

## **INDUSTRY EXPERT PANEL SESSION**

**DURING THIS SESSION THE PANEL WILL DISCUSS THE BENEFITS OF WORKFACE PLANNING, THEIR THOUGHTS ON HOW WORKFACE PLANNING SHOULD BE APPLIED, AND HOW THE MODEL SHOULD BE DEVELOPED IN THE FUTURE.**

### **Speakers:**

- Al Wahlstrom, Suncor – Chair of the WorkFace Planning Committee
  - Major Projects at Suncor since early 80's
  - Worldwide experience
- Mike Eichhorn - Manager General Projects, Nexen
  - Major Projects at Nexen since early 80's
  - Worldwide experience
- Bill Elkington - Director, JV Driver
  - Introduced innovative technologies in fabrication shop for implementing construction
  - Well respected

### **Moderator:**

- Lloyd Rankin - President, Ascension Systems Inc.

### **Questions to the Panel:**

1. What are the benefits you have experienced in the use of WorkFace Planning?
  - Al Wahlstrom – Suncor is able to take a long term look & organize activities from an early part of the project to the end. We understand contracting strategy which forces us to look at the scheduling components.
  - Bill Elkington – JV Driver started using WFP as a shutdown tool, developing the tool in conjunction with the COAA model which resulted in better safety, more repetitive work in

production (materials, information, up front work) and 11 – 38% productivity improvement.

➤ Mike Eichhorn:

- i. Construction Management have a better understanding of project scope and are able to recognize engineering problems in order to remove constraints.
- ii. From the contractor's side, there is a better understanding of the scope of packages; therefore, time is freed up so the foreman can mentor to less experienced trade people. There is also a better safety environment.

2. Is the application of WorkFace Planning the same in the Front End, the Field, and in Fabrication Facilities? If not, how does it differ?

➤ Al Wahlstrom – The COAA Model definition effectively covers the Back End in the field; however, the current activities of the COAA WFP Committee & Suncor is to push into Front End Planning. We need to get involved as early as possible; there is not enough rigor or definition around front end planning to involve construction in planning process early. The primary purpose of the Path of Construction is to utilize planning experience from all interested stakeholders. The planning process needs to direct activities for on time delivery and to fit these deliverables to the construction activities. Input should come from many parties – project management, engineering, & critically, construction. There needs to be a smooth transition from planning to construction to develop the deliverables from the front end to the field – Suncor will own this process.

➤ Bill Elkington:

- i. Front end is working with engineering & procurement teams to define packages that are construction driven – certain construction strategies may vary the entry point.
- ii. Field installation work packages – We have used the shutdown model to get all information & all materials together – in the field, the men go to the work and the fabrication output flows into the field crew. Alternately, fabrication work come to the men in the shops then goes to the field & material flows.

- iii. Each component handled differently depending whether in the shop or field to get best flow.
  - Mike Eichhorn:
    - i. There is not enough information at FEED. Phase 2 Long Lake was taken down to CWP level in FEED. Nexen's CEP & module strategy means at field schedule is at level 4 by workface package within CWP. In detail design, it is too early to start packaging at 30% engineering and it is our plan to package at 60%. We start with virtual packages (2000 hours/package) & schedule into integrated schedule. Quantities & labour hour estimates will be matched up then. There needs to be a move to a manufacturing process on construction site to improve labour efficiency.
    - ii. 3 months before mobilization we bring in a GF to finalize & break down WP to 1000 hour units. Individual contractor CWP embedded in packages.
    - iii. In process verification – The pre-hydro punch lists were short & matched to workface package level
    - iv. Engineering errors, missing material handled by switching work packages. Progress packages only when work is done.
3. What should we be doing right now to get alignment between the owners, construction contractors, and engineering firms? (Optional question based on available time) – Lack of trust between players in construction industry.
- Al Wahlstrom – We need to bring people together and get them involved. That is the intent of the COAA WFP Committee activities. If a standard system can be put in place as a guideline (baseline), our own principles can be established around them. Activities initiated by Suncor & COAA should receive input from diverse representation in industry so a consistent approach to planning exercise on projects will result in owners developing more confidence & trust in the project environment and contractors will become more confident and knowledgeable.
  - Bill Elkington – Training is important – Safety has become more consistent with the use and rigor of consistent technology,

systems & training. Up front planning & working together needs leadership & participation.

- Mike Eichhorn – Training – continually reminding designers to tailor drawings to people in the field. It is important to have some understanding on both sides of the planning – construction vs engineering. We appreciate that we cannot grind on indirect costs.

#### 4. What do you see as the future direction of WorkFace Planning?

- Al Wahlstrom – The model & processes on the field side are in place for a baseline. We need to move upstream and get construction planning as early as possible into the project planning process. Suncor is taking ownership of the project planning process – conceptual to end - in order to add continuity. Involvement of construction can be in the planning but we need rigor in the defining of the processes.
- Bill Elkington – The education level of participants is up. We need to be working with vendors and tracking materials for correct materials. We need to be looking for technology that can physically progress in the 3D model to monitor projects as they develop. Material process handling needs to be developed. Owners must be committed to align engineers with construction.
- Mike Eichhorn – Building a deck means 100 trips to the hardware store, akin to how the oil and gas industry is handling projects and this must be changed.

