Pull Planning

Practical Application

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Previous Experiences

- **All Some form of Industrial**
  - Power Plant
  - Refinery
  - Semiconductor Plant
- **Foul Balls**
  - Not enough use of the Post It Notes
  - Didn't 'Lean in' Enough
    - Used an Excel Weekly Work plan produced by staff support
    - Still Too Much Reliance on the CPM Schedule
  - Not enough Training
- **Home Runs**
  - General Foremen Involvement Necessary
  - Phased and Methodical 'Chunking'
  - Not all schedule Details necessary to have a functioning plan
  - More inter trade communication, earlier

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Why Change?

- **P6 is Tried and True, Right?**
  - Supervision doesn't see the work the way Gantt Charts Communicate it
- **Commercial Influences are Great**
  - Work Packaging
  - Offsite Laydowns and Just In Time Deliveries
  - Better efficiency
- **A Chance to Improve ourselves**
  - Deliberate Communication
  - Better Self Awareness
- **It wasn't the Process I liked**
  - It can be a headache- Lots more folks involved = more stress
  - You can feel 'without a net'
  - But….

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The Foremen Got Better

- **Understanding of Production Rates Improved**
  - The Process is a daily report Card
- **Communication Became Deliberate**
  - Making Sure the others in the room understood what you said
  - There was no ‘We talked about that’ if we didn’t
- **A Healthy Respect for Established Plans**
  - No more Plan changes on a whim
- **Ultimately**
  - Management had to spend lest time Justifying and Updating the schedule
  - More time on Quality and Safety
  - I.e.- We had to spend less energy on process corrections related to schedule and more on building a great project.

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Chunking the P66 Job Out

- **Project Data**
  - One Year Job
  - 100,000 Manhours
  - 5 Units
  - Civil Phase done, 180 tons of Iron,16K LF of Pipe, 20+ Pieces of Major equipment

- **Targeted Milestones**
  - Major Equipment Sets Prior to Steel Erection
  - Large Heater Erection
  - Fin Fan Arrivals
  - Commissioning

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Logistics

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SWIM LANES
LSR STRUCTURE
PIPE RACK
HEATER
GROUND EQT
OSBL
4/2
4/9
4/16

