

The Indianapolis 500 would be a completely different race if tires never got worn and gas never ran out. The team of man and machine would be pitted against other man-machine teams. Drivers would only need to rely on their expertise and the quality of their equipment to challenge the track. But, tires do get worn, and gas does need replenishing, and so drivers must have pit crews. Not just any pit crews, ones they can trust to be safe, reliable, and fast, or all the gains made on the track will be lost.

In much the same way, the refinery business would be completely different if plants never needed turning around. Product would flow 24x7x365, and the only thing differentiating producers would be what they were making on any given day. But, plants do suffer corrosion and wear, and systems do need cleaning, repair and replacement, and so refineries must find their own pit crews. They need to hire turnaround teams that they can trust to be safe, reliable, and fast, or no matter how efficiently their refineries operate in up times, their gains will be lost in the downs. This is particularly true for downtimes as hazardous and complex as a Hydrofluoric (HF) Alkylation plant turnaround.

That's where teams like Philips Services (PSC) come in. With over 15 years of experience in HF Alky turnarounds, PSC has developed processes, created specialized equipment, and attracted the kind of loyal crew necessary to make them industry leaders in safety, quality and productivity.

## **The Turnaround**

A turnaround is obviously far more complex than an Indy pit stop. As an example, one of PSC's projects in California required 10,000 pieces of material, (including the design, fabrication and transportation of over 1000 pipe spools), 5000 x-rays to verify welds, 2000 Positive Material Identification Tests (PMI's), and 1200 hydro-tests. Scheduled for one month of downtime, the team put in 125,000 man-hours (most of which was spent in rubber suits with full respiratory protection) at a productivity rate of 95% and completed their work on time and on budget with no lost-time incidents.

What makes PSC so successful at major HF alky turnarounds? The answer is four-fold: Technologies, Field Experience, Personnel, and Project Management.

## **Technologies**

Necessity may be the mother of invention, but experience must surely count as a favored uncle. Working with hazardous materials, and trying to minimize risks for 15 years has resulted in an array of patented technologies that PSC employs on all their HF Alky turnarounds.

Hydrofluoric acid is, not surprisingly, nasty stuff. As standard precautions, PSC employees are required to attend safety and process overview training specifically for working in HF Alky units. Specific procedures for decontamination of materials, equipment and personnel are developed and followed, and safety inspections are performed routinely.

However, to facilitate the maintenance and decontamination of safety suits and other required accessories, PSC has developed a non-standard fleet of mobile Alky Clean Rooms. These decontamination trailers are supplied with protective gear and equipped with commercial washers and dryers capable of accommodating up to 125 workers per shift on an around-the-clock basis. Mobile decontamination facilities like the Alky Clean Rooms eliminate the need to build permanent facilities on plant sites, allowing plants to invest in more pertinent capital projects.

The ability to decontaminate safety suits quickly and easily wasn't enough for PSC. "The easiest thing to do to improve safety," according to long-time PSC project manager, Robert Cooper, "is to keep yourself as far from the hazards as you can." The manifestation of this simple wisdom was the development of two other proprietary means of cleaning an HF Alky unit. Fast Draw® is an automated system used to extract heat exchanger bundles, eliminating the need for rigging and scaffolding work. Fast Clean® is a mobile high-pressure hydro blasting system, used to quickly remove accumulated deposits from the heat exchanger bundles. Together these two systems virtually eliminate the hazards and waste associated with neutralization, at the same time taking less time and water volume.

### **Field Experience**

It's not just the special Alky Trailers, or proprietary technologies that bring customers back to PSC. HF Alky teams "complete more Alky turnarounds in a year than most plant operators work on in their career" according to Mike Prevost, business development manager at PSC.

As a company, PSC has over 15 years of experience working with HF alky units, averaging 5-8 major turnarounds a year and dozens of smaller ones. Overall, PSC logs 4.5 million man-hours annually in turnaround services.

More important than company numbers, however, is the experience of the personnel they have working for them. "There is a long list of team members, from project managers and supervisors, to boilermakers, welders, and pipefitters in the field, who have done countless HF acid units with PSC, many with over 12 years of service," says Robert Cooper, adding that, "Along with this experience comes a deep understanding of the process of cleaning these units and dangers involved."

