SmartPlant Construction
“Streamline Work Process”

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2015 AWP Conference
Tuesday, October 6th, 2015
11:30 am -12:30 PM
Agenda

- The Challenge
- The Solution
- Implementation Plan for Success
- Client Case Studies
Time on tools

- 32% Idle & Waiting
- 33% Direct Work
- 35% Variable Time
Improve Efficiency

Execute Efficiently
Optimize Dynamically
Track Progress
Document Accurately
Improving Productivity

- Construction Readiness
- Lean Construction Principles
- AWP
- Workface Planning

“Smart Technology”

.....links intelligent data like 3D models, schedules, materials, drawings…etc to work planning with imbedded rules and principles that focus on value.
Smart Technology

- Visualization
- Look Ahead Schedules
- Automation
- Manage Change
- Reports
- Manage Constraints
- Animation
- Progressing
- Materials availability
SmartPlant Construction
Smart Plant Construction Work Package

Project

CWA

Level 3 CWP

Level 4

Level 5 FIWP
Benefit of SmartPlant Construction

- Reduce Risk
- Lower Construction Costs
- Improve Transparency
- Save Time
- Integrate Materials & Schedule
- Prevent Planning Errors
- Make Informed Decisions
- Improve Productivity
- Track Progress
- Promotes Lean Principles
- Visualize Constructability
Implementation Plan For Success
Implementation Considerations

- Work Package concepts and benefits needs to be clear between all stakeholders
- Establish a Construction Management Team
- Clear construction strategy document and responsibilities for the project
- Create/Revise Project’s Construction Standard Operating Procedures and Processes and Workflows
- Clear understanding of SPC requirement and deliverables
- Establish a SPC owner and administrator for the project
- Define support and training strategy
- Establish a technology Roadmap to address the planning of software upgrades as new versions of SPC are released over time
Construction Strategy and Sequence
Project Data - Contracts
Project Data - Contractors
Project Data – Construction Work Packages (CWPs)
Project Data – Drawings to Commissioning Systems
Project Data – Construction Resources
Identified and Engage Key Stakeholders

- Executive Project Management
- Project Controls
- IT Administration and Support
- Engineering Coordinator
- Procurement Coordinator
- Materials Coordinator (Corporate and Site)
- Construction Planners
- Construction Superintendent
- General Foreman and Foreman
- Equipment and Tools Coordinator
- Scaffolding Coordinator
- Field Engineering
- Product Owner
Data Assessment

- Front End Engineering
  - P&IDs
  - Instrumentation
  - Electrical Schematics
- Detailed Engineering
  - Civil
  - Concrete
  - Piling
  - Structural Steel
  - Hangers and Supports
  - Piping
  - Insulation
  - Modules
  - Mechanical
  - Cable Tray
  - Cables
  - Electrical and Instrumentation
  - Terminations
  - HVAC
Procurement and Fabrication

- In House Developed Material Management Systems
- SmartPlant Materials
- JD Edwards
- SAP
- Excel
- Other Off the Shelf Systems
IT Infrastructure Survey

- Operating Systems in Play
- Relational Database Management Systems
  - Oracle
  - SQL Server
  - Both
- Application Servers
  - SPF/SPC
  - SP Materials
  - Primavera
- Client Side
  - SPC Client
  - SPR
  - Office
  - Adobe
  - Internet Explorer
- Fast, Stable and Robust Network
- Cloud Considerations
SPC Architecture

Workstation

SmartPlant Construction Client

SmartPlant Foundation Desktop Client

SmartPlant Foundation Application Server

SmartPlant Construction Server

Materials API

Rules of Progress API

Import Project Data API

Materials System

Rules of Progress Workbook

Import Project Data System

SmartPlant Foundation Database Server

Oracle / SQL Server
Engineering to Construction Handover: 3 Scenarios

**Scenario 1:** Handover to construction
- 2 systems
- Uses SPE/SPO Handover
- Construction receives selected documents

**Scenario 2:** Deliver design data to construction
- 2 systems
- Construction receives all design data and selects required documents

**Scenario 3:** Use published design data for in-house construction
- 1 system used by both Engineering and Construction
- *Not recommended*
Level 2 – Define and Develop Work Packages

1. Create/update work package
2. Schedule each work package
3. Describe scope of work packages
4. Design data
5. Retrieve design data
6. Add components
7. Add drawings from design tools
8. Add fabrication drawings
9. Rules of progress applied
10. Attach vendor documents
11. Attach standards and specifications
12. Refine and validate work packages
Level 2 – Issue Work Package and Monitor Progress Part 1

1. Print work package
2. Route for approval
3. Mark approved
4. Issue work package
5. Create material issue report
6. Pick up material
7. Start construction
Level 2 – Issue Work Package and Monitor Progress Part 2

9. Input progress
10. Attach documents and photos from construction
11. Monitor construction progress
12. View model based on completion status
13. Is work package complete?
14. Mark work package complete
End

8. Report progress (scorecard)

SmartPlant Construction

Construction Planner

Construction Team

SmartPlant Materials
Questions and Answers
Thank You