

Where the money is made in Shutdowns

By Joel Levitt

Where the money is made in Shutdowns (or how not to lose your shirt during a shutdown)

Recently in Alberta a large chemical plant was supposed to shut down for 30 days on July 1. It was scheduled to go back on line on August 1. This plant supplied feedstock to plants down stream (the customers had different ownership). All the customers downstream agreed to the duration and timing of the outage. In fact, they were very supportive since they could schedule their own outages during the same period for maintenance and process improvements.



The main plant was shutdown July 29 due to some problems with contractor help. Since they went down almost a month late everyone assumed the plant would be back on line by the end of August. August came and went. So did September, October, November, December, and January. By February 15 the following year the chemical plant was limping to a start up. Tempers were high and accusations flew.

As you can imagine many things went wrong. Materials were wrong, labor got messed up (by a wide margin there were not enough people), engineering was incomplete and assemblies that were supposed to be fixed broke immediately after they went into service. The list of issues is embarrassingly long. Major bearings were made the wrong size, turbines didn't survive run in, compressors crashed and labor didn't have the skills as advertised.

There were enough people to blame to fill a good sized stadium. The customers depending on that plant suffered irretrievable losses, had reached the end of the goodwill they had for the main plant as a vendor and were beginning to file law suits. The contractors who had a hand in the event were diving for cover (from the potential law suits being considered against them), and the company seemed bewildered by what had happened.

But with all that, fundamentally one thing was wrong. To be more precise there was confusion or a collapse of two concepts.

Two thousand plus miles to the south a shutdown was commencing on an ammonia plant. As you can imagine the weather in Trinidad was quite a bit warmer than Ontario. The shutdown was exquisitely well planned. Everything proceeded like clock work right up to the moment the entire plant was shut down!

They were very careful to check all materials and supplies to make sure there was enough for the shutdown. There were adequate numbers of cases of welding rod of the type needed for the shutdown in the warehouse. The shutdown started at midnight and would last for (4) 24 hour days. The contractors were ready to go and all site specific safety training was complete.

Plant shutdown had been commencing in stages since 9 pm. By 2 am all processes were shutdown and lock outs were completed. At 2:30 am the site ran out of welding rod. Some of the cases were in fact empty cardboard cartons. In fact they had only 1 little box of rod instead of what they needed.

Welding distributors on the island were awakened and their inventories were emptied. Other plants in the area were raided for welding rod. In the end rod was flown in from Miami and Puerto Rico. The shutdown ran 1 ½ days over waiting for the air shipment.

Actually like the Canadian shutdown one fundamental thing went wrong or was confused. Yet with all the planning these two events went sour. Even with beautiful color Gantt charts, even with walls of CPM diagrams the shutdowns sometimes go sour. How is this so?

We all talk about planning as being the solution to the problem, whatever the problem is. Remember, planning is the identification of the amounts and timing of all the resources needed to do individual maintenance jobs or projects. Resources include obvious things like labor with certain skills, scaffolding, and specific parts. Resources also include heavy equipment, supplies (like welding rod) and even common tools like torque wrenches. Even obscure items might be constraining resources like penetrating dye or cooling fans. Any missing resource can constrain or even stop a shutdown. Good planning identifies all!

We spend huge amounts of time planning our shutdowns in sometimes endless detail. You have to if you want to catch everything. I am in no way denigrating the activity of planning. It is essential but not in itself enough. In fact, planning without its partner is worse than useless. Planning without the secret ingredient deceives you into thinking that since you thought of it then it must be handled.

The secret ingredient is a simple word with earth shaking consequences. The secret ingredient is scheduling with follow-up. Scheduling is the movement into time of all the resources outlined in the plan. Scheduling is in fact the precise timing of thousands of resources to converge at the right location at the right time. Follow up makes sure the

schedule happens and intervenes when something doesn't. Follow up is not always pretty.

In Canada the shutdown plan called for hundreds of thousands of hours of labor. The labor should have been expended according to the plan of the job. The schedule called for 50,000 hours by this or that date.

The schedule showed how much by when. What happened when that didn't happen? Actually nothing happened because the company was not reviewing the schedule against actual. They thought that since they had a plan they were done.

This is the single biggest trap. Just because a resource is identified in the plan on paper does not mean that it is handled in the physical world. We sometimes collapse having handled something in the shutdown plan with having handled it on the ground in reality.

Everyone knows they are two distinct domains. But sometimes we forget and collapse the two. To make it worse, frequently people comfortable in and in command of the paper domain are sometimes lost in the physical domain (and the reverse is also true).

The real work (I use real to mean physical work not mental work) begins when physical things need to be moved around, ordered, received, inspected, staged and delivered to where the work will take place (often within minutes or hours of schedule).

It is almost obsessive/compulsive with the checking and rechecking to see if the resources planned are available in time, on time.

It means measuring, weighing, inspecting, challenging, fighting, wooing all in the service of the shutdown.

It means no assumptions.

It means getting ones hands dirty to look inside of the box, carton, rail car, or truck

It means calling the contractor on to the carpet when they are not mobilizing fast enough even on the first day and not giving an inch to being a nice guy (without being a jerk).

Even before the shutdown begins it means having a sense of urgency about capital spares.

It means be everyone's friend but trust no one -always verify.

It kind of takes a unique individual to not lose money on a major shutdown. You sure want someone like this at your back!

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