AACE REGION 5

Forgotten Project Risks

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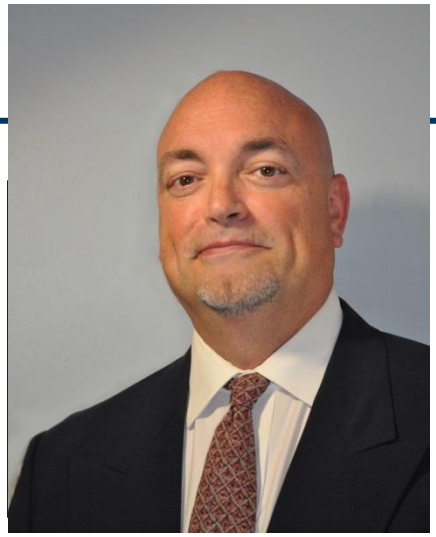

- Speaker bio:
  - D.R. McNatty
    - Senior Consultant
    - 25 years experience in Oil & Gas, last 15 focused On Planning/Scheduling
    - Over ½ of career spent working in Alaska on ConocoPhillips/BP projects
  - Fun fact about speaker
    - I have an extensive Oakley sunglass and watch collection dating back to the mid-80s, friends with several corporate folks

Abstract

Forgotten Project Risks

It seems many times, even after a project has run through a Risk workshop and analysis, there are events unaccounted for, forgotten or dismissed. Sometimes, that is because of inexperience, while other times it is mentioned but eliminated for consideration because the team is confident it will “not happen again”. In this presentation, we want to explore some of those forgotten/dismissed/avoided so others could benefit.

Agenda

Forgotten/Avoided Risks

- Risk Definitions
- Review of Schedule Durations
- Identify Risks
- Risk types currently being considered
- Risks – Internal/External/Technical/Procure/Construction
- Tools impacting Risks

Project Risks

Risk Definitions

- Risk: An uncertain event or condition that, if it occurs, has a positive (opportunity) or negative (threat) effect on a project's objectives. Understanding these risks helps to better evaluate and reduce risk exposure, increase confidence, identify areas of potential acceleration of schedule and help establish reasonable contingency

- Threat – situation or condition that is unfavorable to project
  - Negative circumstance
  - Risk with negative impact
- Opportunity – situation or condition that is favorable to project
  - Positive circumstance
  - Risk with positive impact

Project Risks

Risk Definitions

- Uncertainty – lack of knowledge about an event that reduces confidence in conclusions drawn from the data.
  - Cost
  - Time
  - Work effort
  - Quality requirements

Project Risks

Risk Definitions

Why

- Identify/Quantify potential events causing delay/cost increase to Project
  - Incomplete design
  - Inadequate site investigation
  - Unrealistic schedule/budget
  - Permit requirements
  - Weather
  - Supplier's/contractor's ability to deliver
  - Public relations
  - Unforeseen conditions…

- Optimize Project Performance, identify Critical activities, create Transparency, predictability, minimize surprises-early warning

Project Risks

Risk Definitions

When

- Before entering into a Funding gate
- Before/during Engineering Phase
- Before starting Construction – evaluating competing bids for equipment for example
- As often as it feels necessary to capture/evaluate/mitigate/eliminate risk affecting ultimate project goal – Completing project
  - Some groups review Portfolio quarterly
  - Some review yearly (ex. LRP cycle)
  - Partner review initiated

Many times it is seen as a one time event but in these large scale projects spanning several years, risk assessments should be done frequently, if nothing else, to update the risk register and adjust for risk past and for new risks surfacing. Proactively performing Risk is best done throughout the life cycle

Project Risks

Review of Schedule durations (uncertainty)

- Questions to ask about durations
  - Have we used this contractor before?
  - Using now?
  - Other work being done in region by same contractor?
  - Other competing work?
  - Contract strategy of other regional projects, lump sum, T&M?
  - Are we trying to install Serial number 001?
  - Long periods of known inclement weather, hot or cold?
  - Multiple hand-offs in responsibilities/approvals?

