RISK MANAGEMENT FOR OWNERS AND CONTRACTORS DURING RA IMPLEMENTATION

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INTRODUCTION

- PMI defines Project Risk Management as the process of risk management planning, identification & analysis, response planning, and monitoring and control (PMI, PMBOK Guide)

- Objectives: decrease the probability and impact of negative events, increase probability and impact of positive events – PMI

- Remedial Actions (RA’s) – Dozens of Potential Risks with negative impacts on RA success for owners/contractors, also some Opportunities for positive impacts

- Presentation will discuss some root causes of impactful risks, along with strategies / tactics to more effectively manage risks, and examples where we’ve been successful.
OVERVIEW

1. Root Cause of Risks
2. Top 3 Risk Categories
3. Risk Management Strategies
4. Risk Management Tactics for Consideration
5. Conclusions
Remedial Action Risks – **Owner** Root Causes

- Complex sites with complex contaminants are inherently difficult to remediate.
- Incomplete Site Characterization
- Performance uncertainty in selected technologies
- Assumptions used in Cost Estimates
- Competing interests among stakeholders
- Aggressive Schedules
- Contracting Strategies
- Management / Communications with Contractors
Remedial Action Risks – Contractor Root Causes

- Insufficient understanding of site conditions and COC properties
- Differing Site Conditions
- Insufficient understanding of design and contract requirements
- Assuming can meet a challenging Schedule (even if unrealistic)
- Failure to identify, monitor, and plan for risks
- Weather
- Flawed cost buildup and pricing Uncertainty
- Ineffective Project Controls
- Scope creep / Communications with Owner
Top 3 Risks Categories—Owners & Contractors

1. Remedy or Approach Failure (Partial or Complete)

2. Significant Cost Overrun (As Compared to Approved Budget/Funding/Contract)

3. Prolonged Implementation Duration (Construction, O&M)
Risk Management Strategies

OWNERS
- **Avoid** (willing to accept conditions, eg. TI Waiver)
- **Transfer** (to Contractor, but at a price)
- **Mitigate** (identify & monitor, resource properly, communications, contingency plan & reserve, )
- **Accept** (Monitor and Contingency Reserve)

CONTRACTORS
- **Avoid** (No Bid)
- **Transfer** (Share w Owner and team members, lower Tiered Sub)
- **Mitigate** (identify & monitor, resource properly, redundant equipment/suppliers, redundant systems, incentives, RFI’s, Change Orders, REA’s)
- **Accept** (Monitor and Contingency Reserve)
Risk Management Tactics
Site Characterization, Remedy Selection, Design

1. Eliminate as many Uncertainties as possible
2. Communicate Remaining Data Gaps and Uncertainty in Key Docs (RI, FS, RD)
3. Treatability Studies and Pilots for technology selection and design basis.
4. SPRF Designs (Simple, Proven, Reliable, Flexible)
5. In-Situ Remedies usually lower cost – performance risk
Risk Management Tactics

Contract Management Considerations

1. Utilize RPM’s Experienced in RA’s (Construction if Civil)
2. RPM Access to Key Resources (CM, QC, Design Engr.)
3. Utilize Key Resources (Technical Evals. during Procurement, throughout Implementation)
4. Ready Access to Contracting Officer (Timely resolution of issues/changes)
5. RA Kickoff & Progress Meetings with Design Engr., Contractor, RPM and Key Resources, other stakeholders.
Risk Management Tactics (Continued)

Procurement Considerations - Owners

1. Best Value Awards on Complex RA Components (still in competitive range), not low bid.
2. Require Detailed Tech Approach in Offers (Risk ID / Mitigation Tactics, Mgt. & Communications Plan)
3. Technical Review of Offers (Tech Staff, Design Engr.),
4. Lump Sum Pricing w unit price adjustment for Qty. Variances increases / decreases).
5. Include alternate/optional pricing (haz waste)
Risk Management Tactics (Continued)

Procurement Considerations – Owners (Continued)

6. For Treatment, Contractor responsible for mix design but include allowance for post-award Treat Study and/or full-scale demo. Can include unit prices adjustments for dosage changes.

7. Pre-Award Negotiation Meeting – Emphasize objectives, clarify expectations, schedule, pricing, RFI and Change Processes, lines of communications.

8. Make all major documents (RI, FS, RD, GW Monitoring Reports) available to bidders, and provide ample bid period.
Risk Management Tactics (Cont’d)

InSitu Remedy Considerations

1. Pilot Test with soil boring confirmation of distribution.
2. GW Sampling Event Prior to Issuance of RFO.
3. Allow for Design Modifications based on then current conditions.
4. Include real-time monitoring of actual amendment distribution and ROI. Adjust program accordingly.
5. Set Achievable RAO’s. Periodic optimization evaluations (Contractor or 3rd party).
6. Plan ahead and budget for additional applications/events. The RA should include time and budget for these.
Risk Management Tactics (Continued)

Other Considerations

1. Complex Multi-Component RA’s – Use Adaptive Management Approach - evaluate effects before moving to next phase (e.g. source zone treatment)
2. For more expensive remedy components, use cost-plus model for utilities/commodities with variable pricing and usage uncertainty.
3. Where operational period uncertainty, establish pricing based on most likely duration, but pre-negotiate pricing for shorter/longer durations. Consider incentives for early completion.
Risk Management Tactics (Continued)

Other Considerations (Continued)

4. Regular engagement from Stakeholders throughout RD/RA (Increases satisfaction / acceptance at project completion).
5. Encourage / Incentivize Value Engineering
6. Take advantage of Opportunities (e.g. remove/treat addt’l source material, extend containment systems)
CONCLUSIONS

1. RA Risks are Plentiful - Most significant risks affect Remedy Effectiveness, Remedy Costs, and Remedy durations.

2. Owners – Many risks stem from earlier phases that have a compounding effect. Spend the time and dollars before and at start of RA to reduce uncertainties and performance risk. Select contractors that understand these issues and can provide innovative solutions.

3. Owners – Experienced and engaged project teams that properly utilize technical resources, that can identify, track and mitigate risks, but are also open to taking advantage of opportunities to improve overall RA success.
CONCLUSIONS

4. Contractors - identifying, monitoring, and mitigating project risks is paramount.
5. Contractors - Project teams - design and construction professionals who understand site conditions, remedy goals, technology applications and limitations, and who communicate effectively with the owners’ project team.
6. Collaboration – Successful Outcomes happen when Owner/Contractor teams work together towards common goals.
Thank You

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