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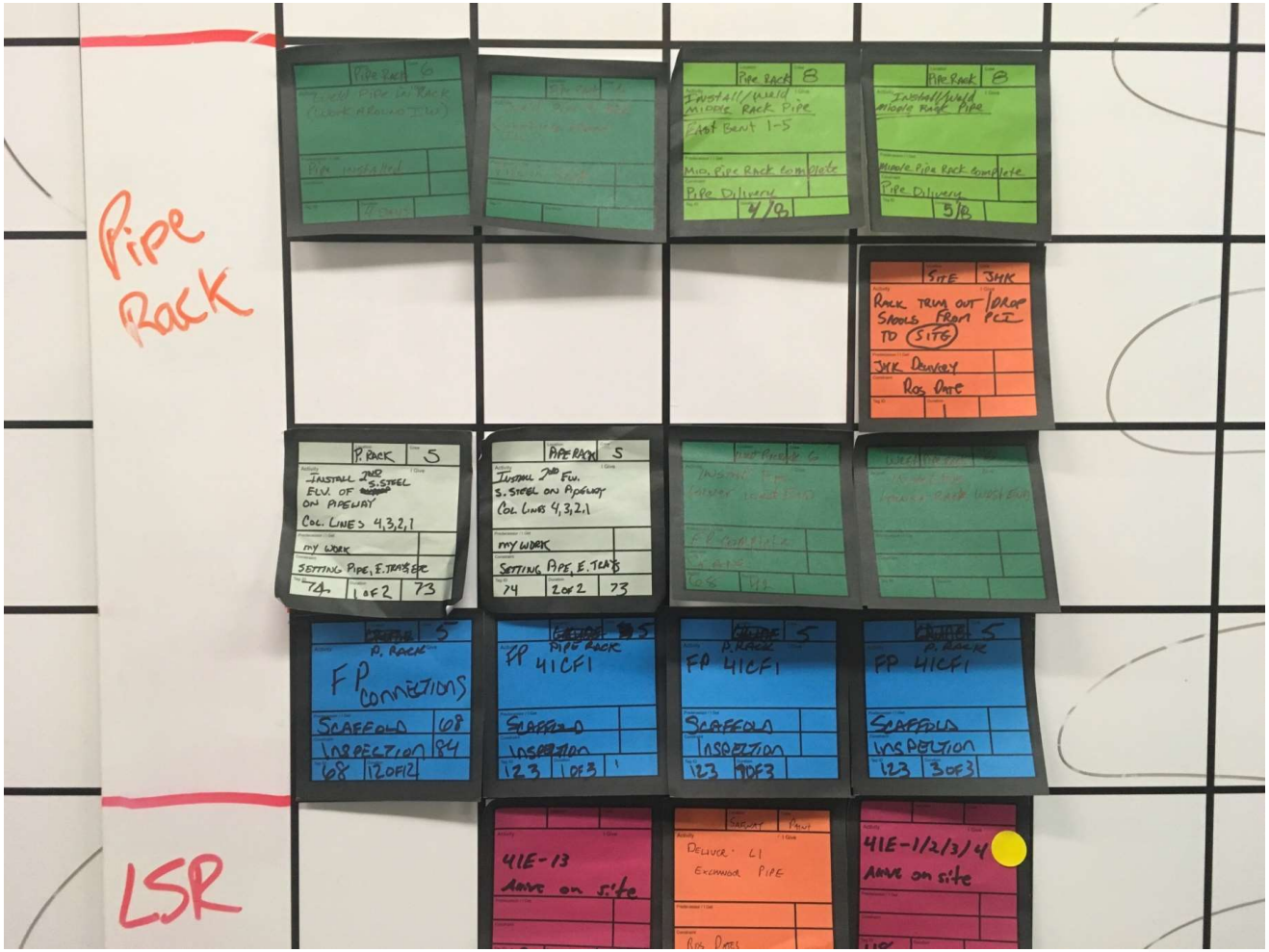
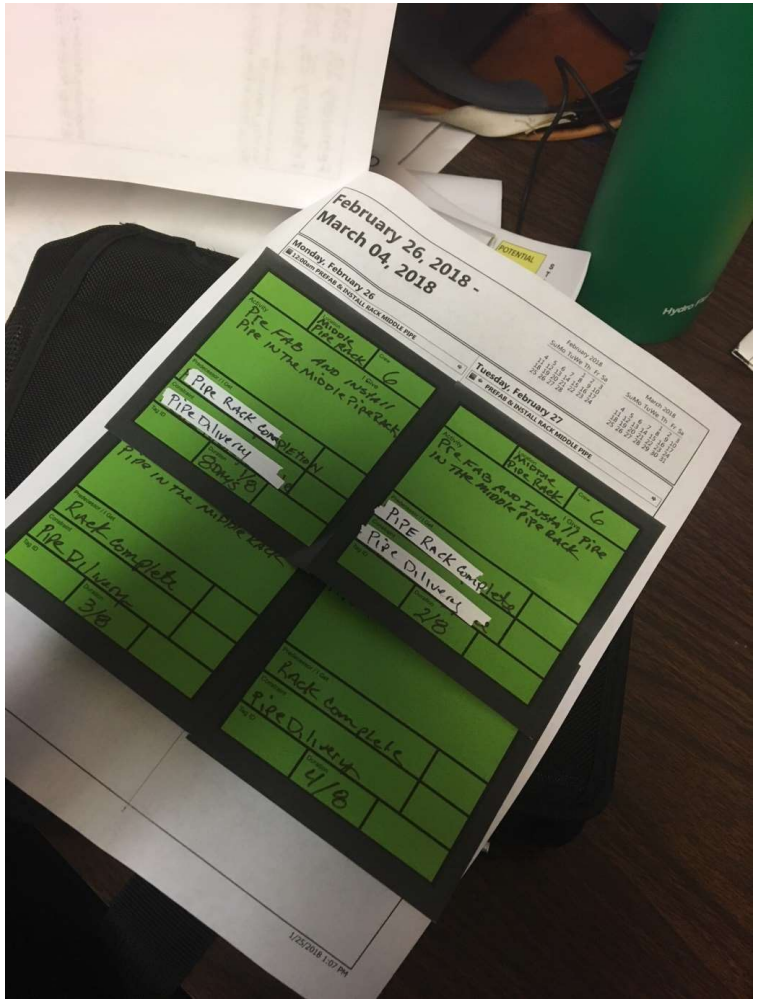
EXIT
EXIT
OSBL - CRUDE
ISBL - HEATER
CRUDE
FCC
Reformer
Pipe Rack
LSR
Heaters


