Contingency Planning Leads to Realistic Project Budgets

An oft-overlooked aspect of EH&S project budgeting is the assessment of risks needed to develop contingency reserves.

The development of an accurate and realistic project budget is a critical responsibility of the environment, health, and safety (EH&S) project manager. Although we may think that insufficient attention to project budget development will lead to project budgets that do not cover project costs, insufficient attention to project budgeting can also lead to inflated project budgets, resulting in projects that are not funded. An important aspect of project budgeting that is often overlooked for EH&S projects is the assessment of risks needed to develop contingency reserves. A proper assessment of project risks leads to realistic project budgets and can lead to improved project execution practices that improve project quality or reduce project costs.

The Project Management Body of Knowledge, Fifth Edition (PMBOK, Project Management Institute, 2013) allocates three distinct elements to the project budget:

1. Cost Estimate: An estimate of project cost based on an analysis of effort, resources, and schedule required to deliver the project scope.
2. Contingency Reserve: Financial allowances to address unplanned, but potentially required scope or cost changes resulting from identified risks.
3. Management Reserve: Financial reserves to address unplanned changes to project scope or costs.

The sum of the cost estimate and contingency reserve are referred to as the cost baseline and resources allocated to these items are typically under the full control of the project manager. Adding the management reserve to the cost baseline yields the project budget; however, the project manager must obtain management approval to access the management reserve.
Cost Estimate
Experienced EH&S project managers are typically adept at developing accurate cost estimates because they understand the technical aspect of work processes, the resources required to execute those work processes, and how those processes should be sequenced and scheduled; however, the development of a reliable contingency reserve value is typically given modest attention. As a result, the cost baseline is developed by simply adding a fixed percentage of the cost estimate to the cost estimate to yield the cost baseline. In many cases, no distinction is made between contingency and management reserves.

The use of a fixed percentage approach to developing contingency or management reserves may be appropriate for highly defined projects for which the project manager has a long history of performance information; however, we are potentially missing an opportunity for improving project delivery processes and reducing project costs when we ignore the evaluation of project risks, even if that evaluation is a periodic assessment of the factors influencing the fixed percentage that has been allocated for contingency or management reserve estimation. For these reasons, the development of risk-qualified project budgets should be a priority for any EH&S project manager. The challenge is the systematic identification, qualification, and quantification of risks.

Risk Register
An effective way to evaluate risks is to document them in a risk register. A risk register is a tool for recording identified project risks, their likelihood of occurrence, the planned response should a risk materialize, and the cost of implementing the response. At the base level, this exercise yields a weighted financial value that can be assigned to the contingency budget. But the real value in the process is an analysis of the information.

The identification of project risks and the subsequent development of a risk register forces us to think about the execution of our project with an eye toward reducing risks. This is perhaps the most significant value of the risk qualification and quantification exercise: we gain insights that allow us to tailor project delivery to reduce risks, and in so doing, may find opportunities to improve project execution leading to improved project quality or reduced project cost.

If we are not able to adjust our project delivery processes to mitigate risks, then the risk evaluation exercise provides us the clear information we need to develop a contingency budget. While the factors that management determines important for allocation of management reserves may be outside of the control of the project manager, a solid cost estimate, coupled with a documented and defensible contingency budget, will allow management to develop better management reserve estimates.

Although the technical skills that EH&S project managers typically bring to their projects may drive a relaxed approach to risk evaluation, the application of those same technical skills to the identification of risks and the evaluation of response actions will provide insights that support realistic contingency budgets and can lead to improved project execution and reduced project costs. For these reasons, contingency evaluation and planning, even if performed periodically for repeat projects, provides information that supports the development of accurate and realistic project budgets.

In the Next Issue...
Meeting the U.S. 1-hr SO2/NO2 Ambient Standards
A look at some of the challenges faced in meeting the 1-hour sulfur dioxide (SO2) and nitrogen dioxide (NO2) ambient standards, including the rationale for the standards, the role of modeling and monitoring in establishing compliance, and real-world experiences that illustrate compliance strategies and costs.