WINTER 2011
VOLUME 6, ISSUE 1

Corrective Action Program (CAP): A Learning Organization Fuel or Just a Burdensome "Black Hole?"

By Tim Bostwick

"There are a terrible lot of lies going about in the world, and the worst of it is that half of them are true."
Winston Churchill

This is a thought-provoking and wise quote. In many ways he could have been talking about a Corrective Action Program (CAP). There are many different approaches to establishing and maintaining a functioning CAP that it is nearly impossible to decide what is right from what is wrong. The seemingly ridiculous reality is, at some level or time, it could all be right or it could all be wrong…it just "depends."

"It depends" is an age-old CAP phrase based on the idea that implementing a Corrective Action Program is as much of an art as it is a science. Reason being, when it comes to human behavioral performance, achieving perfection is not an option. Achieving excellence, however, is an option. The difficulty lies in the art of determining how much effort is 'good enough' along with figuring out where the effort should get focused. Of course the 'correct' CAP answer is, "It depends." Three (inter-dependent) keys to building a Corrective Action Program that fuels a Learning Organization and doesn't end up as a burdensome "black hole" are:

- *Attitude/Engagement*
- *Fundamental Understanding*

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Inside this issue:

Using CAP to Identify Training Topics

By Mike Gettle

The corrective action program, known as CAP, is a process that can be used to identify training topics to improve facility performance. The CAP process, if implemented effectively, provides a data repository of issues in the facility. If the data is analyzed and trended then the CAP process can be used as a tactical and strategic tool to identify performance issues. These issues can be addressed through several interventions, including training.

What is the Problem?

The CAP process, if effectively implemented, can provide the training group a goldmine of data on performance issues in the facility. If the CAP process is mature, the data mining can provide information on minor trends that can be addressed before they can become a problem. The key to identifying problems is to determine trends and then *specifically* identify the problem. Too often, people jump to solutions before identifying the problem. One of the classic miscues that have been used too often, "It's a training problem." Last time I checked, training is a solution AND is not always the best solution (see needs analysis section below). To write a problem statement, three things need to be addressed:

- What is currently being done and how this

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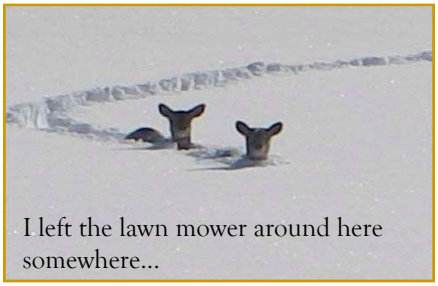
A Message from NWI...

Thank you for taking the time to read this season's newsletter. This newsletter is focused on corrective action programs (CAP) and its interfaces with other processes and programs. Feedback from the plant is the fuel for CAP. Just as an instrument loop takes feedback from a signal, analyzes it and adjusts to the new conditions; so does CAP with respect to the plant and its organization. Issues that are fed into CAP provide the information and impetus needed to adjust plant policies, processes, procedures; and, yes, organizational culture. The corrective action program takes this information, puts it through a rigorous analysis process, and provides to actions to adjust the plant; resulting in performance improvements. This process is not just a 'flavor of the month' effort, but a program that is integrated into the organization. This integration is fundamental to the development and maintenance of the learning organization. If you need to implement or adjust the corrective action program within your plant, please contact the experts at NWI.

Frank S. Tsakeres



I left the lawn mower around here somewhere...

Using CAP to Identify Training Topics

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performance is being measured?

- What standard does it need to be done?
- What are the consequences of maintaining the status quo?

Again, make sure the problem is quantitatively identified and the problem statement does not contain solutions. We need to let the process and the data to eventually drive the solutions.

Identifying Metrics

During problem identification the performance issue should be quantitatively measured and the expectations for success should be defined. One of the key aspects of identifying the metrics is to define 'success' or 'what does 'good' look like?'

A second aspect of the identifying the metrics ensuring the metrics will measure whether the problem will be solved when the metrics are achieved. To prevent is problem from occurring, a good technique to use is to go back to the data you used to first identify the issue.

Conducting a Needs Analysis

Once the problem has been identified and the metrics of success have been identified, a needs analysis should be conducted. This needs analysis need not take a long time.

A needs analysis typically has three types of causes identified to address an issue; 1) management issues, 2) process/procedure/equipment issues, and 3) a lack of skill/knowledge issue. The only cause that training can address is the lack of skill/knowledge.