All these questions could help influence the overall durations of activities. Any assumptions on these activities should be documented for others on the team. Some answers would be best dealt with within an activity duration uncertainty, while others may be best modeled as risk events (with probabilities).

Project Risks

Review of Schedule durations (uncertainty)

- How confident is team on the established deterministic durations? Comfortable? Aggressive?
  - Confidence in the durations goes a long way to achieving
  - Applying ranges around the durations is the opportunity to apply differing opinions about the subject durations
- Has the team been involved in determining the durations?
  - Project team buy-in is key
- Careful being too optimistic
  - Room is full of problem solvers
- Don’t let management expectations drive ranges to a predetermined result

Project Risks

Review of Schedule durations (uncertainty)

- Uncertainty Ranges can be as easy or complicated as you want to make it
  - Can be assigned at the activity, WBS, project or portfolio level using either PRA or AR
- Compare durations to past performance if available
- Avoid adding discrete uncertainty into any activities. While its acceptable to add expectation of inclement weather (partial day cut short for rain), don't try to build rain-days or hurricane into model, those are discrete risk events added later.

Project Risks

Identify Risks

- Risk register established by project team?
  - Most experienced teams have developed one, excel/napkin
- Risk even considered as part of schedule development?
- No risk on your project? Haha, think again
  - Project being installed outside?
  - Contractors working on project?
  - Multiple partners?
  - Purchasing equipment from vendors?
  - Project overseas/remote?

Project Risks

Identify Risks

- Don’t underestimate or dismiss a risk as it surfaces
- Don’t try to eliminate or mitigate the risk before entering into register or schedule
  - Best to capture the risk to identify, mitigation can come later
- Risks can be assigned to one or multiple activities
- Let the software work for you and return the results
  - Don’t try to modify the inputs to get an “acceptable” outcome
  - Use those results as triggers to pinpoint the key drivers causing the most significant delays and mitigate those most influential

Project Risks

Managing Risks

- Determine how Risks should be Treated (Mitigated)
  - Avoid – Change the project/act so risk is avoided
  - Transfer – give it to another party
  - Reduce – reduce the probability and/or impact
  - Accept – accept it and take no mitigation to change

Project Risks

Risk Types

- Internal to project team
  - Something that can be managed internally without outside support
  - Largely can be managed
- External to Project team
  - May be within the Company but not project specific
  - Less ability to control, maybe influence
  - Outside the Company
    - Partner
    - Agency
  - Weather/acts of God (things team or org has no control)

Project Risks

Forgotten/Avoided Risks

- Risk types - Internal
  - Partner issues
    - Misalignment of partners on technical issue or solution
  - Overlap between Engineering/Design, Purchasing and Construction
    - Pressure to meet deadlines
    - Pushing projects to construction before Engineering is complete
  - Much more owner involvement in projects

Project Risks

Forgotten/Avoided Risks

- Risk - Internal
  - Brownfield taking additional time not expected
    - Stepping into the unknown, thought to be minimal impact-not enough prior investigation
  - Extended approval times - funding/design/purchase orders/drawings/trends/Change Orders (especially with multiple partners)
    - PO approval process - bid to quote to PO
    - Authority limits set at wrong level - requiring partner approval frequently

Project Risks

Forgotten/Avoided Risks

- Risk - Internal/External
  - Logistics, however usually not fully appreciated
    - Transport of equipment/materials
    - Any coming from overseas/customs (30-90d extra without special access)?
    - Oversize/heavy loads requiring escort?
    - Power/lighting temporary relocation? Additional $$
    - Load restrictions certain times of year
    - Limited access to site? One road/bridge in/out
    - Road construction/upgrade required prior to heavy loads
    - Local traffic considerations
    - Resources housed off-site, transport to/from

Project Risks

Forgotten/Avoided Risks

- Risk - External – accept what happens, hopefully prepared, big enough issue AACE has RP 84R-13
  - Weather
    - Regular expected weather – generally nothing more than rain
    - Any special considerations, lightning in area requiring a shelter-in-place?
    - Flooding during crucial phase causing shutdown of effort
    - Construction during hurricane season (time window)
    - Winter – major storm

