AWP - An Owner’s Perspective

ExxonMobil – Jacobs

NAGrowth BOP Interconnects Project
Project Overview

Location: Baytown, TX
Project Type: Revamp Project
Contracting Strategy: Reimbursable Cost
Size: 2M Work Hours
Tie ins: 164 including 17 hot taps
Scheduled Outages: 6
Reasons For Using AWP:

• Front line supervision planning limitations
• Dealing with increased project complexity
• Addressing project completion delays
• Ensuring material availability and allocation
AWP is a system to:

Align E & P to support the C sequence:

- Construction Work Areas (CWA)
- Construction Work Packages (CWP)
- Engineering Work Packages (EWP)
- Procurement Work Packages (PWP)
- Installation Work Packages (IWP)
AWP is a system to:

• Break construction into best execution sequence
• Package the work in a way that is readily understood by supervision, workers and materials management
• Give better probability of meeting cost and schedule targets – No guarantee
AWP Is Not:

- A guarantee of success
- An alternative to forward thinking and effort
- An “Easy Button”
Keys to Success:

- Partnership between owner and contractors
- Owner and Contractor PMs and CMs need to:
  - Be the AWP sponsors
  - Drive AWP from start to finish
  - Ensure that their people are trained and aligned
  - Do regular follow-up checks
  - Hold their people accountable to embrace and use
Keys to Success (cont.):

• Understand business drivers for owner and contractor:
  • Process system completion sequence and dates
  • Contractual drivers (Payment milestones, LD’s, etc)

• AWP should be implemented during Front End Engineering Design (FEED)

• EWP and PWP sequence driven by construction
Keys to Success (cont.):

• Experienced construction people in engineering
• Associate key work package completions with contractor milestone payments (LS contracts)
• Disciplined use of system and sequencing
Keys to Success (cont.):

- Planner and craft superintendent alignment in defining IWP boundaries
- IWP development > 90 days before installation
- Do not start until materials support the work
- IWP stays on 3WLA schedule until QC signs off
Keys to Success (cont.):

• Manual take offs (MTO) required to account for items not listed on drawings; shims, plates and rebar chairs, etc

• Tools need to be in place to address drawing revisions and associated material revisions

• Verify accuracy between engineering model, purchase orders and material database

• Integrated test plans (ITP) included in IWP > punch list
Alternative Case:

Separate LS for E+P and Construction

- Owner responsible for CWA and CWP structure and sequence strategy > In RFQs for E+P and C
- Negotiate pkg boundaries and sequence
- Tie payment milestones to package completions and sequence in contract
- Owner must approve any changes
What We Would Do Differently:

• Did not understand the significance of defining EWPs and PWPs based on construction before developing the engineering schedule
• Progress engineering by EWP completions, not ISO issues
• Progress procurement by PWP completions
Things To Be Aware Of:

- Just because a contractor has used AWP successfully on one project doesn’t mean they can implement it across the board. Requires the right leadership, people and team – Use due diligence
- Have owner’s team go to AWP training before interviewing contractors
- Believing AWP will improve productivity by 25%
Results:

- TRIR – 0.11
- Productivity 10% better than plan
- Intentionally delayed pipe installation by 3 months – Recognized material delays via IWPs:
  - Avoided costs due to premature mobilization
  - Recovered schedule in 4 months due to productivity gains
- Supervision and craftsmen easily visualized work via model shots in IWPs
Results (Cont.):

- Final costs significantly below appropriation value due to 4 key factors:
  - Rigorous use of AWP by project team
  - Contractor team very cost conscious throughout project
  - Use of dance floor scaffolds vs multiple individual scaffolds
  - Delay in start of pipe due to material delays saved significant money
- Project completed on schedule