Customers do appreciate this experience. Particularly when it relates to their own specific equipment. Given that a single plant might turn around every year or two, having the same team return each time has huge benefits. "Once they like the job we do, they invite us back. Each time we learn more about each other. We learn which valves are tough to pull and which exchangers give trouble." Cooper, who has helped some customers with every turnaround they've done with PSC, adds, "At some plants, these lessons are unit specific. With one customer, I can look at a unit and know which specific valves will take longer to come back from the shop, so from a management perspective I know to pull it

and send it out first.” Cooper is quick to point out that “it’s not just one person. I have a whole team that comes with me from job to job. Their experience is invaluable.”

## **Personnel**

Remarkably, the teams Cooper refers to are not entirely made up of full-time, permanent PSC employees. Highly trained craftsmen are notoriously hard to find, and when the jobs take you from state to state, the situation gets even tighter.

However, due to a disciplined recruiting and hiring process, PSC has developed a database of 28,000 laborers and craft personnel. Strict craft assessments, and ongoing training programs serve as assurance that crafts personnel, such as welders, stay in the top of their field. Progressive internal advancement programs and a Preferred Hourly Benefits program (which provides health and other benefits to qualified hourly employees) serve to promote employee loyalty and help protect PSC’s personnel investment. As one PSC client says, “If you put the right team together, it makes all the difference in the world. That’s why we’ve gone with Philips.”

## **Project Management**

What brings the team together and provides an enormous value to their customers is PSC’s project management. Presiding over services ranging from fabrication and specialty welding to commissioning and decommissioning, PSC’s integrated services project management offers a single point of contact to the customer for the whole project.

Being a single source provider works for both sides. Obviously, responsibility for a large number of services cuts down on overhead costs. Only one set of timekeeper need to be paid, and one office unit needs to be brought on site, instead of one each for the hydro-blasting team, the welding team, the electrical team, etc. For the clients, having one manager to go to is more direct and results in a stronger relationship. For one project manager, “It allows me to feel more in control of destiny. If the waterblasters are not getting their work done, I can do something about it. I can make logistical decisions. If the welders or hydros need to get at a unit, I can get the boilermakers out of way quickly. It helps keep the flow of turnaround moving smoothly.” One client was even quick to point out that on a recent job, when unforeseen problems arose, PSC’s management team “had the agility to immediately enact the solution, create new detailed schedules, and then carried them out like clockwork.”

Project management isn’t just about running the operation. It’s about planning too. According to Mike Prevost, “When planning a project, there are four areas that PSC focuses on. In order of priority they are: safety, quality, schedule and budget.” In Safety, PSC is proud of incident rates that are consistently below industry standards. Taking advantage of skilled craftsmen and top-notch inspectors, their Quality Control people have worked hard at keeping weld reject rates as low as possible, with less than 2% in most cases. The California project resulted in over 12,000 pages of QC documentation. Says Prevost, “We’re not trying to be the low price contractor. We are, however, trying to

be the best total cost provider of services. PSC focuses on total cost of ownership, or TCO. By working with our clients we identify the major cost drivers and the critical path of a given project. Then we work together to address those in the most economical fashion possible.”

PSC also ensures their clients of success by aligning their contracting strategies with work scope and critical path areas. For instance, PSC has performed work under performance-based contracting, whereby profit is linked to performance in the four categories discussed above. While it’s recognized that safety, schedule and budget compliance are easy to define, the metrics of quality assessment are based on the work scope, and are defined on a case by case basis. Some companies may define “quality” to mean, “No leaks on start up” or “Project within budget” or “Superior weld rate.” “For some people a VW represents quality because it’s a well-engineered car that meets their budget requirements.” Prevost adds, “For others Mercedes represents quality because it’s a well-engineered car that meets their comfort and aesthetic requirements.”

In one final automotive metaphor, Robert Cooper sums up PSC’s contribution to HF Alky turnarounds. “A turnaround is like an engine overhaul. If you want to drive your car for 50 years you want a good mechanic. If you want to run your plant for a long time, you want a good turnaround team. PSC is the best.”