Experience has shown that a performance issue usually has some aspect of all three types of causes. In other words, all three aspects of the issue need to be addressed to fix the issue – not only the training aspect. However, it is critical to address the causes of the performance issue with the correct interventions and only skill/knowledge deficiencies can really be addressed by training.

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Corrective Action Program (CAP) - Work Management Process Program Dependence

By Paul Kirker

The interface between the corrective action program (CAP) and the work management process provides a systematic approach to identifying, planning and executing work. In addition, lessons learned from the implementing the work management process are entered into CAP to prevent recurrence of issues.

Corrective Action Program

The Corrective Action Program is a process designed to identify, evaluate, resolve problems, and to prevent recurrence of significant events. This process is required by law in the Nuclear Power Generation industry. But any business with employees, customers and materials is going to face problems and issues in the course of doing business. Efficiency demands that these issues or problems be resolved correctly the first time and in a timely manner. These issues may involve personnel, processes, regulations, communications or a myriad of other issues. A well organized and understood CAP program will help address these issues and resolutions.

The corrective action process will not only help identify, evaluate and resolve issues but it will provide a platform for trending and analysis. This is extremely important in developing a prevent event strategy that will help in keeping issues and problems at a minor level and remove some of the urgency that is usually associated with human performance errors. This trend data will also help predict what human performance tools are needed to bridge the gap between expectations and performance levels. If the issue or problem is equipment related, similar tenets are used, but in a slightly different format known as the work management process.

Work Management Process

The work management process is designed to identify, scope, plan, schedule, prepare, and execute work in a manner that helps ensure high levels of safe and reliable plant operation. As you can see by the definitions, both the CAP and work management programs are similar and necessary. Industries and plants that require hundreds to thousands of components in their day to day business must deal with equipment reliability issues. Preventative maintenance is a significant contributor to equipment reliability. A work management process will help in the scheduling, planning and executing of preventative maintenance. Many equipment issues are emergent and difficult to prepare for. The CAP process will identify these issues through initiation of a Work Request which will identify the specific attributes of the problem. The work management process will then review that Work Request, prioritize the work, identify specific needs to accomplish the work (i.e. special tools, etc.), identify the resources needed, schedule, plan and execute the work. Issues that occur in the course of performing work (i.e., planning, scheduling, materials, human performance) are identified, entered trended and corrected in the CAP process.

The Interface

The interface between CAP and work management is the use of the cause analysis process. The cause analysis process has several tools that are used to identify the causes and contributors of an issue, based on whether you are looking at a process or an event, as well as the severity of the issue. The cause analysis process is used to identify gaps between the best practices available and the issue. Once the analysis is complete, we are able to pinpoint the causes and contributing factors that led to the issue. Based on the cause, we can customize the corrective actions to resolve the issue. For example, we had a schedule that carried over work from previous days. This carryover of work made the published schedule large and unwieldy. We deter-

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- *"Keeping the End-in-Mind" Implementation*

These three keys are completely reliant on one another for success. Even if you start with a poor attitude and minimal engagement (forced to play) but begin with a solid "Fundamental Understanding" of what you are trying to accomplish, you will be able to somewhat effectively implement CAP. Clearly, at some level, producing value-added results will positively affect the site's attitude and engagement in CAP. This is definitely a case where success breeds success. Regrettably, the opposite can also be true so, keeping these interrelationships in mind, let's break each of these keys down to a more basic level. That way we can start to discuss some understandable and meaningful support behaviors.

Attitude/Engagement

The posters that boldly state ATTITUDE IS EVERYTHING could not be more correct. Because knowing what it takes to effectively and efficiently implement a Corrective Action Program is not intuitively obvious, a burning desire to improve will help provide strength to work through the inevitable "growing pains."

You gotta know the boundaries...

Implementing a CAP is the definitive team game. Once an issue is generated, it is likely going to take a challenge screening review by a diverse group of people with a "team first" attitude to get to the desired resolution. Each individual must engage with an ownership attitude of "how was my department involved in this issue" and, regardless of that answer, use the other two keys to help guide the team decision-making process.

The subsequent Management Review Committee (MRC) issue challenge meeting is the ultimate attitude/engagement forum. Challenge to one's standards or resolution decisions can be viewed as a positive thing or a negative thing – "it depends" on your organization's attitude and culture. Leaders endeavor to achieve strategic behavior and program improvement, while increasing workforce motivation and engagement. This result is possible only when management members purposely engage and strive, as a team, to hold each other accountable for exhibiting high standards, CAP ownership, and a learning organization attitude.

Fundamental Understanding

The definition of a fundamental is a basic principle, rule, law, or the like, that serves as the groundwork of a system; essential part; to master the fundamentals of a trade.

