A New Paradigm in EPC Visualization and Work Packaging

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Introductions

• Mark Hattersley – Director of Product Management for Construction

• Dr. Paul Mihalic – Director of Development for Construction
Agenda

1. Discuss Advanced Work Packaging
2. Automation of work packaging implementation
3. Questions and Answers
Today’s Presentation

• Overview of the value of formal work packaging for construction projects

• Introduce the ProjectWise Construction Work Package Server

• Software demonstration

• Questions-and-Answers
Safety Topic

• Lightning can strike as far as 10 miles away from the rain area in a thunderstorm
  – That’s about a distance you can hear thunder

• When a storm is 10 miles away, it may even be difficult to tell a storm is coming
  – IF YOU CAN HEAR THUNDER, YOU ARE WITHIN STRIKING DISTANCE – SEEK SAFE SHELTER IMMEDIATELY!

• The first stroke of lightning is just as deadly as the last

• If the sky looks threatening, take shelter before hearing thunder

Source: National Weather Service
Construction Today

• Increasing project complexity, cost, and risk

• Significant project re-work due to
  – Poor field planning
  – Insufficient coordination between engineering and contractors

• Need to increase crew efficiency
  37% of craft labor time is spent working

How a Crew Spends its Day

Data from COAA
Work Packaging

• Not a new process for construction projects

• Breaking down projects into well defined manageable pieces
  – Align engineering and construction functions
  – Forecast resource requirements
  – Improve safety and quality
  – Improve project predictability and insight

• Design by system, build by area – need to bridge this gap

• Involve construction at the front end!
Work Packaging in the Construction Industry

• Various processes, definitions, and implementations

• Emerging standardization led by

Advanced Work Packaging: Design Through Workface Execution
Work Packaging Results

- 25% productivity improvement
- 10% decrease in total installed cost
- Greater schedule & cost certainty
- Improved:
  - Safety performance
  - Quality
  - Contractor profitability
  - Stakeholder alignment
Work Packaging as a Business Practice

• Need to:
  – Scale from a single project to all projects
  – Repeatable, auditable, traceable activities
  – Visualize project and portfolio performance

• Automated, immersive, and scalable suite of tools to enforce the business processes of work packaging

ProjectWise Construction Work Package Server
ProjectWise Construction Work Package Server

• Comprehensive Construction Information Management
  – Data Relationships (e.g. relate engineering, material, inspection and construction data, documents, tasks)
  – *Instantly Access Project Delivery Data*

• Automated Work Packaging
  – Change Manage, Assemble, Publish For Distribution
  – *Construct More Consistently and More Safely*

• Holistic Reporting and Insight
  – Continuous feedback
  – *Operate More Confidently Through Actionable Awareness*
ProjectWise Construction Work Package Server

- Enterprise server, workflow, control, and repository
- Web access and includes ConstructSim for immersive N-D work packaging
- “Occasionally connected” support for work packaging
- Reporting and dashboards
- Mobile ready
WPS - Data Support

• Support ALL the leading industrial construction design software
  – Bentley: OpenPlant, AutoPlant, PlantSpace, ProStructures
  – INTERGRAPH: PDS, SmartPlant 3D, ISOGEN, Spoolgen
  – AVEVA: PDMS
  – TEKLA: Tekla Structures

• Line, valve, equipment, material etc. lists

• Integration with enterprise systems
Work Packaging Support

- Create and manage EWPs, CWPs, IWPs, and TWPs
  - Visualize the relationships among the packages and their status
  - Support consistency through templates
- Automated and manual deliverable linkages
- Automated BOM development
- Progressing work activities\tasks
Complementary to Existing Project Systems

Source Data

ProjectWise Construction Work Package Server

Construction Management

ConstructSim Construction Planning

Field Supervisors and QAQC

Owners, Suppliers and Stakeholders

Consumers and Contributors
Demonstration

Project: AnfieldRefinery2014

Project Summary
- Project Dashboard
- Project Documents
- Download Mobile Model

Engineering & Procurement
- Upload Engineering Data
- Upload Fabrication Data
- Cut Steel Sheets

Module Fabrication
- Module List Excel File
- Module List
- Schedule by Module
- Module Visualizations

Construction
- S Curves
- Yard Head Count - Safety

Progress Reports
- Progress reports
- Fab Yard Reports
Questions & Answers

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