

Burner Safety Management System at EnLink Midstream

Case Study

With the modern Honeywell and Federal Services-designed BSMS – and the safety, reliability and efficiency improvements it delivers – the Bridgeport plant can realize its full potential. It is a flagship site once again.

Background

EnLink Midstream is a leading provider of natural gas, natural gas liquids and crude oil storage, distribution, transmission and transportation services. Based in Dallas, Texas, the company has operations in the most prolific oil and gas regions in the United States. Among its assets are 11,000 miles of pipelines, 21 processing plants with 4.4 billion cubic feet of net processing capacity and seven fractionators with 260,000 barrels per day of net fractionation capacity.



Challenge

For many years, EnLink experienced eroding performance from its hot oil heater at its Plant-1 in Bridgeport caused by aging and obsolete instrumentation and shortcomings with the original installation. Equally concerning were the safety issues triggered by outside weather conditions such as strong, directional wind and low temperatures which – apart from blunting

the system's performance – put plant staff at risk. It was clear that the entire heating system required a modern re-think – and quickly.

For this task, EnLink turned to Federal Services LLC, an Oklahoma City-based systems installer and integrator with expertise in boiler controls, industrial burner management and oil and gas processing burner management. Federal Services responded with a solution that used Honeywell technology to meet EnLink's objectives.

Given the safety risks of the system, EnLink sought to implement a more holistic Burner Safety Management System (BSMS) which would provide burner protection, combustion control, heater protection, thermal balance of the process, and exterior asset and personnel protection. The system would effectively manage the entire thermal process from entry to exit, including burner sequencing and management and combustion control management. It would also be compliant with NFPA-87.

EnLink's flagship natural gas production and distribution plant is in Bridgeport, Texas, 40 miles northwest of Fort Worth. It is one of the largest processing plants in the United States.

Its legacy hot oil heater had long been the engine that kept the vast Bridgeport plant running, but as the years went by, the aging system could no longer keep pace with the plant's increases in production.

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Benefits

One year after the BSMS system was completed, EnLink reported that the Federal Services/Honeywell solution had delivered the following results:

- *Up-time improved while troubleshooting time decreased*
- *Back-drafting was fully eliminated*
- *Fuel use at Plant-1 decreased by 3-5%*
- *Asset security met current recommended best practice (SIL-2)*
- *Stack emissions were controlled to within permitted requirements*

Solution

EnLink Midstream selected Federal Services because of its track record at the Bridgeport site; its technical understanding of thermal, combustion and steam processes; and knowledge of industry regulations and safety codes. EnLink was also reassured by the proposed use of Honeywell technology, having already enjoyed success with the site's Honeywell Experion® Process Knowledge System (PKS).

As a first step in the project, Federal Services assessed the level of risk to personnel and assets in the heater area and identified hardware to negate the risk. Through this analysis, EnLink and Federal Services settled on a Honeywell-based solution incorporating a SIL-2 HC900 process automation controller; a RM7800 programmer for integrated burner control; a draft control management system for the heater comprised of further HC900 controllers and STD700 SmartLine® smart pressure transmitters; and a system to modernize and improve the safety of the fuel train, consisting of Honeywell Maxon fuel safety shutoff valves and Honeywell STG700 SmartLine® smart pressure transmitters.

Next, the HC900 platform was seamlessly integrated into the plant's Experion PKS. Thereafter, it served as the foundation for the modernization effort. Once it was operational, the benefits of the HC900 were clear to see: the

heater could be easily loaded or unloaded based on plant demand, and issues and faults could be spotted and resolved immediately. The HC900 platform also supported a variety of new safety functions such as thermal mass control of the energy flow through the heater; bridgewall draft control to correct furnace huffing and load balance; combustion control and individual burner control; and a diagnostics capability. These changes resolved the long-time huffing issue as well as the heater's ability to meet demand, since the input heat was now going into the process rather than up the stack as uncontrolled excess air.

Meanwhile, the existing fuel train was upgraded by replacing the non-SIL switches with Honeywell SIL-2 rated transmitters and installing Maxon SIL-3 capable fuel safety shutoff valves in place of the existing valves. The use of transmitters in the system delivered a longer mean time between failure and enabled easier testing and calibration, as well as improved tamper protection compared with a switch. An additional benefit of the transmitters is that the HC900 could check the signal of any connected transmitter for integrity.

Finally, every step of the way, Federal Services ensured that the BSMS system met the operational and safety standards of NFPA-87.

Summary

This project may have been specific to Bridgeport's heating system, but it represented more than that. It was strategically critical to the future of the site. For many years, the old hot oil heater had let the performance of the plant down, and put its workers at risk. Now, with the modern Honeywell and Federal Services-designed BSMS – and the safety, reliability and efficiency improvements it delivers – the Bridgeport plant can realize its full potential. It is a flagship site once again.

For More Information

Learn more about how Honeywell solutions can improve safety, reliability, and productivity visit honeywellprocess.com or contact your Honeywell Account Manager, Distributor, or System Integrator.

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