The 9 Key Elements of Successful Plant Commissioning

Element 3 - P&ID CHECKING -

Who checks?
Commissioning Team (Commissioning Engineers)

What to check?
- Piping
- Equipment
- Instrumentation
- Safety
- Operations
- Maintenance
- Temporary identification tags
- Temporary signs for various lines, valves and equipment
- Temporary signs for medium and flow direction

When to check?
- After handing over systems from construction to commissioning team
- Before starting any pre-commissioning activities
- Several checks can be done simultaneously
- A final check ("Conformity to P&ID check") after completion of all pre-commissioning activities

Which P&IDs?
Marked with system boundaries
- Latest revision!
- Transmitted to Construction
- Engineering
- QA/QC

Which other documents?
- Plans
- Drawings
- Checklists
- Specifications
- Standards
- Hook Ups
- Vendor Documents

Additional Tasks
- Construction QA/QC control management through their respective punch list coordinator takes care of execution, correction and signing-off of the original "System Master Punch List" through the respective construction discipline punch list execution team.

Checking Method (Example)
- The original punch list and marked up P&ID is the "System Master Punch List" and is sent to and kept in the system punch list master files by QA/QC department. Punch items should be signed-off by the respective "Originating Punch Team" or "Authority".
- Construction QA/QC control management through their respective punch list coordinator takes care of execution, correction and signing-off of the original "System Master Punch List" through the respective construction discipline punch list execution team.
- After correction of punch items the respective construction punch list execution team will inform the respective "Originating Punch Team" or "Authority" that the work is completed and will do a combined re-check for immediate signing-off of the original system master punch list.

Remember!
- Smooth start-up depends to a large degree on the thoroughness the unit is checked beforehand!
- Define which color has which meaning. Mark checked items with a highlighter on the system P&IDs.
- Faulty items get a check number. Write this check number on the P&ID and enter this number with a description of the fault into the punch list.
- Make two copies of the marked system P&IDs and two copies of the system punch list. Attach each punch list to its respective P&ID.
- One copy is used as work / re-check copy.
- The other copy is used as the commissioning team master copy and filed with the respective system files.
- The checking method (Example):
  - Punch List
  - System Check
  - System Check for Construction & Engineering Errors
  - Plant Inspection
  - Punching
  - Commissioning Team (Commissioning Engineers)
  - Piping
  - Every line has to be walked!
  - Equipment
  - Vendor?
  - Instrumentation
  - Safety
  - Construction
  - Operations
  - Maintenance
  - Temporary identification tags
  - Temporary signs for various lines, valves and equipment
  - Temporary signs for medium and flow direction
  - Why?
    - To assist subsequent commissioning & start-up activities
  - After handing over systems from construction to commissioning team
  - Before starting any pre-commissioning activities
  - Several checks can be done simultaneously
  - A final check ("Conformity to P&ID check") after completion of all pre-commissioning activities

Faulty items get a check number. Write this check number on the P&ID and enter this number with a description of the fault into the punch list.

Make two copies of the marked system P&IDs and two copies of the system punch list. Attach each punch list to its respective P&ID.

The other copy is used as the commissioning team master copy and filed with the respective system files.

This is to assist subsequent commissioning & start-up activities.

Remember to include:
- System Check
- System Check for Construction & Engineering Errors
- Plant Inspection
- Punching
- Commissioning Team (Commissioning Engineers)
- Piping
- Every line has to be walked!
- Equipment
- Vendor?
- Instrumentation
- Safety
- Construction
- Operations
- Maintenance
- Temporary identification tags
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If you are unsure of the validity of any item --> Contact the lead unit process engineer

Any punch item which changes any feature of the P&ID must be screened by the lead unit process engineer from a design and safety point of view before implementation.

QA/QC