

### **5.1.6. Formal handing over of the infrastructure**

Following the project close-out, direction of the plant startup activities comes under the owner's startup manager and the manufacturer's representatives. The contractor's construction force may be involved in the subsequent activities, but they are always under the lead of the owner after the facility has been turned over to him. The start-up manager assumes responsibility for commissioning the plant and for starting it up once the plant is turned over to the owner.

Plant commissioning is the first of many start-ups. It is potentially the most hazardous as the ability of the plant to operate successfully has to be proved. There are always unknown factors. More care and attention goes into the first start-up than into subsequent shutdowns and start-ups. Poorly managed start-ups can significantly reduce the Return on Investment for a new plant. Delay in start-up mean delays in when the revenue stream starts. Extended and problematic start-ups add to the cost of delivering the project, which could impact the financial feasibility. Broader strategic impact is the inability to supply customers and markets as promised, creating opportunities for competitors to establish themselves. Experience from start-ups suggests that experienced organizations with well planned startups can startup a plant in 20-25% of the construction time where as poorly planned startups can take 30-35% or more of the construction time. 75 % of the delays are caused due to equipment failure, 20% from inadequate equipment and 5% from process failure.

Frequently, the plant may be turned over to the owner on a system by system basis, rather than all at one time. This may be necessary from a practical standpoint, but it can complicate the turnover process.

The first step in facility turnover is the written notification by the contractor that the plant has been completed and is ready for customer acceptance. All of the formalities of plant turnover should be checked to assure that they have been completed in accordance with the contract. The owner's project manager is responsible for assuring that all of this has been completed including the following items:

#### **Documentation**

- If the subcontractor has been required to furnish 'as built' drawings, these should be reviewed and verified for completeness and accuracy.
- The subcontractor needs to provide verification that all of the bills for materials and supplies incorporated into the work have been paid in full.

- Engineering calculations.
- Startup spare parts.
- Operations manuals.
- Maintenance manuals.

### **Site Conditions**

- The site must have been cleaned in compliance with the provisions of the contract, and all of the surplus material either removed from the site or returned to the proper custodian.
- All temporary facilities, offices, warehouses, tool sheds, and the like provided for use by the subcontractor are to be returned in good condition. All items brought to the site by the subcontractor should be removed.
- All material, supplies and equipment which have been in the care of the subcontractor for the duration of the contract should be returned as agreed and in good condition.

### **Release of Liens and Subcontractors Claims**

- The subcontractor should formally acknowledge receipt of the final payment from the subcontractor manager for the work covered by the contract. He should also guarantee that all work, labour, and material supplied for or used on the job have been paid in full. This document should also waive all lien rights against the job. The contractor may call for an affidavit from the subcontractor stating that all claims have been paid in full.
- The owner must prepare a written acceptance of the work. Once the facility has been accepted, it is under the care and custody of the owner. Prior to formalizing the turnover, the responsible person should make sure that arrangements have been made for the desired insurance coverage. There should be no lapse between the contractor's coverage and that being picked up by the owner.