



by David Elam

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# Checking the List

Many environment, health, and safety (EH&S) project managers find themselves repeating the same types of projects. Project details may change, but the work practices and processes are the same for each project. We would expect that these projects would be performed flawlessly. Yet, we are all familiar with the small oversights on these projects that can contribute to significant cost overruns and schedule delays: the test team fails to pack important measurement instrumentation, the technician neglects to properly preserve a sample, an important measurement is not collected, a calibration record isn't included in the data package, or a data review step is skipped. As a result, work quality suffers, tempers flare, morale declines, deadlines are missed, and budgets are exceeded.

It isn't that our team members don't know what to do or don't care about what they are doing. In fact, it is often the opposite—they are highly trained, dedicated, and experienced professionals working on assignments that they have performed dozens of times. They are often working on multiple assignments, each at different stages of completion, each with nuanced constraints, and each requiring multiple steps or operations. In short, team members are performing complex work under demanding conditions.

And while the individual may know exactly what to do, how to do it, why to do it, and when to do it, the complexity of the work environment distracts from the work at hand and execution details are inadvertently overlooked. We depend on verbal exchanges, lengthy documents, and memory for proper task performance, but those tools can fail us when we need to act quickly in a distracting environment. We need a tool to keep us on track and that tool can be the simple checklist.

Atul Gawande<sup>1</sup> describes the evolution of checklist use in aviation and its application to medicine, including the operating room. In both aviation and medicine, checklists have proven their value by preventing accidents and saving lives for the same reason. Modern aviation and medicine are highly complex fields requiring observations, decisions, interpersonal interactions, and actions that can exceed human processing capacity under stressful or distracting conditions. Checklists help restore focus on the essential aspects of an activity and

allow the user to work effectively and efficiently to the goal. If pilots and surgeons can improve performance by using checklists, it is likely that EH&S project teams can benefit from this simple communication tool.

Gawande points out the importance of checklist design and cites the following considerations:

- 1. Select the right type of checklist for the activity.** A DO-CONFIRM checklist is used when the team member will perform the task from memory, pause, and then run through the checklist to make sure that everything was done. A READ-DO checklist is used when the team member is expected to review the task and then perform it. An experienced analyst might incorporate a DO-CONFIRM checklist when performing an instrumental analysis to ensure that the calibration sequence was properly performed and that instrument settings are appropriate for the samples. The same analyst might use a READ-DO checklist when troubleshooting a problem with the analyzer, stepping through the troubleshooting process in a sequenced and orderly manner.
- 2. Keep the checklist short and consistent with the time span of the operation.** This means that it is better to produce multiple short checklists than it is to produce one long one. Long, comprehensive checklists that are out of sync with the timing of the operation do not provide effective direction and feedback and are likely to be completed without real consideration. Returning to

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our previous example of the DO-CONFIRM checklist, the analyst should rely on a series of short checklists addressing component operations like pre-test calibration, sample measurement, post-test calibration, and data acquisition and processing instead of a single, comprehensive checklist. The resulting checklists are shorter and directly related to the immediate task.

- 3. Use concise, precise wording that reflects the language of the profession.** The checklist will be used by a trained, experienced professional, not a first-time user. Respect the user by focusing on the essential steps using familiar terms. A checklist constructed this way allows the user to move through the checklist efficiently, prompting the user to consider related tasks that are not included on the checklist
- 4. Assign checklist preparation and testing to people who understand and are experienced with the operation.** Checklists will be ignored

or completed without proper attention if they do not reflect the "real world." The goal is not the checklist, but a successfully completed task. While it may seem like a good training exercise for a new employee to read a procedure or test method and develop a checklist, that individual will probably not be able to determine the essential steps that prompt judgment and action from an experienced professional. For this reason, people who understand the operation must be involved in checklist development and verification.

EH&S work requires expertise, judgment, and attention to detail. Unfortunately, the demands and distractions of our complex work environment can compromise our performance. Simple, but thoughtfully designed and properly prepared checklists can keep us on track, help us solve problems, and guide us to successful project performance. **em**

#### Reference

1. Gawande, A. *The Checklist Manifesto: How to Get Things Right*, Metropolitan Books, 2009.

