CASE STUDY of WORKFACE PLANNING

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SESSION OVERVIEW

Lessons from implementation on real projects

Shell: Mid-size projects
Suncor: Larger projects

- “What-if” session: effects of lack of awareness by specific groups
WorkFace Planning for Mid-Size Projects
Lessons Learned

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WorkFace Planning – Lessons Learned

- Goal: Improve Productivity at the WorkFace

- Realized benefits on Cost/Schedule, Quality & Safety with ongoing projects

- Lessons Learned along the way.....
Outline

- WorkFace Planning – Current Status
- Types of projects to implement WFP
- Focus Areas
- Lessons
  - Owner Roles
  - Front-end Preparations
  - Construction Scope of Work / Contractual Requirements
  - Safety
  - Organization & Support
  - Training
- Benefits Realized
Shell Canada Energy – Project Divisions

- **Major Projects (>500 Mln$)**
  - Incorporating WFP
  - Leveraging COAA and systems of EPC/Construction Contractors.
  - No ‘Global’ guideline developed for WFP

- **Onshore Projects (<500 Mln$)**
  - Range of Complexity & Size
  - <$10M to $200-$300M+

- **Site Projects (smaller, less complex)**
Onshore Projects – Incorporating WFP

- Onshore Projects
  - <500 Mln$
  - Range of complexity & risk
    a) One-off (tailings, infrastructure, pilots, plant mods etc.)
    b) Field Development (gas plants, pipelines, compressor stations)
    c) Small, Repeater Projects (e.g. wellsites)

- “Right-Sizing” WFP model to fit the size/complexity of the project.

- Improving key Supporting Deliverables in the Front-End
WorkFace Planning - Implementation

- Begin with the End in Mind
  - System turn-over drives Construction
  - Construction drives Engineering & Procurement

- EWPs are Engineering deliverables
- CWPs & FIWPs are **Construction** deliverables

- WFP Model is process based with:
  - Organizational Framework
  - Rules & Process Flowchart
  - Templates, Tools, Tracking & Reporting
Current Status – WFP Uptake

- Different uptake, understanding and capacity across our businesses wrt WorkFace Planning.

- WFP Procedures developed for each project/development area
  - Builds on COAA guidance
  - Shell specific requirements (Safety, QC, tracking/reporting & audit)
  - Include Front-end requirements, precursors to FIWPs.

- Improve on key pre-requisites:
  - EWPs – Engineering Work Packages (Engineering Deliverable)
  - CWPs – Construction Work Packages (Construction Deliverable)
Lesson: Owner Involvement and Leadership

- Owner involvement and leadership is key

- Owner needs to understand WorkFace Planning model and front-end support requirements. (don’t just refer to the COAA website & walk away)

- Engage Engineering and Construction Contractors as early as possible to address WorkFace Planning needs

- Owner Facilitated “Workshop” Sessions

- Start with manageable steps....
Lesson: Clearly Define Path of Construction & Methodology

- Owner has primary responsibility in developing the Path of Construction or Construction Sequence.
- Input from disciplines & contractors
- Incorporates various constraints (seasonal, environmental/regulatory, procurement etc.)
Lesson: Understand Engineering Work Packaging vs. Construction Work Packaging

CWP

Engineering  Procurement  Construction
Lesson: Understand EWP and CWPs

CWP

Engineering
- Scope of Work
- IFC drwgs
- Eng.Specs&Std
- Equipment/Materials
- Vendor info
- Quality Instructions
- Regulatory approvals/permits
- Turnover Documents
- Schedule (Level 3)

Procurement
- Long Leads
- RAS dates
- Material Mgmt
- Expediting
- Transportation
- Special Requirements

Construction
- HSE/Safety
- Manpower req.
- Level 4 Schedule
- QA/QC
- Construction Tools/Equip
- Heavy Lift Plans
- Scaffold
- Waste Mgmt
- Interfaces/Coordination
Lesson: Quality Engineering Work Packages (EWPs)

- **Workshop** with Engineering contractor to clearly specify content and quality for EWPs.

- Set expectations around EWP release plans:
  - Aligned with the Construction Sequence
  - Contracting strategy incorporated
  - Preliminary-EWP release to construction

- Tracking and Reporting on EWP progress

- KPIs for EWP completion & quality
Lesson: Quality Construction Work Packaging

- Prior to mobilization, Construction contract awarded, hold an engagement session with:
  - Owner (PM/PE, HSE, CM, C&P, PS etc.)
  - Engineering firm
  - Construction contractor

...to clearly specify **content** and **quality** for CWPs

- Build upon EWPs incorporating:
  - Safety, Quality Control, Manpower estimates, Scaffolding, Special construction equipment etc.

- Set expectations around interface with Engineering, preliminary-EWP release, and CWP development and release plans.

- Understand & agree on tracking/reporting & KPI requirements
As part of the bid process, include specifics on requirements for WorkFace Planning in the Scope of Work.

Refer to COAA website, BUT....don’t stop there.

Company/Project specific expectations include:
- Organization, including Roles & Responsibilities
- CWP content & quality
- FIWP content & quality
- Tracking & Reporting, including KPIs (e.g. FIWP backlog req’m)
- Audit Requirements
- Sub-Contractor requirements
Lesson: Safety details for Field Installation Work

Packages

- Construction Practices/Procedures (CPPs)
  - SimOps review for Construction
  - Catalogue of required CPPs (ID and Develop early)

- Sufficient detail in each Job Hazard Analysis (JHA);
  Reference in FIWPs
Lesson: WorkFace Planning Organization

- Ensure sufficient planners have been assigned to the project
  - WFP Lead
  - Enough of the right Planners
  - Adequate competency

- Ensure planners are brought on board in time & trained in the systems/tools required.

- Minimize Turnover of Planning staff
  - Better understanding needs, roles & responsibilities
Lesson: WFP Support Requirements

- Ensure sufficient support is provided including:
  - Planners sit together in the same trailer
  - Admin & data entry
  - Document control
  - Tools in place (databases, 3D models etc.)
Lesson: Training

- Training for Owners Team

- Training for Construction Contractors
  - Supervisors, GF, Foreman on WFP fundamentals

- Training for Sub-Contractors
  - Understand WFP fundamentals
  - Specific requirements for project (QC, tracking, reporting etc.)
Lesson: Benefits are Real

- Foremen are getting more time with the crews
- Direct impact on productivity
- More predictable Cost & Schedule
- Better morale, less frustration
- Improved Safety performance
Summary

- Right-size for Mid-size projects
- Owner has a key role in driving WFP
- Front-End preparations
- Contractors are aligned
- Clarity in Contracts & Construction Scope of Work
- Staff Owner and Contractor organizations adequately to support WFP (capacity & competence)
- Safety is adequately addressed in work packages
- Support is in place (admin, hardware, software, DCC)
- Training

- **Realize Benefits**
Thank-you