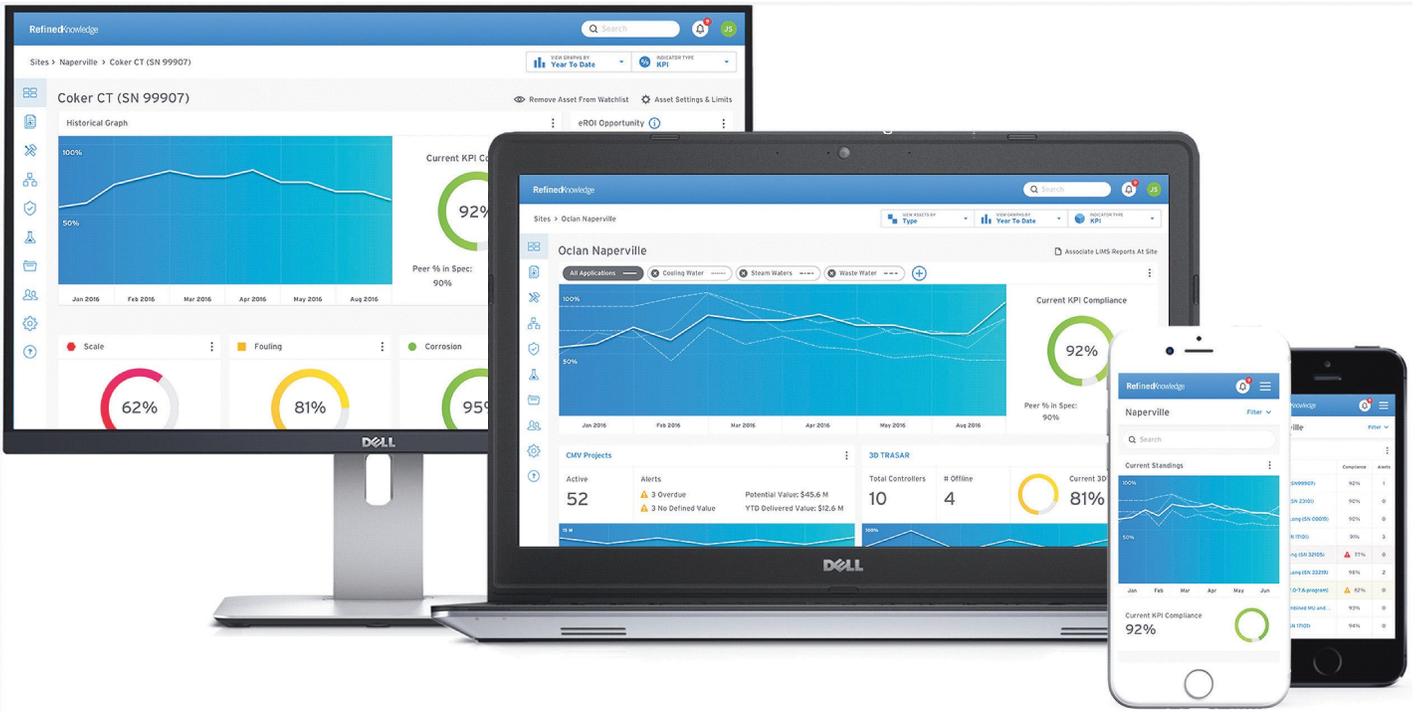
Refined Knowledge provides critical insights into your operations. We use this information in real time to drive continuous cost reduction and margin improvement for your business, giving you the power to discover solutions to today's challenges and seize tomorrow's opportunities safely, efficiently and profitably.

The advanced capabilities of Refined Knowledge and the operational advantages it delivers has resulted in more than 1,000 successful deployments at customer locations around the world.

"We can deliver cost reductions of about 10 percent for many customers, which means a single site or installation can realize more than \$10 million in increased profitability or \$3 million in verifiable savings."

Victor Catala  
Sr. VP and GM





## Benefits

### Actionable insights

Gain visibility into key improvements, including feedstock flexibility, optimized production, better sustainability and greater profitability. You can also easily escalate to manage threats and mitigate risks.

### Benchmarking

System-wide data roll-ups and data measurement ensures you're able to increase the efficiency and throughput of operations while reducing the total cost of ownership for assets.

### Real-time monitoring and control

Intuitive online dashboards and real-time data from 3D TRASAR™ controllers and sensors delivers predictive capabilities and smart maintenance, which limits downtime and threats of unplanned outages.

### eROI by Ecolab™

An easy online interface and mobile app helps you manage and track your progress. You'll be able to effectively capture value and communicate your efforts to optimize asset utilization and total cost of operations.

## Features

### Leveraged programs

Multiple Nalco Water programs are brought together in the cloud to dynamically support more than 20,000 assets around the world.

### World-class security

The Microsoft Azure cloud platform is used to deliver enhanced cloud security for authorization, authentication and access, whenever it's needed, anywhere in the world.

### Data lake and visualization

Real-time data and dashboard overviews of assets, sites and enterprise reports is provided by consolidating and analyzing data streams from more than 2,000 3D TRASAR controllers and millions of automated sensors.

### Additional digital services

A smart backbone for additional applications, such as 3D CRUDEFLEX™, is provided by a series of proprietary automations and sensor applications for crude distillation units.

# Nalco Water is the global leader in refining process treatments, fuel additives, petrochemical processes and water treatments.

We solve our customers toughest process and water challenges to sustainably and reliably refine fuels and process petrochemicals. By combining our proven chemistry, digital technologies and world-class service; we increase refinery and petrochemical plant availability, while extending the life of customer assets to improve product quality and yields. Our solutions come from teamwork - the result of considerable expertise, experience and innovative research. We establish true partnerships while drawing on our collecting knowledge to realize real-world innovations that measurably improve efficiency and profitability. We do more than meet refining and petrochemical operation demands. Together, we create value.

For more information, visit [ecolab.com/nalco-water](http://ecolab.com/nalco-water).

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The safety of our associates, customers and communities is vitally important. From the way we operate, to the products we develop, to how we partner with customers, our goal is zero: zero accidents, zero incidents and zero environmental releases.

At Nalco Water, safety is more than a metric, it's a mindset. It's how we conduct ourselves, every day, everywhere it matters.

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