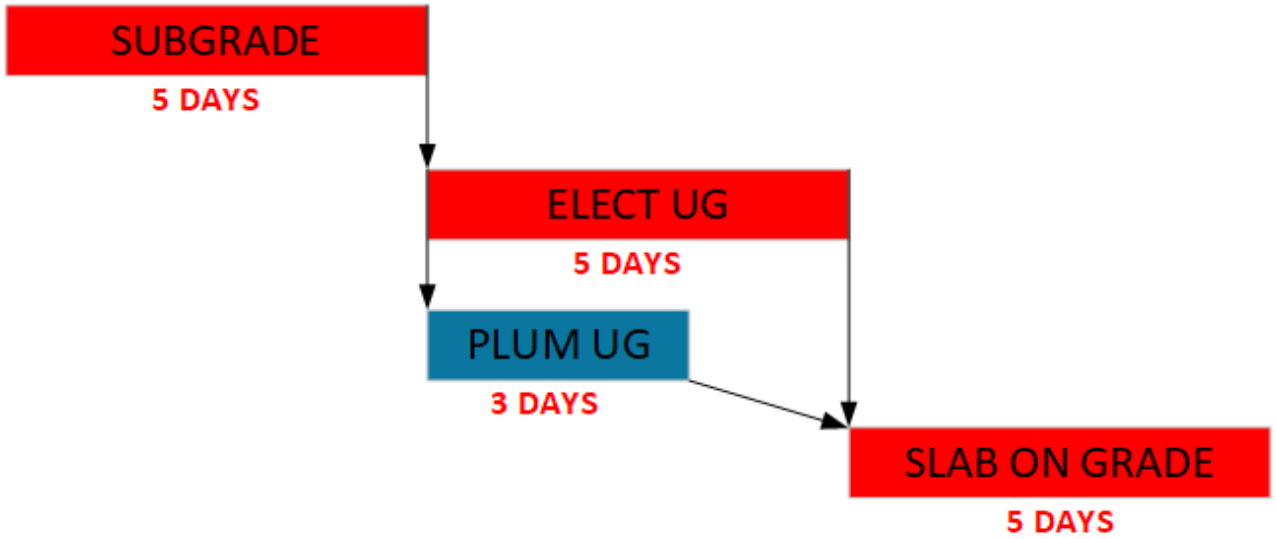
Challenges Met,
Promises Kept.

HASKELL
CORPORATION

CPM Schedule (Software)

- **Most heavy industrial projects require a “CPM” Schedule**
- **Primavera P6 has been industry standard for decades/P3**
- **Primavera P6 is most often required by Refineries, Power Plants, and USACE Government projects**
- **Other software is rarely used properly as a CPM Schedule. It is usually just a picture or Gantt chart showing what you think is going to happen**
- **The schedule must have a critical path!**

Critical Path (Simple)



The CPM Schedule is a "Plan"

- **The schedule must be developed as a "Plan". How are you going to get there? Flying is a great analogy. What is your Flight Plan? Plan a route. Check the weather, the plane, fuel, oil, nav equipment etc. Don't take off until you have a plan.**

- **It needs to be developed by the people who are going to do the work. Superintendents, GF's, craft people, rather than estimators, engineers, project managers, and even "schedulers"**

- **How are they going to build this? What is their plan? You need their buy-in and want them involved in the process.**

- **The craft have different skill levels and communication skills. It can be a challenge to draw it out of them, but so much worth the effort.**

Scheduling Best Practices (DCMA 14)

HASKELL
CORPORATION

Defense Contract Management Agency DCMA 14	
1. **Logic**	All activities (except first and last) must have both a predecessor and successor.
2. **Lead**	No use of **leads (negative lag).**
3. **Lag**	Use of **lag time** should be justified and minimal.
4. **Relationship Types**	Use of **Finish-to-Start (FS)** relationships should be dominant (at least 90%).
5. **Hard Constraints**	Constraints like "Must Finish On" or "Start No Later Than" should be avoided.
6. **High Float**	Tasks with **Total Float > 44 working days** are flagged.
7. **Negative Float**	Tasks with **Negative Float** indicate the schedule is behind or has invalid constraints.
8. **High Duration**	Tasks longer than **44 working days** are flagged.
9. **Invalid Dates**	No actual start/finish dates in the future.
10. **Resources**	All tasks should have **resources (labor, materials, costs, etc.) assigned.**
11. **Missed Tasks**	Looks for tasks that should be started or finished but haven't been (based on status date).
12. **Critical Path Test**	Ensures that the **Critical Path** is continuous and realistic.
13. **Critical Path Length Index (CPLI)**	A measure of schedule realism.
14. **Baseline Execution Index (BEI)**	Measures how well the project is executing to the baseline.

DCMA 14

- **A good CPM Schedule will adhere to the 14 points**
- **In many schedules and on many projects the principals and guidelines are not followed**
- **But they should be!**

USACE Government Projects

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 32 01.00 10

PROJECT SCHEDULE

USACE Government Projects

- **DCMA 14 with afterburners turned on**

- **All 14 points will be followed with an extensive list of other requirements:**

- **Scheduler qualifications**
  Software used
  IPS (Initial Project Schedule) the Baseline you will live with for the project
  Cost Loaded (This is how you get paid! The schedule is your SOV)
  Level of Detail (How many activities it should have…Contracting Officers discretion)
  Maximum durations (20 workdays or 30 calendar days)
  Activity Codes requirements (8 types)
  Maximum character length for activity descriptions
  Calendars
  Schedule Mechanics (Retained logic, Critical Path as Longest Path, Constraints, etc.)
  Monthly updates and reports…

Eielson AFB EPC Boilers 5 & 6 (my 1st USACE Project)

HASKELL
CORPORATION

- **USACE Requirements - what? You have got to be kidding me!**

- **EPC Project (no design yet)**
  IPS (Initial Project Schedule) more than 1000 activities (Contracting Officer)
  Cost Loaded spreading indirects and profit across activities (what about a mistake?)
  Once baselined, you cannot change Original Durations (even with superior knowledge)
  Monthly updates approval process for earned value on activities (iterative process)
  Schedule Narratives
  Document every logic change and why (every key stroke)
  Remaining duration changes (never OD) every key stroke)
  Must submit the native file (schedule comparison run)
  Delays (Excusable, Non-Excusable, Excusable Compensable)
  Time Impact Analysis (TIA's) Guidelines and rules

Eielson AFB Boilers Delay Claim

- 1st Government Delay Claim
- 22 days delayed (right on the Critical Path)
- Excusable and Compensable

Take aways & Best Practices Learned from USACE Government Projects

HASKELL
CORPORATION

- **Develop a good Baseline Schedule with a clear realistic Critical Path**
- **Follow DCMA-14 guidelines in its development**
- **Get the baseline approved. Agreement between Contractor and Owner (make the effort-pay the price to do this)**
- **Update the schedule regularly. (Best if it is done on a weekly basis)**
- **Prepare a Schedule Narrative with every submission (documentation if there is a claim)**
- **Be transparent by documenting logic changes and remaining duration changes. Be able to explain and justify them**
- **If you are the contractor and caused the delay-own up to it. If you are the owner and caused the delay-own up to it**
- **As delays occur, give notice of time impact.**