An effective CAP is a fundamental element in the core business of an organization aspiring to become a world class learning organization. If this statement is read real fast, it looks straightforward, accurate, and fairly simple and it is straightforward and accurate but it is far from simple.

The code of federal regulations, 10CFR50-XVI, Corrective Action states that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management

When the original Code of Federal Regulations (10CFR50-XVI) was created, minimal research had been performed or published about human performance. There was very little emphasis placed on any "human factors" potentially involved in the failures. That is why the examples listed in criterion XVI "appears" to be strictly equipment

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related.

As time passed we learned that, for the most part, equipment didn't just fail if its performance was adequately monitored and maintained (human performance and intervention). As we learned from those original efforts, thoughts and practices matured to establishing preventive maintenance tasks and on to predictive maintenance. The focus of investigations also needed to change to ensure the programs, processes, and people associated with maintaining the equipment were sound, functioning as intended, and were adequately adjusting as new experience information became available.

Reading the criterion XVI words slowly you realize that regardless of the condition, the actionable phrases are "Measures shall be established" and "promptly identified and corrected." The Corrective Action Program is the "established measure" that "promptly identifies and corrects." Even this concept has evolved into a more comprehensive philosophy of Performance Improvement which encompasses CAP, Self-Assessment, Benchmarking, Operating Experience, and Human Performance. Although the understanding of the relationship between equipment performance and human performance has grown tremendously, and continues to grow, the intent of these actionable phrases remains the same – systematically find it and fix it.

When Performance Improvement took over as the "established measure," it disrupted and clouded the thought process behind a portion of this simple criterion. Suddenly what could be considered a "condition adverse to quality" became nearly limitless. No longer could it be confined to an equipment malfunction or failure. Philosophical minds will tell you that, at some point, humans are involved in everything therefore everything could be considered a "condition adverse to quality." However, forcing the requirements of 10CFR50 down into every aspect of Performance Improvement was resulting in nearly every issue being treated as equally important. It was soon recognized that this arrangement, besides being impossible to effectively implement, mostly served to undermine the very reason the CFRs were created. In order to physically survive and maintain a workable and repeatable process, programs had to evolve/adapt to be capable of addressing and learning from near limitless input.

To that end, the prime objective of modern day Corrective Action Programs (CAP) is to mold departments, management teams, and entire sites into Continuous Learning Organizations. In order to accomplish this objective, the CAP needs to effectively identify, correct, learn, and adjust from the "causes" of low consequential issues before the same "causes" result in high consequential issues.

It is acknowledged that highly significant, consequential, or emotional events are reactively addressed individually with some level of formal cause investigation. It is important to note that the focus of this article is the 90% – 98% of identified issues that do not fall into this category, but need to be appropriately dealt with.

To consistently function at the level of quality needed to meet this objective, specific aspects of the CAP have to be fully developed and fundamentally understood by individual contributors, Supervisors, and Senior Leaders: **Issue Initiation Quality, Coding and Analysis challenge meetings, Common Cause Analysis**.

"Keeping the End-in-Mind" Implementation

How important is implementation? Picture yourself. You are engaged and motivated because it is a beautiful day and you have just been provided the finest equipment available. You have a complete fundamental understanding of what you are about to do because you are fresh off of two weeks of professional instruction. Now, as you step up to the first tee at the Augusta National Golf Course, how important is implementation going to be? The correct answer is, of course, "It depends." It depends on your attitude (and how many golf balls you brought).

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Developing Interventions

Interventions can then be developed for each cause. Management expectations and tools can be developed for the management causes. Processes, procedures and equipment can be addressed by administrative and equipment interventions.

However, skill/knowledge deficiencies need to be addressed by training. And these training interventions are our focus. During the design and development of training, the developers must keep in mind that problem identified through the CAP process. A focus on the problem and CAP data will help in targeting the training. In addition, the CAP coordinator and responsible manager should be intrusive in the training development process to ensure that the training is targeted. To develop effective training interventions, the behaviors and tasks that need to be trained must be identified. Training must be based on the expected performance on the job and focused on the results that are expected. In addition, the training must be evaluated to ensure each person has the knowledge and skills to perform the expected tasks and demonstrate the expected behaviors.

Follow-up Evaluations

As the interventions, including training, are being implemented, the metrics must be periodically monitored. The status of the metrics will provide information on the effectiveness of the interventions as long as the interventions address the issue and the metrics measure the issue.

