



"Canary Trending is an invaluable tool in our refinery. It runs around the clock, 24-7. Over the last 14 years, Canary has provided quality products that utilize the latest technology."

Kevin Moran, System Engineer,
Delaware City Refinery

Configuration Overview:

- 70,000 Tags per second
- Trend Historian
- Trend Web
- Trend Link
- Trend Calc

Canary Labs Integration:

- DCS System
- Honeywell PHD Historian

Company Overview

Valero Energy Corporation is a Fortune 500 company based in San Antonio, Texas, and incorporated in Delaware. Valero's common stock is listed for trading on the New York Stock Exchange under the symbol "VLO." The company has approximately 22,000 employees and assets valued at \$38 billion.

The largest refiner in North America, Valero has an extensive refining system with a throughput capacity of approximately 3.1 million barrels per day. The company's geographically diverse refining network stretches from Canada to the U.S. Gulf Coast and West Coast to the Caribbean.

Valero has long been recognized throughout the industry as a leader in the production of premium, environmentally clean products, such as reformulated gasoline, California Air Resources Board (CARB) Phase II gasoline, low-sulfur diesel and oxygenates.

Background

Acquired in 2005, the Delaware City refinery contributes to Valero's strategy of converging heavy, sour feedstocks into cleaner-burning fuels, thus capturing better margins than

our peers. Contributing to the plant's efficiency is its 1,800-tons-per-day petroleum-coke gasification unit and 160-megawatt cogeneration power plant. The refinery's petroleum coke production is sold to third parties or is gasified to fuel the cogeneration facility, which is designed to supply electricity and steam to the refinery.

The Delaware City Refinery has a capacity of 210,000 barrels a day. The major refining processes include: one crude unit, sulfur recovery, gas plant, alkylation/ether polymerization, naphtha treater, a cat cracker, coker, hydrocracker, desulfurizing, CCR reformer and one hydrogen plant.



14 Year Relationship

Starting in 1988, Canary provided trending software to the Delaware City refinery. At the time, Texaco Star owned the refinery and they used Foxboro DCS control systems. The operators and engineers needed a much better trending solution than was available in the DCS system software. Canary provided an initial trending viewer solution with user interface that was fast and easy to use. The back-end data logging was handled by UNIX running on a PC platform. Plant operators and

10,000 Implementations in over 24 Countries, and growing.

engineers had access to an effective trending tool at a fraction of the cost of the "big iron" systems.

Today's System Configuration

The Delaware refinery collects more than 70,000 tags of historical data from 17 different Process Units within the plant. The data is archived on two centralized historian machines. Historical and real-time data is then accessed via the network at 50 viewer stations.

The central historian trend servers are Dell high-end servers with Quad Xeon CPUs and RAID hot-swappable drives. Snap appliance servers are also used to store large quantities of historical data. Three months of second data, one year of minute data and 5 years of hour historical data are available to users on-line. Off-line high resolution data is available back to early 1990's.

The Canary Trend viewer is an ActiveX control embedded within the web browser. The web page interface provides a customized display for the users to select the appropriate data and predefined charts.

The distribution and synchronization of a new software update on all the PCs in a plant the size of Delaware City can be a huge task. With the browser automatically downloading or updating the Canary ActiveX control on an "as needed" basis the work required to release of a new product update is greatly simplified. This results in higher software reliability, fewer tech support requests and consistent deployment of the product across the plant.

When the Canary Trending was deployed in the other refineries, Motiva wanted to use the Canary viewer to

display data from their existing legacy historians. Because the Canary Trending conforms to the OPC industry standards, the viewer can access and display data from other vendors historians, such as the Honeywell PHD Historian.

Results

Operators now have a clear and reliable view of both the real-time and historical trends to build a good understanding of the current plant conditions, with Canary Labs running 24/7 (for the last 14 years) without any issues. Through the improved visibility into plant operations, process engineers have been able to increase productivity from 185,000 bpd to 210,000 bpd, a significant output gain and incremental revenues for the refinery. This increased production was done without any impact to EPA requirements on air quality and emissions.



"As a trending tool, we like the flexibility in how its configured and the ease of use. Users can drag and drop to add trends to the chart and save charts for later recall. The speed is a big plus, allowing users to quickly scan and find historical data they want to see. Users can access overview charts and then quickly drill down to see detailed data. The biggest advantage is the ease of use. The user doesn't have to be a genius to figure things out."

Kevin Moran Systems Engineer