

...Houston, We Have a Problem

On April 13, 1970, approximately 200,000 miles from Earth, an explosion rocks the Apollo 13 spacecraft, prompting John “Jack” Swigert, command module pilot, to radio Mission Control saying, “Okay, Houston, we’ve had a problem here.” James Lovell, commander, clarifies the message for Mission Control: “Houston, we’ve had a problem. We’ve had a main B bus undervolt.” As the situation unfolds, the three-man crew is forced to ride out the four-day return journey in the lunar module, a component designed to support only two astronauts for two days. Through dedication to a successful outcome, flight and ground crews dissect the problem, surmount the obstacles, devise a multifaceted solution that evolves with the problem, and then apply the lessons to future space missions. As a result of their problem-solving success, the oft-misquoted version of the original message that serves as the title for this column stands as a universal phrase for describing an obvious and difficult problem.

Would the outcome have been the same had the flight crew reported the problem using the less definitive, but increasingly popular, euphemistic terms such as “issue,” “challenge,” “opportunity,” or “situation?” “Problem” communicated urgency and energized the flight and ground crews to develop and implement a solution. Technical professionals think of problems in terms of solutions. We aren’t programmed to connect a solution to an issue, challenge, opportunity, or situation. In fact, these euphemisms for problems can delay a solution because they discount urgency and directness in favor of organizational politics or bureaucracy.



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The Apollo 13 experience teaches us five important lessons that we can apply to environmental project management.

1. Promptly recognize a problem for what it is—a problem. The Apollo 13 flight crew knew they had a problem and that it required a solution. Although the flight crew initially did not fully understand the scope of the problem, they did not wait to acknowledge it. As a result, the ground crew immediately started working to characterize the problem and develop a solution.

Problem management is a critical aspect of project management. It can make or break a project manager.

Once we know we have a problem, we can determine its cause and the actions required to solve it. There may be issues surrounding the problem, situations that influence it, challenges that make solving it difficult, and even opportunities that develop through its successful resolution. But the transition point from problem to solution begins with the acknowledgement that a problem exists. The problem drives the need for a solution. Issues, challenges, opportunities, and situations help define solution options.

Control is a fundamental requirement for successful project management and a problem represents an out-of-control situation that project managers may be reluctant to discuss. Not every project problem needs to be communicated, but effective project managers build trust and stakeholder confidence by openly, accurately, and promptly communicating problems that may potentially affect a project’s outcome.

2. Focus on the solution, not finger-pointing. Mission Control didn’t waste valuable time and resources finding a contractor to blame. Instead, engineers on the ground went straight to

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work analyzing the problem and developing a solution. Identifying the cause of a project problem is an important initial step toward resolution. But when the focus shifts from what went wrong and why it went wrong to blaming an individual or group, resources have been diverted from problem resolution and the solution is delayed. The project team has been sidetracked by pride, vengeance, or self-preservation, leading to delays and increased project costs.

3. Own the solution even if you don't own the problem. Neither the flight crew nor the ground crew was responsible for the problem aboard the spacecraft. In this sense, it wasn't "their problem." However, they were responsible for solving it and focused their efforts on owning the solution.

Even the best project managers will eventually end up with problems that they didn't create. Perhaps they have taken over someone else's failed project. Maybe the weather delayed progress on fieldwork. Maybe an overnight courier left the samples on the loading dock due to a strike. In these situations, the project manager can derive enthusiasm from owning the solution instead of anxiety from owning the problem. This approach allows the project manager to solve the problem objectively with less stress, anger, and resentment.

4. If you don't have a solution, commit to developing one. As the flight and ground crews worked through the main problem, they encountered others that needed to be solved. There was no quick fix. Bringing the flight crew home meant committing to a problem-solving process.

Manage projects long enough and you'll run into a problem that has no quick fix. Of course, the project stakeholders will expect the project team to quickly solve the problem. But the solution may be complicated or elusive. It is not unusual to need and want time alone to think through the problem and develop a solution; however, being unavailable, distant, or evasive at this time can undermine the confidence of project stakeholders. When you know you have a problem,

but don't have a solution, explain that you are working on one. Describe the process you are using, factors you are considering, interim steps you have taken to solve the problem, outcomes you are anticipating, and when you expect to have a solution. This approach can reduce anxiety and conflict, stimulate suggestions from others, and allow you to apply your full energy to productive problem-solving, while at the same time earning the confidence of stakeholders and the project team.

5. Learn from problems. NASA invested enormous resources investigating the Apollo 13 mission once the astronauts returned home safely. The investigation revealed a number of small problems that combined to produce a crippling failure during space flight. Spaceflight remains a high-risk endeavor, but the lessons from Apollo 13 have undoubtedly contributed to the safety and success of America's space program.

Once we have solved a problem and restored a project to proper course (or finally completed it in some cases!), it is easy to move on to the next one without addressing the underlying factors that contributed to our project problem. But by investing time to document and explain a project's problems and solutions, we can improve processes and train staff so that we don't experience a similar problem on a future project.

Problem management is a critical aspect of project management. It can make or break a project manager. It can be time-consuming and difficult. Although it doesn't take a "rocket scientist" to manage environmental service projects, this lesson in rocket science can help us become better project managers.

Today's project managers face an increasingly complex range of documents for even simple projects. These documents govern day-to-day operations and stand as records by which project managers may be judged at some distant point in the future. Next time, we'll explore how document control systems can support and establish effective project management. **em**