

## **Major North American Oil Producer Increases Plant Availability From 72% to 100% and Cuts Costs by Over 22%**

At a major North American oil producer, more than 200,000 barrels of synthetic crude oil are refined every day. By successfully marrying Lean Six Sigma (LSS) to the 4 Disciplines of Execution® (4DX®), this refiner increased plant availability at a new facility from 72% to 100% and cut production costs by over 22% — creating a billion dollars in savings between 2013 and 2017.

Despite billions of dollars of new equipment, the refining operation could not stay in operation. Crews worked around the clock to keep the equipment and complex refining facilities online. The frustrations expressed by Colin, team leader, were shared by many when he said, “I don’t know how many times at the end of the day I sat in my office, my head spinning, and I thought to myself, ‘What did I do today?’ I was working hard ... but it seemed like at the end of the day nothing was accomplished.”

With an existing culture of continuous improvement (CI) at the plant, some wondered what 4DX could add to LSS. Graham, the CI expert, explained that LSS “is not the silver bullet for everything ... 4DX is more organizational and actually top-to-bottom engages everybody.” It was exactly this top-to-bottom engagement that allowed the organization to close the plant-availability gap and eventually cut production costs by 22%.

To close the plant-availability gap from 72% to 100%, Casey, vice president of production, directed each of four production units to focus on the Wildly Important Goals® (WIGs®) to increase plant availability. In one production unit where water and other substances were separated from the oil, the lead measure was to identify and stock every part that represented a potential point of failure. One employee committed to diagram and assign a warehouse number to every part that made up the primary separation vessel called a “Cyclone.” Another employee created a nightly parts checklist to make sure that a minimum number of replacement parts was always available. Similar weekly commitments by hundreds of employees closed the plant-availability gap from 72% to 100% in six short months.

Because of the results achieved utilizing both 4DX and LSS to increase plant availability and decrease production costs, company executives were in a position to purchase a competitor for more than \$10 billion. Following the purchase, 4DX was immediately introduced. Looking back at what has now been four years of success with 4DX, Casey reflected on what had been accomplished: “What am I most proud of? It’s actually this team. In 2012, we couldn’t have achieved it [the WIG] with the behaviors that existed at that time. To see how the superintendents and managers have developed [utilizing 4DX] ... that is what I’m most proud of.”