Pipe Rack
LSR
Pipe Rack 6
Pipe Rack 8
Install/Weld Millers Rack Pipe East Bent 1-5
Mid. Pipe Rack complete
Pipe Delivery
4/8
Pipe Rack 8
Install/Weld Millers Rack Pipe
Move Pipe Rack complete
Pipe Delivery
5/8
SITE JHK
Rack trim out Drop Shoes from PCI TO SITE
JHK Delivery
Rec Date
P. Rack 5
Install 2nd S. Steel Elv. of Pipeway on Pipeway
Col. Lines 4,3,2,1
my work
Setting Pipe, E. Trays etc
74 1 of 2 73
Pipe Rack 5
Install 2nd Flr. S. Steel on Pipeway
Col. Lines 4,3,2,1
my work
Setting Pipe, E. Trays
74 2 of 2 73
P. Rack 5
FP Connections
Scaffold 68
Inspection 84
68 1 2 of 2
Pipe Rack 5
FP 41CF1
Scaffold
Inspection
123 1 of 3
P. Rack 5
FP 41CF1
Scaffold
Inspection
123 2 of 3
P. Rack 5
FP 41CF1
Scaffold
Inspection
123 3 of 3
41E-13
Arrive on site
Deliver: 41 Excavator Pipe
41E-1/2/3/4
Arrive on site


February 26, 2018 -
March 04, 2018
Monday, February 26
Tuesday, February 27
Pipe Rack Completion
Pipe Delivery
Rack complete
Pipe Delivery
Rack complete
Pipe Delivery
Pipe Rack Completion
Pipe Delivery

