

The Discipline of Honest Future Thinking and Benefits to Optimization of Existing Systems

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Background/Objectives. Many cleanup remedies in the operations phase of the project life cycle gain little or no ground towards achieving remedial action objectives (RAO's). A key indicator for this condition is when the annual spend does not reduce the future life cycle costs (LCC) in an acceptably proportional manner. Worse yet, it is not uncommon for these underperforming systems to show no real reduction, or even an increase, in future LCC year after year. Reasons for underperforming systems include:

- general industry inattentiveness to managing O&M performance beyond the simplest operational parameters,
- false reality created by different approaches used to estimate life cycle costs,
- thinking of costs as a simple sum of deterministic values rather than future probabilities,
- not scheduling performance milestones to project system performance in a manner that represents RAO's and future LCC, and
- perspective that all other options are costs prohibitive or have excessive regulatory risk.

All of the above can be addressed by taking an honest future view of the underperforming system.

Approach/Activities. Decision Tree Modeling software has been used to establish a baseline future projection as the project team knows it today. It also helps them think about future "if-then" events and place probabilities on them, based on subject matter expertise. This allows project teams to get to the root causes of underperforming systems. Once the baseline future projection is identified, the project team can assess weak points in attaining the future remedy success and implement change management strategies to reduce risks and increase probability of success. Additionally, different optimization scenarios for the existing remedy or new remedies can be considered. All of these alternative solutions can be evaluated in terms of potential future outcomes which allows the alternative solutions and the baseline forecast to be compared on an equal basis.

Results/Lessons Learned. By presenting the results of the decision tree modeling results as a series of stacked risk profiles (cost versus success probability), project teams can see where there is overlap and gaps between options. The former is an indication that one or more of the alternatives considered can be dropped because of similar risk/benefit profiles. The latter is an indication the project team could think about other potential solutions that can improve progress on achieving RAO's. The stacked risk profiles will also highlight regions of the risk profile where there is excessive uncertainty that the project team needs to address.

Several case studies will be presented that demonstrate how the above approach can highlight risks and opportunities in achieving future LCC goals in a timely manner. By considering future probabilities with probability based cost profiles, more realistic, honest and effective site strategies can be implemented.