Project Risks

Forgotten/Avoided Risks

- Risk - External
  - Weather conditions during construction – extreme cold/heat
    - Heat stroke/exhaustion
    - Insect/animal bites
    - Extreme cold requiring frequent breaks for warm-up, reduced productivity
    - Extreme cold shuts down hydraulic equipment

Project Risks

Forgotten/Avoided Risks

- Risk - External
  - Weather Secondary Effects
    - Mud conditions after much rain/poor drainage
    - Mold/mildew removal conditions
    - Snow/Ice removal

  All things that take additional time and may not be considered in the range of duration possibilities

Project Risks

Forgotten/Avoided Risks

- Risk - External
  - Regulatory changes – things that affect the way services are produced/delivered
    - Noise restrictions limiting construction windows
    - Traffic restrictions – limited windows because of local traffic considerations
    - Air permit restrictions during construction/operational
  - Global market volatility (financial)
  - Market conditions change during construction

Project Risks

Forgotten/Avoided Risks

- Risk - Internal - Technical
  - New technology – serial #1
  - Exotic material requirements, rare/longer lead time
  - Performance of equipment doesn’t meet guarantee
  - Basis of design doesn’t suit Agency requirements

Project Risks

Forgotten/Avoided Risks

- Risk - Internal - Engineering
  - Scope growth due to Engineering Development
  - Poor quality Engineering package
  - Delay in Vendor deliverables causes Eng delay
  - Contractor selection process delayed due to tight market
  - Contracting strategy unacceptable in market
  - Too many concurrent tasks to accomplish
  - Poor management of Change

Project Risks

Forgotten/Avoided Risks

- Risk - Internal - Procurement
  - Serial #1 material causes extended lead time/testing
  - US Steel supplier content requirement
  - Competing projects for limited supply feed equipment
  - Changes in operational philosophy that changes material brand purchasing
  - Suppliers don’t perform up to contract deliveries

Project Risks

Forgotten/Avoided Risks

- Risk - Internal - People
  - Key member leaves or dies
  - Relationships between coworkers owners/contractor
  - Inexperienced team members
  - Resource turnover
    - At design phase, not much consideration of competing projects in region causing strain on key discipline (welding?)
  - Productivity – could be progress milestones poorly established

Project Risks

Forgotten/Avoided Risks

- Risk - Internal - People
  - Competing project in region attracting key workers
  - Long duration project – increased resource pressure to retain for duration
    - Long duration – may have to adjust compensation during construction
  - Local hire for key resources

Project Risks

Forgotten/Avoided Risks

- Risks – Internal - Construction
  - Site preparation – over and over again in gulf coast, not adequate investigation and findings really impact site prep prior to concrete pour
  - Contract strategy isn't supported by bidders
  - Office/field interaction – many times different perspective on reality
  - Higher weld failure rates that planned
  - Archeological find during site preparation

Project Risks

Forgotten/Avoided Risks

- Risks – Internal - Construction
  - Site Utilities not adequate requiring utility upgrade
    - Power, water, feed gas, sewer
  - Safety issue causing change in execution
  - Direct hit of major weather event
  - Force Majeure

Project Risks

Forgotten/Avoided Risks

- Tools impacting Risks
  - Software
    - Automation tying in with existing system
    - Change control system requiring additional approval time for change process
    - Maybe not project specific but Cyber-threats, huge
  - CAD drawings requiring additional time
  - SAP or cost system
    - Integration between systems
    - Required for capturing PO's/Materials
  - Document control system
    - Required to capture all project documents

Avoiding Disaster

Risk events can and often are seen as preventable events many times, therefore the project team avoids placing into the project risk model. These missing items often cause project schedules to go well beyond their intended forecast completion dates and only post mortem are they recognized for their importance. Past mistakes would tell us to follow Einstein to not further develop the insanity definition, ignoring these risks and pretended they won't happen on this project.