



**VECO Engineering, Inc.**

# **NWCCC Schedule Compression**

**Perspective of an  
Engineering Professional  
June 24, 1998**



## **Overview**

- **Definition**
- **Ideal vs. Compressed Schedule**
- **Consequences and Opportunities**
- **Proactive Ways to Manage**

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## Definition

- **Engineer or Architect – He who designs and specifies the work for the construction contractor, and thereby makes it possible for the construction contractor to look good.**

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## Ideal vs. Compressed Schedule

- **Idea Schedule (Comfortable)**
- **Real Schedule (Fast)**
- **Compressed Schedule (Possible roller coaster)**

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## Idea Schedule

- **Minimum overlap between E and C.**
- **Minimum number of packages.**
- **Adequate time for checking and quality control.**
- **Desirable, optimum from engineer's perspective.**
- **Not often encountered.**

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## Real Schedule

- **Pushed overlap of E and C.**
- **More likely to be encountered.**
- **Starts to trade off optimum engineering schedule for shorter overall cycle time.**

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## Compressed Schedule

- **Maximum amount of overlap, many packages.**
- **Drawings released when less than 100% complete.**
- **Maximum opportunity for errors.**
- **Minimum overall cycle time No. 1 Priority.**

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## BPXA F-Pad Expansion Project



- **14 months.**
- **Parallel performance**
- **Clear target date.**
- **Commitment from Client, Engr, Fab, Constr.**

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## Consequences and Opportunities

### ➤ Good

- Pat on the back, (if you can be seen from your position standing behind the glowing construction contractor).
- If compressed schedule is achieved, you likely will have the opportunity to do it again (becomes the expected norm).

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## Consequences and Opportunities

### ➤ Bad

- Additional field rework viewed as poor quality engineering, (as opposed to an expected consequence of accelerating schedule).
- Personnel moved off other work to staff compressed schedule job. Other work likely suffers.
- Staff burnout, stress.

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## Consequences and Opportunities

### Bad (cont'd)

- **Less willingness by staff to approach next job with the same vigor.**
- **Damaged relationship with client.**
- **Damaged relationship with construction contractor.**
- **Higher engineering cost and engineering rework are likely remembered longer than the compressed schedule.**

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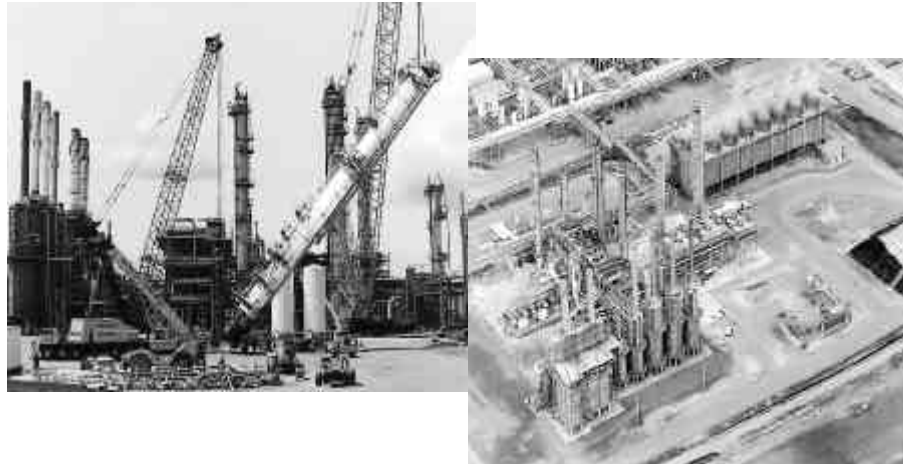
## Proactive Ways to Manage

- **Develop Relationships, (BEFORE needed)**
- **Timing**
- **Techniques**

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## Shell Clean Fuels



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## Develop Relationships, (BEFORE needed)

- **Project facilitators / teambuilding / partnering**
- **Shared objectives by ALL stakeholders**
- **Shared ownership for schedule among ALL stakeholders**
- **Trust and Respect**
- **Approach in a collaborative atmosphere**
- **Project facilitators (ongoing)**

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## Timing

- **Planned vs. Recovery**
- **Early in the Cycle**
  - **Best opportunity to develop team commitment.**
  - **Best opportunity to know and attack issues on the critical path.**
  - **Engineer is in a better position to help gain schedule if compression.**

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## Late in the Cycle

- **Highest impact**
- **Most difficult to pick-up time**
- **Unlikely that benefits will cover risks, for the engineer, unless true shared ownership for outcome exists between stakeholders.**

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## Techniques

- **Resourcing**
- **Work with the Construction Contractor**
- **Work with the Owner**
- **Project Controls**
- **Lessons Learned**

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## Resourcing

- **Staffing – more**
- **OT – more**
- **Move work to sub consultants, (control interfaces!)**
- **Move work to vendors, (control interfaces!)**

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## **Work with the Construction Contractor**

- **Move construction personnel to the office (constructability, early releases, priorities)**
- **Reduced amount of detail – shift detailing to the shop or field,**
- **Partial release of packages.**
- **Move engineers to the field.**

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## **Work with the Owner**

- **Move owner into engr's office**
- **Shortened or no owner review/approval cycle,**
- **Lower level, (and less time) on checking,**
- **Change expectations for field rework**
- **Change expectations for cost**

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## Project Controls

- **Put money and effort into PROJECT level scheduling (planning, statusing, recovery).**
- **Construction sensitive schedule, (with construction contractor scheduler on the PROJECT Controls Team).**

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## Lessons Learned

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## Parting Thought

- **People have an innate capacity and desire to feel good about their work. When we feel good about our work, we not only enjoy our lives more than when we are not, but we are far more competent, productive and creative.**

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