

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



- EWP's are Engineering deliverables
 - CWP's & 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

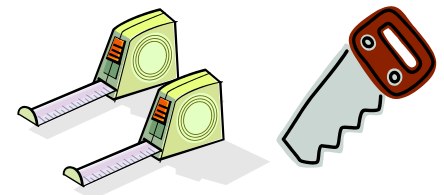


- Start with manageable steps....



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

CWP

Engineering

- Scope of Work
- IFC drwgs
- Eng.Specs&Stds
- 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 (EWP)

- **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

Lesson: Construction Scope of Work includes WFP

- 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



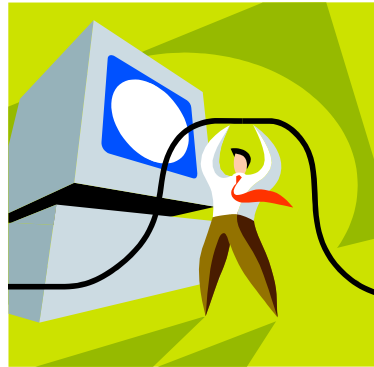
- Ensure planners are brought on board in time & trained in the systems/tools required.



- 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

