ROSS FRANCIS CONSULTING

Info - Brief

The Moment of Truth
(.. only it actually lasted for eleven months).

Have you ever noticed that reports about XYZ Company's new manufacturing plant always include somewhere "…and start-up went smoothly"? You can tell that either the author of the piece never went near the place until the official start-up party (always held long after the event) or he is a former used-car salesman who was trained by Arthur Dailey.

The truth of the matter is that start-ups of chemical plants (and most other manufacturing plants) **very** rarely go smoothly, and one of the reasons for this is unrealistic expectations of the people who don't have to manage the commissioning.

The other main reason is the unrealistic expectations of the people who do manage the commissioning.

Have you ever spent an hour trying to get a new DVD player to work with your TV? Or how long has it taken to get a new piece of software (almost any piece of software) to run properly on your computer? These should be relatively simple tasks. Your new DVD or software package is probably about number 1 000 000 of identical units made. It comes with a manual written (in almost English) by someone who had sat down and started up the actual model you are dealing with. So why is it still irritating to get it to work?

Conversely, most industrial manufacturing plants are one of a kind. The rather rudimentary (but very thick) operating manual was written by a team of people who have not operated this particular plant (no-one has yet). I am not just talking about a first of its kind plant using new technology, I am talking about the plant that will be number 26 of its type in a vendors sales list ("…and start-up went smoothly for every one of them!"). If nothing else changes, there will be some subtle modification to the controls and piping, and every plant has a different raw material to produce its unique head-aches.

In World War II the British war effort required a new nitro-glycerine plant. To describe such plants as 'dangerous' is euphemistic. One plant had been operating for some years in the wilds of Yorkshire, and hadn't blown up much yet. It was decided to build an exact replica in the wilds of Scotland (if you don't know why "in the wilds of" keeps popping up, go and look up nitro-glycerine in a chemistry book). Such plants are built as lots of little operating units separated by long pipelines. When the Junior Minister for Munitions came for the official opening (long after commissioning was complete) he felt obliged to ask an intelligent sounding question. It came out as "And why is there that big kink in the pipes over there?" No one knew. Eventually a visitor from the other plant said, "In Yorkshire there is a clump of trees there".

Commissioning is not only slow; it is also expensive. Production does not get underway properly until it is complete (and the plant is now paid for, so the interest bills are piling up). It takes a lot out of the equipment, in many instances the useful service life is reduced by at least half during commissioning – this is when the plant is being most abused. It ties up a lot of people who should be doing other things. It damages morale.

Covey Consulting people spend a lot of time commissioning plants. We don't guarantee to make the problems go away, but we can offer some advice for a less stressful time of it. Try some of the following:

- Allow enough time. It is too common to try to recover lost time in design or construction by cutting the time allocated to commissioning. This does not work; in fact it usually makes things worse as it results in resources for commissioning being cut.
- Provide the necessary resources. These include: trained operators, ample technical people, and engineering resources to put things right promptly.
- Design the plant properly. When you know of a deficiency during the design stage, don't decide that "there isn't time now; let it get fixed during commissioning." It is always much cheaper to build it right than to bodge it up on the run.
- Work out what is really needed for commissioning. We all know that we will need start up chemicals, but are there plenty of spare shear-pins for drives, and oversized pump impellors and motors for the extra water flow that will be needed? Have the consequences of running some pieces with cold liquid instead of hot for the first three months been considered? Has consideration been given to the fact that at some stage there will be a whole reactor of spoiled product to be dumped?
- Be realistic. Don't expect a complex plant to be ready for handover after a week. It looks a lot better to say it will need three months and then do it in six weeks than the other way round.

When commissioning is over, go over all of the changes that were made to the plant and to the operating procedures that were 'essential' to get it going. (Which were really only to get over learning difficulties and short-term problems?) These should revert to the original design. Which ones really were necessary, and has the plant been properly modified to allow for the fact that that is how it will operate for the next fifteen years?

Commissioning will never be easy, but you can make it less soul destroying. See you on night shift!

Geoff Covey
Covey Consulting
www.coveyconsulting.com.au