Work Packaging Versus WorkFace Planning

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Tannis Liviniuk, Cenovus Energy
Scott Wilson, JV Driver

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Welcome

- Introductions
- Today’s objective
- Yeah No

What is Work Packaging?

- Work packaging is the division or breakdown of Construction Work Packages (CWP's) into smaller manageable chunks of work
- Primarily discipline specific
- Often completed by the General Foremen
- Simply sequenced
- Little or no interdependent planning between trades to sequence work
- Not a controlled document (exist as field packages)

Why Package Work?

- It is difficult for Foremen to execute a CWP in its entirety due to the large scope and many possible execution strategies
- Crew productivity averages 35-40% time on tools
- Allows a definitive breakdown of manageable work ‘chunks’
- CWP’s are sometimes incomplete / unclear, therefore packaging identifies missing documentation / information
- Allows the General Foreman to sequence packages rather than tasks
- Provides an easy to use collection of required drawings for crews

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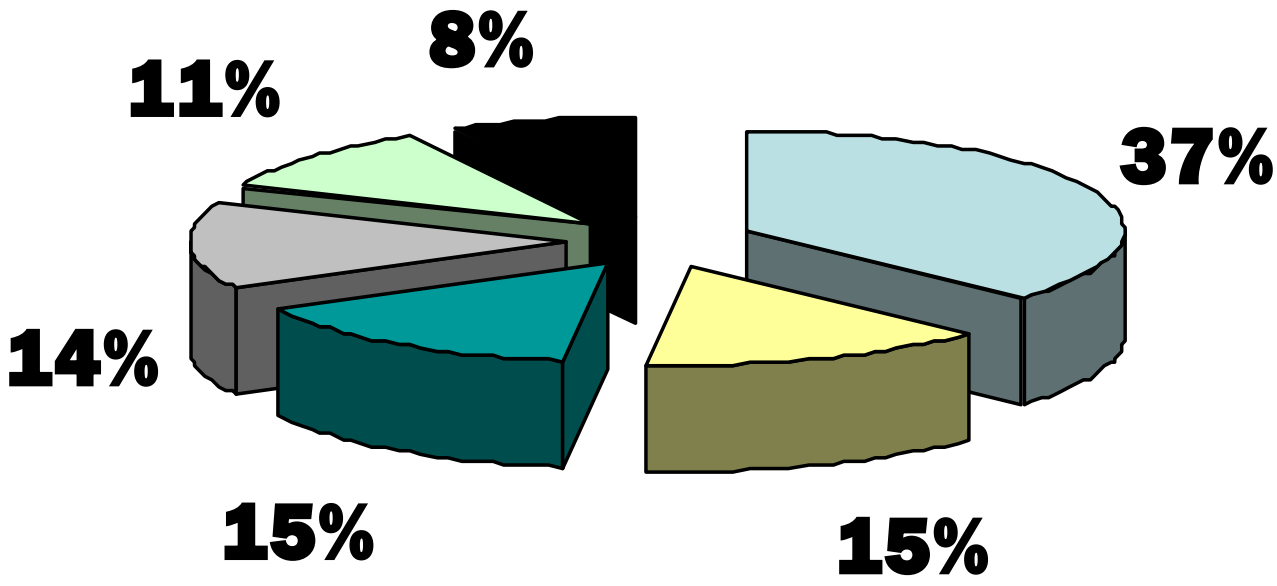
Average Crew Activity Time



Concerns with Work Packaging

- There is often little or no sequencing of work packages
- Often these packages are not integrated with schedule sequencing (disconnected from project controls)
- Rarely reviewed and signed off by foremen, quality control or HSE personnel
- Order of issue may not reflect the path of construction
- Not easily progressable
- Little or no focus on constraint satisfaction
- Minimal traceability

Audience Question

- The most difficult constraint to manage on our projects has been:

  a) Material availability

  b) Work force density / Access to area

  c) Scaffold completion

  d) Availability of equipment

  e) Availability of labour

  f) Engineered drawings (availability or revisions)

Material Management

- Work Packaging places little emphasis on managing constraints, including materials
- Although the package has been issued to the foreman, rarely has anyone verified that the materials are all available.
- This places the burden on the foreman to verify the availability of materials.
- If the materials are not available, plans must change on the fly and alternative work tasks must be sourced.
- This causes downtime for the crew, which inevitably increases the total installed cost of a project.

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Did you know?

"A $2.5 billion mega-project in Alberta required 3.5 million person hours of engineering and 15 million construction hours. Between 40,000 and 50,000 design drawings and 10,000-20,000 vendor and shop drawings were also needed."

~ Colwell, 2008

Documentation Management

- Work Packaging inherently limits efficiency in managing drawing revisions or additions.
- As these packages are not controlled, and there is often no master copy of the package, document management becomes difficult and untraceable.
- Revisions may be released and not make it to the field
- This creates the potential for extensive amounts of rework

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A Comprehensive Approach

- FIWP's are electronically packaged early in engineering (EDS)
- FIWP's are packaged according to an FIWP release plan developed at the end of the DBM stage
- This plan is developed to reflect that path of construction developed during DBM
- The path of construction is determined early to ensure alignment with the path of engineering
- Constraints are constantly monitored, and if cannot be satisfied tasks may be moved to another FIWP
- Package content is vetted by construction teams and stake holders

FIWP's & Project Management

- Stake holders include; Safety, Schedule, Project controls, QAQC, Turnover, Hydro Testing, Materials, Change management, Construction Management and Document Control
- During FIWP development BOM's are created based on drawings and details and issued to the materials group by the construction coordinator/Workface planner
- The BOM's are utilized to gather, bag and tag materials per FIWP
- Confirmation of material availability is then sent to the WorkFace Planning group
- Tasks within an FIWP may be redistributed if material availability does not support the FIWP release date
- Release of the FIWP complete with IFC drawings is based on being ready

Differences

Work Packaging

- No requisite mhrs
- Not integrated with project controls
- Not monitored and controlled for progress
- Contains engineered drawings and other documentation from the CWP

WorkFace Planning

- 500 – 1000 man hours
- Integration with project controls
- Monitored and controlled
- Contains all documentation that a foreman requires to complete the work

Differences

Work Packaging

- Material not controlled to package
- Packages are often built without planning for contingencies
- Packages built by Foreman or General Foreman

WorkFace Planning

- Materials bagged and tagged per FIWP
- Contingency packages are built to cover plans B & C
- FIWP's built by dedicated WorkFace Planner with General Foreman
- Completed FIWP's are transferred to QAQC Complete with Red lines

Audience Question

- Does your organization utilize:
  - a) Work Packaging
  - b) WorkFace Planning
  - c) Both systems on different projects
  - d) Other
  - e) I am not employed with an organization that executes construction projects

Audience Question

- Does the method you utilize depend on the project size?

  a) Yes

  b) No

  c) We only use one method

  d) We don’t use either method

Audience Question

- What roadblocks does your organization face in the use of a work packaging or workface planning system ?

A) Good Ol' Boy mentality – we've done it this way for 30 years, why change it?

B) Unmanageability of package monitoring and control

C) Shortage of skilled trades people to package work

D) Lack of information sharing

E) Undefined or poorly defined packaging processes

F) Poor training of craft / supervision / management

G) Engineering revisions

Audience Question

- The most significant benefit that I feel may be achieved by my organization through the use of WorkFace Planning is:

  a) Increased craft productivity

  b) Improved safety performance

  c) Better morale within supervision

  d) Better efficiency of integrated systems

  e) Better organizational collaboration