



*Challenges Met,  
Promises Kept.*



# Modular Construction Why & Why Not?

# Introduction



- ❖ **Michal Daughters, Sr. Project Manager**
  - \* 17 Years experience
  - \* Industrial GC & Fabrication
  - \* Refining, Power, Military
  - \* B.S., Mech. Engr. Montana State



# What is Modular

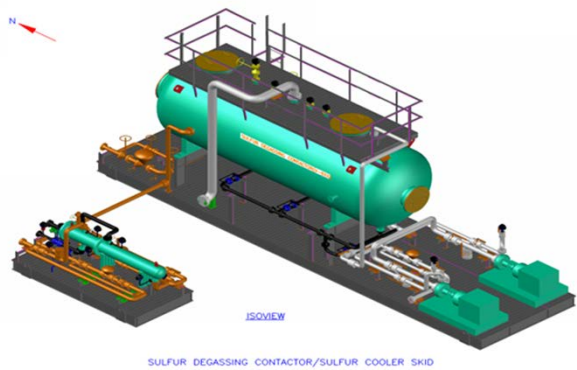


- ❖ Pre-assembling project components in a shop or fabrication yard away from or adjacent to the actual project site
- ❖ Examples:
  - Equipment Skids
  - Piperacks
  - Electrical enclosures or PDC's
  - Pre-assembled Housing
  - Complete Processing Units

# Early Process Module



# Typical Module Examples



# Truckable Modules



# Sea-Lift Modules



# Sea-Lift Modules





# Sea-Lift Modules



# Why Modular



- ❖ Remote Projects in Severe Climates
- ❖ Projects with Aggressive or Compressed Schedules
  - You can accelerate project schedules by performing work concurrently
  - You can perform work while the permit process is underway
- ❖ Projects with Potential Impacts to Ongoing Operations
- ❖ Projects that May be Performed More Cost Effectively if Done Modular
  - Performed in a shop environment
  - Limited operational constraints

# Concurrent Activities



# Concurrent Activities



# Concurrent Activities



# Remote Location



# Remote Location



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# Controlled Shop Environment





# Impacts to Ongoing Operations



# Impacts to Ongoing Operations



# Civil Module



- ❏ Civil by nature doesn't provide many opportunities for modularization
- ❏ Precast Utilidor
  - Working in Remote location in sub zero conditions
  - Installing concrete through Permafrost and tundra
  - Installing concrete in contaminated soil
  - Still requires onsite excavation / backfill

# Civil Module – Precast Concrete



# Civil Module – Precast Concrete



# When Not to Use Modular



- ❖ **Is Modular Appropriate & Feasible for Your Project?**
  - Can it be done quicker and cheaper stick-built on site?
  - Is it even feasible to get the modules from point A to point B?
  
- ❖ **Design it with Modular in Mind, not as an Afterthought.**
  
- ❖ **Make Sure Both Operations (users) & Engineers Embrace the Concept.**

# Questions