#### **Audience Questions:**

1. **Donald Mousseau - Husky Energy** - Currently industry tracks schedule progress by paper being produced – weight of paper = equipment being constructed. Too much documentation. With automation techniques being developed, what is going to happen to upstream delivery of the paper to reduce amount of paper waste?
  - Bill Elkington– QC/QA is streamline. In fabrication facility, drop from the model detailing – mark out & scribe marks on structural and laid out for fabrication electronically. Pipe shop uses screen instead of spool sheets – 2D ISO and rotate

3D piece in the model. Orientations reduce errors. Not to the point in field to have tablets to view drawings in the field. Interested in how the screens in the fabrication facilities can be applied to the field. RFID finds materials quickly & efficiently & increases tool times. Manage materials with paper but should become digital. Using model for workface planning & using model cuts to make packages in the front end and improves CWP planning.

- Al Wahlstrom – Some of the software solutions will also help get away from huge FIWP that is carried around in the field; capability of keeping as much info as possible electronic.

2. **Cam Sonnenberg - Graham Industrial** - Are owners willing to wait until WFP is done at a contractor level to complete project organized at front?

- Mike Eichhorn – We control movements of our mobilization until there is 3 months of FIWP backlog.
- Al Wahlstrom - Suncor uses RFFC (Ready For Fabrication & Construction) Rule – 14 weeks in between completion of IFC package to mobilization and implementation of work in that package.
- Bill Elkington – Keeping a number of FIWPs at ready. When engineering is complete is the big question for getting materials and preparing packages?

3. **Farshid Gholami - University of Calgary** - To what extent does WFP address engineering problems?

- Al Wahlstrom – WFP may not have all the answers. Education in the overall planning process will help. Engineers historically have refused to let construction personnel tell them how they should execute their work. Suncor acknowledges importance of all players, but the sequence of construction must be set up by the Project Management Team. Supply Chain, Construction, & Engineering need to negotiate to come up with a plan.
- Bill Elkington – Constructor in the engineering house will seek deficiencies in engineering when building FIWP. 80/100 needs to be 80% of physical engineering; quantity differential is significant at this point in sequencing work –

waiting to the field is too late. The right person is needed as the constructor – good rapport must be between the constructor & engineer. Accountability & responsibility is necessary to give players a chance to communicate and exchange ideas to solve deficiency issues before they get to the field.

- Mike Eichhorn – Rapport is important. Culture in EP organization is completely different than the culture in construction organization.
- Wayne Cusitar - Independent Consultant - The skill set from Project Management, Engineering, Construction is very different and I believe that we suffer from constraints of the capacity of contractors available to work for us. We may sacrifice the bidding processes because we need people with construction knowledge & experience to provide the services needed at this point.

4. **Dr. Janaka Ruwanpara - University of Calgary** - What is difference of WFP to Detail Construction Plan? How much tool time is increased if implemented properly?

- Bill Elkington – WFP & good construction planning is the same thing. Plan your work right – all the information, all materials and the workface scoped out means that work flows smoothly. Try to train people in the industry consistently & improve across the whole industry.
- Mike Eichhorn – We need an organization committed to executing according to the plan and we need accountability & responsibilities defined.
- Al Wahlstrom – Project Management effectively drives the plan and needs to be part of the planning.
- Bill Elkington – Productivity in field is improved 11 – 38% by planning to pipe and to boilers. Discipline is what is required.

5. **Andrew Hunter - AMC Consulting** - Do you see value in lean construction?

- Al Wahlstrom – Trust is a big issue in industry. Internationally, my experience has been that trust is not a problem. From the owner’s point of view, a lean approach will not hurt as long as we are doing the right things. It is

not the whole answer and we need to clarify scopes of work and the language needs to be clear; these things will help relationships.

6. EPC in a Lump Sum Contract - is it valid to plan to level of FIWP?

- Al Wahlstrom – Proper execution will include the planning piece. This is necessary from the owner's & the contractor 's side. Reimbursable or firm pricing would be driven the same way. With regard to FIWP preparation, Suncor sees that 80% of FIWPs can be prepared, then taken to site and the last 20% can be added at site by the contractor. 1000 man hours is a better size related to crew sizes. Owners drive the CWP, but not necessarily FIWPs. We should push as much to the contractor as possible but maintain ownership of the planning process. Completion of FIWPs is part of the payment process.
- Bill Elkington – Lump sum means: No execution, No money. No planning, no execution. The biggest bang for the contractor is lump sum because lump sum projects with minimal changes are a bigger pay off for everyone. An EPC company doing FIWPs would not be recommended as this is too far down the sequencing line. Type B personalities are more prevalent in contractor organizations.