

Pelican Refining Increases Lake Charles Refinery Capacity with Emerson's PlantWeb® Architecture and FOUNDATION™ fieldbus



RESULTS

- Restored and modernized decommissioned unit to increase refinery capacity by 5,000 bpd.
- 80% annual return on automation investment
- 75% savings in time for implementing a modernization project compared to traditional control system



APPLICATION

Automating two atmospheric crude distillation units, a naphtha stabilizer, an 800,000-barrel tank farm, and a five-mile product pipeline of a 22,000 barrel per day petroleum processing refinery.

CUSTOMER

Pelican Refining Company LLC (owned by NuCoastal Refining & Marketing Company and BayOil (USA) Limited) is the owner of Lake Charles Refinery having a potential capacity of processing 30,000 barrels/day of sweet crude oil and a tank farm with a 800,000 barrel storage capacity.

“I had a contractor tell me this installation would take at least six months with an ordinary DCS, having to hard-wire all the analog instruments. PlantWeb let us do it in about six weeks instead.”

Jody Varrett
Lake Charles Refinery

CHALLENGE

The Lake Charles Refinery staff was challenged by their investors to completely retrofit the technologically obsolete plant, increase refining capacity and deliver results. Specifically, the challenge was to increase refinery capacity with the least investment, transform an archaic 25 year old, pneumatic and relay logic technology driven refinery to leapfrog into the latest generation, highly automated digital plant, and achieve the target increases in production with lower costs, with the least downtime, and that too by using existing plant resources.



For more information:
www.EmersonProcess.com/QBR
www.EasyDeltaV.com



SOLUTION

After evaluating various options to address the challenge, the management elected to deploy the latest generation of process control technology using open fieldbased automation using PlantWeb® architecture with FOUNDATION™ fieldbus from Emerson Process Management. The modernized refinery was believed to be the world's first refinery controlled entirely by bus-connected intelligent (microprocessor-based) field instruments. The automation system embraced two atmospheric crude distillation units, a naphtha stabilizer, an 800,000-barrel tank farm, and a five-mile product pipeline.



The main key to this implementation of PlantWeb architecture was Emerson's DeltaV™ digital automation system. A crude unit #1 decommissioned in 1980 was modernized and rapidly brought on-line with the DeltaV system, thereby increasing refining capacity to about 22,000 barrels/day. The easy and rapid commissioning of the FOUNDATION fieldbus based field instruments by the DeltaV system contributed to an estimated 75% time savings compared to traditional control systems. The use of "non-incendive circuit" wiring methods in this Division 2 (normally non-hazardous) area, eliminated the need for costly conduits or intrinsic safety barriers. With an estimated 80% return on their automation investment, the PlantWeb architecture modernization project was quickly accelerated to include the crude unit #2, the naphtha stabilizer and beyond.

Emerson's AMS® Suite: Intelligent Device Manager for remote instrument configuration, calibration, diagnostics, and preventive maintenance has added to the operational savings without the need to hire additional resources. The advanced diagnostics functionality of the AMS Suite pinpointed sensor failures and eliminated unnecessary trips to the field.

The DeltaV system's enriched intuitive software is attuned to simplify the tasks performed by plant operators, engineers and technicians.



"Our DeltaV system was put in by our own people, with just one session of training. We can implement any additions to it ourselves, We are learning that PlantWeb has more & more functionality and we cannot apply it to work for us fast enough."

Jody Varrett
Lake Charles Refinery

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