This presentation includes forward-looking statements. Actual future conditions (including economic conditions, energy demand, and energy supply) could differ materially due to changes in technology, the development of new supply sources, political events, demographic changes, and other factors discussed herein (and in Item 1A of ExxonMobil’s latest report on Form 10-K or information set forth under “factors affecting future results” on the “investors” page of our website at www.exxonmobil.com). This material is not to be reproduced without the permission of Exxon Mobil Corporation.
Safety moment: Technology enhances safety ... and productivity

Detection Technology – Hosted “industry” workshop May ‘14

- RFID, GPS, RTLS
- Technology improved significantly in recent years; application is becoming more cost effective
- Industry still on initial slope of learning curve (3 out of 10)

Safety and Productivity applications

- Collision avoidance, geo fencing, optimization of schedules for mine trucks
- Personnel / equipment interface, emergency response, qualification / training, site manpower

Smart tags

- “Real time” remote access for monitoring

[Image of detection technology application]
Capital Spending

- Major Projects ($1 billion+):
  - Kearl / Oil Sands, Alberta; Alaska; Offshore GOM / Newfoundland; North American Growth (NAG)
- Small Projects ($1 million+):
  - Production Units e.g. USP, Imperial Oil
  - Downstream - Baytown, Beaumont, Baton Rouge
Construction Productivity Impact?

“Time on Tools”

Example Courtesy COAA

What's the prize....5%?

Advanced Work Packaging

Delivers: Safety Schedule Cost
Project Management System

![Project Management System Diagram](image-url)
Constructability

*Know what matters…Understand the “prize”*
- Impact of early design decisions on final construction costs (stick build vs modularization, etc.)

**Stage 2 – Optimize & Define**
- Constructability
- Construction Sequencing
- “Early” Construction Planning

**Construction Sequence**

“Early” identification of CWP’s;
understanding of construction sequence drives E & P deliverables

*Systems completion / commissioning “drives” construction sequence “drives” Engineering & Procurement deliverables*

**Stage 3 – Plan the Work**
- Construction Plan
- Construction Work Packs
- Construction Readiness Review

**Stage 4 – Work the Plan (Execute)**
- Productivity Measurement
- Progress Measurement

Construction Work Pack (CWP) Planning / Management

*Construction work organized in discipline based packages*
- CWP’s monitored and adjusted to maximize productivity
Who is the Customer?

- Commissioning and Start-up plans drive construction
- Construction plans / work packs drive Engineering and Procurement deliverables
- Plan forward and prioritize backwards

Planning Forward

Engineering & Procurement Deliverables

Construction Sequence / Work Packs

Commissioning / Systems Completion

Prioritizing Deliverables Backwards
Business Case for Productivity

Who has the most to gain / lose….the elephant in the room?

Performance Risk

OWNER

CONTRACTOR

Reimbursable
Time & Materials

Lump Sum
Unit Rates

Safety

Schedule
Offshore Project

- Multiple platform campaign – brownfield construction ~700k offshore manhours
- Job card process managed with access database - ~500 / platform (100-200 manhours each)
- Monitored non-productive time (NPT) using 20 categories (tool box talks, permits, breaks, waiting on tools / materials / scaffolding, Ops assistance / shutdown, etc.)
- Lessons Learned – scope well defined & broken into manageable pieces that can be measured & controlled, minimizes “guesswork” during execution (right drawings, right people, right materials, right support at right time), improves safety, quality, predictability
Chemicals Project

- **Project Specifics**
  - Schedule driven, heavy revamp project to repurpose an existing mothballed facility
  - Significant overlap of engineering & construction
  - EPC direct hire construction approach, 820k direct construction hours, 410K piping (50%)
  - Downloaded PD3 3D model into Bentley’s ConstructSim to develop piping Field Installation Work Packages (FIWPs). Late engineering changes decreased expected efficiency gains
  - Used 4D WFP (ConstructSim + manual sequencing of installation)

- **FIWP Approach**
  - FIWP includes work for an 8 person crew to complete in 1 week, including “A” punch list items
  - Embedded QC in FIWPs, ratably finished packages & turned over, better progress predictability
  - Sequence of FIWP’s were adjusted to reflect material availability
  - Deferred ramp-up of piping resources to avoid significant productivity debits
  - L3 schedule updated using FIWP’s tied to P6 schedule.
  - Field Labor Analysis tied to FIWPs to track field productivity (new capability)

- **WFP/ FIWP Lessons Learned**
  - Proper set-up, training and support is key to FIWP success
  - Earlier utilization of WFP in planning would have facilitated properly sequenced detailed engineering
  - Piping productivity debits avoided by craft mobilization deferral - used FIWP completion for timing to hire
  - Believe that under normal construction circumstances, WFP/ FIWP’s would have resulted in 2-5% labor field productivity improvements. Anecdotal evidence – no qualitative field measurement
Work Packaging Lessons Learned

Current: Experience-based Construction Planning
- Manually generated work packages
- Manual resource balancing
- Manual reporting & analysis of construction status

Future:
- Visual & electronic WPs thru WFP
- Visual status reporting & analysis
- Real time tracking of construction status

Benefits:
- Improved safety thru 4D visualization
- Reduced effort to create work packages
- Reduced labor effort due to better quality plan and schedule
- Reduced effort to obtain engineering data
- Reduced effort to confirm “as-builts”
Mining Project

Project Specifics

- Relocation of 2 ore processing facilities; ~ 4M manhours
- Project in 2 key phases; construction & relocation
- New site development - 2 kms away

Work Packaging Approach

- 4D Visualization (enhanced 3D model with addition / timing of construction sequence); utilized to rehearse, communicate and facilitate day by day activities
- Construction Phase (civil, piling, undergrounds, MSE, foundations, roads) utilized 51 CWPs by area, prioritized and sequenced
- Relocation Phase approached with turnaround strategy utilizing Method Statements and Job Cards
  - 1900 Job Cards (1 shift each) that included method statements and JSAs
  - Heavy haul and lift contractor developed movement packages for key pieces of equipment

Lessons Learned

- Top down vision, leadership resolve and support to ensure application of CWPs, Job Cards were instrumental in delivering well ahead of schedule, below cost and safely without any LTIs
- Construction Team early development / utilization of CWPs in planning enabled sequencing of FEED / detailed engineering packages, including planning / execution of brownfield works during outages by Operations
- Proper set up, training & support of Contractor to develop/utilize CWP's / job cards was vital
- Ability to monitor Contractor performance daily and mitigate any shortcomings or barriers was key
Work Packaging / Workface Planning “Disablers”

- Size / complexity of project
- Perception of cost / benefit
  - “Traditional” mindset / experience is retiring
- Contractor “position” on the learning curve
  - Trained workface planning personnel – NOT Primavera
  - Experience with application – office & field
- Software – help or hinder
  - Compatibility of engineering / construction software
Conclusions

• Work packaging is still an “unrealized” prize
  • Industry only partially up the learning curve
  • Inconsistencies even within large EPC contractors

• Workface Planning / Advanced Work Packaging “WORKS”
  • Provides framework to deliver consistent, predictable, repeatable results
  • Knock-On affect of good productivity….safety, quality, cost, schedule
  • “Do more” in an environment of constrained capital

• We’re monitoring & supporting – contractor performance

• “Work Packaging is Good Business”