AWP & WFP
Look before you leap
Background

Where we were?
- Low productivity
- Schedule and cost overruns
- Poor intra- and inter-coordination

Where we are now?
- Implementation of Workface Planning
- Collection of empirical results from multiple industries
Methodology

Multiple Case-study approach

❖ Case selection:
  – Purposive sampling. Looking for successful implementations

❖ Data collection:
  – Semi-structured interviews with Senior Managers
  – Secondary data (reports, statistics, websites, etc.)

❖ Result reliability:
  – Transcript of the interviews were sent back for confirmation.
Case Study 1 - Description

Project characteristics:

- TIC: $400 million CAD
- Time interval: 12 months
- Construction hours: 1 million

Company A (the project Owner) felt a lack of control over site operation:

- Lack of transparency and poor definition of planning details.
- Constraints analysis was absent.
- RFIs paralyzed operations.

In 2011, Company A started a 3-years plan to implement Workface Planning.
Case Study 1 – Project Performance

Safety:
- Over 1 million man-hours with ZERO incidents (the trend pre-WFP was 1 recordable per month)

Schedule:
- All projects were concluded on-schedule (the comparison between two identical projects, only one with WFP, showed 4 months of schedule difference)

Cost:
- The Owner saved 10% of planned budget.
- One of the Contractors reported a 3x increase in profit.

Quality:
- Rework was substantially reduced
Case Study 1 – Other Benefits

- Improved Constructability
- Field Productivity increased (up to 50% increase)
- Accountability of Construction Activities
- RFIs (30% reduction and most located during the planning phase)
- Transparency and Measurability
- Craft retention improved
Case Study 2 - Description

Project characteristics:

• TIC: $150 million CAD
• Time interval: 12 months
• Construction hours: 420,000

Prior to the implementation of Workface Planning Company B (the project Owner) experienced an unpredictable project environment:

• Scope was not defined in detail
• Budget and schedule were unreliable and vulnerable to changes.

In 2011, Company B developed a Workface Planning model that integrated with the existing Lean Construction system and principles.
Case Study 2 – Project Performance

Safety:
- Over 420,000 man-hours with ZERO incidents

Schedule:
- Systems were completed 2 – 7 weeks early with only one system 7 days late due to scope creep.

Cost:
- The Owner saved 15% of planned budget.

Productivity:
- Scope was increased 15% over 2011 and costs were only 85% of the total spend for 2011.
Case Study 2 – Other Benefits

- Partnership of Trust with Contractors
- Baseline of performance that will be used as benchmark for future projects
- Repeatability
- Quality improvements (Disruptions to the critical path were minimized)
- Improved Constructability
- Proactive Team Culture
Conclusions - Future Developments

- Where we are now?
  - Validation of the WFP methodology
  - Development of supporting definitions and assessment tools
  - Increased evidence of benefits and performance improvements

- Where we want to be?
- How do we get there?
CASE STUDY 3

Pre-turnaround Facts

• The pre-turnaround was part of a much larger project
• The turnaround was planned using the traditional turnaround approach
• Budget was $12,500,000 in labor
What did they do?

• The owner decided they were going to use WFP for the pre-turnaround
• Trained key contractor and company personnel in WFP (50 people)
• The owner clearly defined the key WFP deliverables they wanted and worked with the contractor to get them
What did they do?

- Audited the contractors regularly for compliance
- Followed the COAA model
  - Appropriately sized IWPs
  - Constraint satisfied packages
  - Owner leadership

CASE STUDY 3
Did it work?

• On schedule
• Came in at $10,000,000, $2,500,000 under-budget
• Training, audits and WFP support cost $500,000
Lessons Learned

- Planning for staff turnover
- Continuing to check for compliance
- Applying WFP principles to the turnaround itself
- Starting earlier, implementing AWP not just WFP
- Understanding that it is hard work to create a new culture
Lessons Learned

• Better planning leads to better results
• We need to check for compliance
• WFP works on larger and smaller projects
• Contractors selection criteria should include WFP
CASE STUDY 4

• The project added 18 well slots
• Modularized construction was utilized for a Remote Electrical Instrumentation Module (REIM), a Chemical Injection Skid, and seven Pipe rack Modules.
• The project duration was four months
• Engineering was complete prior to IWP development
CII Example

CASE STUDY 4

- IWPs were developed prior to mobilization.
- The crews were not familiar with WFP
- They bought into the value of the IWPs and effectively utilized them.
- The project saw $1.8M in reduced labor costs and finished ahead of schedule.
- The Total Recordable Incident Rate (TRIR) was lower than similar projects performed in previous construction seasons.
CII Example

CASE STUDY 4

- Winter project with critical timelines
- Realized a 10% reduction in TIC
- Only significant change was WFP