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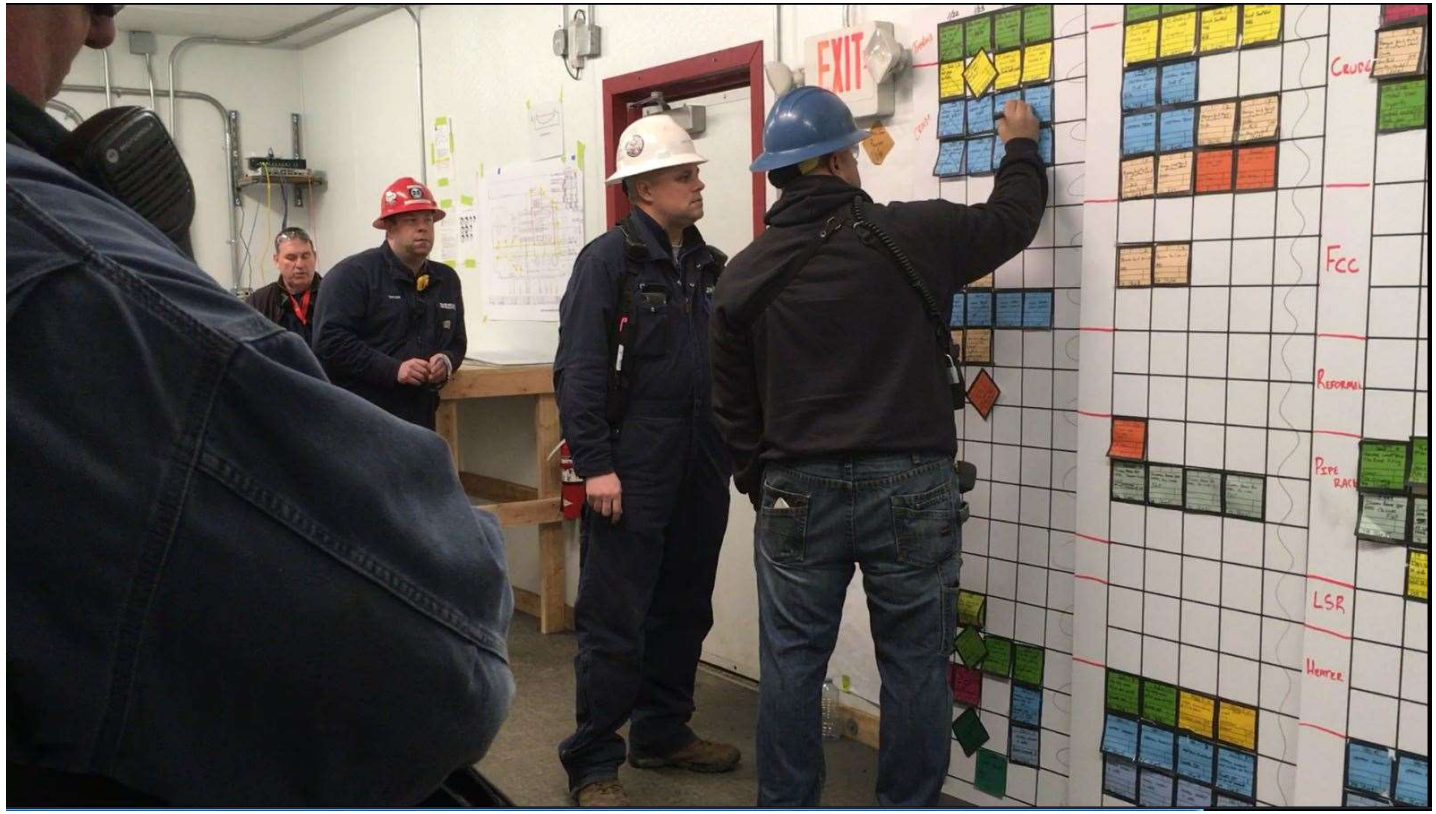

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Successes

- **Full Commitment to the Process**
  - Training
  - CPM Schedule exists in case we need it… Haven't Yet
  - Use of the Sticky Tabs instead of a Computer Forces Ownership by the foremen
- **Better 'Team' Approach**
  - Refinery Jobs Often Cost Reimbursable
  - Overall Project Success is Defined by the success of ALL contractors, not just the prime contractor
- **Schedule Ownership**
  - 'Your Schedule' is now 'Our Schedule
  - More Deliberate Communication on the Planned Scope
- **Problem Resolution**
  - All Stakeholders In the Room
  - Quick and Open Communication

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Areas for Improvement

- **Analysis Paralysis**
  - All Stakeholders means a lot of Opinions- Causing
  - Groupthink and the ‘Smile and Nod’
- **Fear of Failure**
  - Peer Judgement
  - “The Diamond”
  - Getting told what to do instead of being in complete control
- **Mutual Comfort**
  - Foremen Comfort and Trust in the Customer
  - Customer Trust in the Foremen

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Key Things We've Learned

- **Don't be Cheap**
  - Get a Formal Training Done
  - Get a Good Space committed to this
- **Engage Everyone**
  - Use Staff to Help Facilitate
  - Get Owners and Managers involved in Making Commitments
- **Commit Fully**
  - Use the Post It Notes
  - Back off the CPM Document- It'll force better Use of this process
- **This is an Ideology Change**
  - You Won't be Perfect the first time- it's about developing the talent
  - You Probably won't save money the first time
- **Keep It Positive**
  - You Want the Foremen to Like this…. Or at least not be in pain…

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