

# Effective Project Start-Up & Commissioning

**Richard G. Campbell** 



#### OVERVIEW

\* When does "start-up" start?
\* What is "mechanical completion?"



Early Involvement

- \* Estimating phase
- \* Integrated project schedule
- \* Personnel planning
- \* Do not squeeze "float" out of start-up, need allowance for anticipated problems (not "contingency")



#### Integration with Engineering, Procurement, and Construction

- \* Early review of key documents such as PFDs, P&IDs, and 1-lines
- \* Review key procurement documents
- \* Close coordination with construction, particularly as systems near completion



#### Build by Area, Complete by System

- \* Start-up group needs to define and prioritize systems
- \* Need detailed integrated schedule (the earlier the better)



#### Watch the Details

- \* Turnover packages and paperwork should not be "left until later"
- \* Safety needs added focus with hot pipes, flammable fluids, etc.
- Cleanliness during construction / effective cleaning, flushing, and laying up



#### Integration with Owner / Operations

- \* Clear definition of requirements such as Lock-Out/Tag-Out
- \* Early training of operators
- \* Involvement of operators during start-up



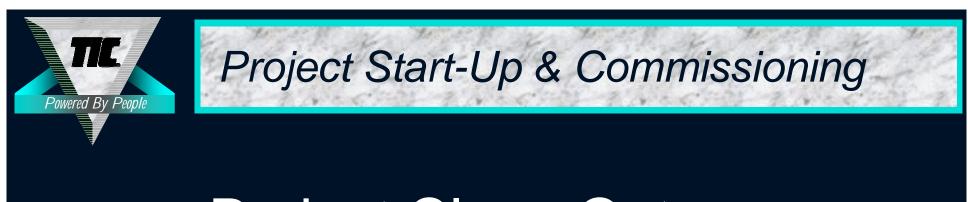
#### **Required Tests**

- \* Overspeed
- \* Other safety requirements



#### **Performance Testing**

- \* Demonstration tests
- Contractual tests
- \* Reliability test (allow double time in planning)



## Project Close-Out Release people when not needed

#### \* Final paperwork/acceptance

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#### Communication



### Summary

- \* Begin start-up planning early
- Consider start-up during all phases of the project



#### Powered By People