Summary

Training topics can be identified through an analysis of CAP data. Issues identified through this process have a direct tie to performance improvement in the facility. Developing and implementing targeted training to address issues identified through the CAP process is an effective method to solve these issues. Follow up evaluations are used to measure progress and on-going resolution of the issue.

Contact NWI for assistance in aligning performance issues identified through the CAP with targeted interventions.

Corrective Action Program (CAP) - Work Management Process Program

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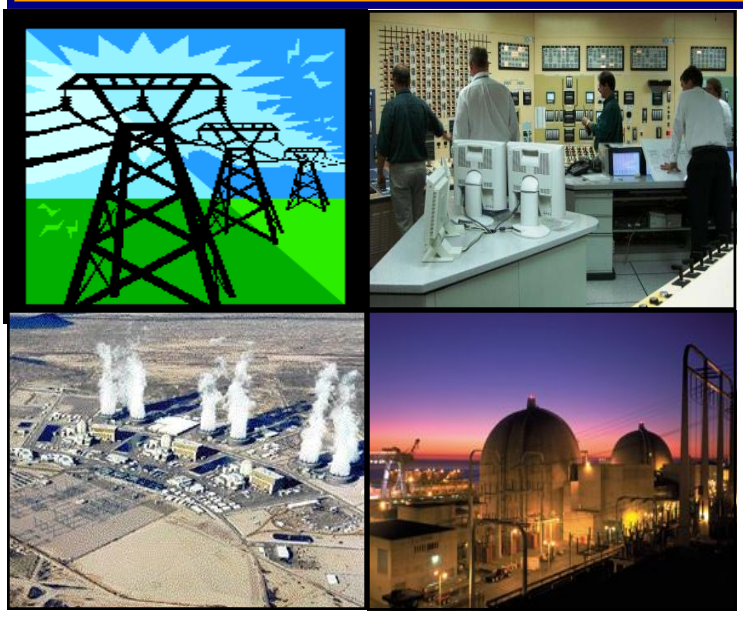

mined that each work package had to be reconciled at the end of the day and rescheduled in the correct window. This allowed us to maintain schedule fidelity for the remaining schedule period.

Both processes can be designed to help any organization ask and answer the right questions to maximize efficiencies.

A Corrective Action Program working in concert with a Work Management Process will help any facility to safely produce an efficient product in the long term.

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This is a fun analogy because golf is also a game of incremental improvement (or frustration); however, it is an individual game where each person has their own 'end-in-mind.' Implementing a Corrective Action Program is a team game. Attempting to implement anything as a team is a completely different game altogether. Execution outcomes can range from achieving value-added results (positive control) to disappointment, frustration, and added burden (deficient control).

The key to ensuring the people keep their eye on the (same) ball is communication. This communication best comes in the form of instant feedback and constant re-enforcement. The only effective way to do that is to get completely engaged in the game (process). The primary (and long-term) goal is to continuously expand your center of knowledge (teach, coach, mentor) until key individuals around you have been positively influenced to the point their behaviors reflect that knowledge transfer.

The end-in-mind implementation points to continuously re-enforce are:

- Initiation quality – clear description that includes 'why it happened' to support code/close and future collective analysis

- Initial screening review – work with initiators, supervisors, and department managers to quickly get enough info to forgo formal cause investigation, encourage address/code/close resolutions, then support future collective analysis

- Strategic management engagement – function as a team to continuously challenge and hold each other accountable for exhibiting high standards and producing value-added results (Management Review Committee, Coding and Analysis meetings, Corrective Action Review Boards).

- Continuous incremental improvement – use Common Cause Analysis to isolate and surgically eliminate a repetitive (low-level) cause (no shot-gunning out actions).

Communicate success – let the people know what was improved, how it was improved, and what role they played in the improvement process.

Successful Corrective Action Program implementation (new or improved) requires an initial orchestrated effort. Hope is NOT an implementation method. There is a distinct reason for every phase of the program and there is a clear purpose for implementing each aspect in a specific manner. Once a functioning Corrective Action Program is in place, with strategic checks and adjustment, it will essentially become self-sustaining.

There is a beacon...

NWI Products And Services

NWI Consulting, LLC is a professional consulting firm specializing in power generation performance improvement services, specialized learning interventions, computer-based training, organizational development, accreditation renewal/recovery, and professional staff augmentation. NWI has a broad portfolio of U.S. and international clients in the electric generation industry and is headquartered in Knoxville, TN. NWI's power plant services includes supporting such areas as Operations, Training, Work Control, Outage Management, Performance Improvement, Nuclear Oversight, Maintenance, Radiation Protection, Chemistry, and Emergency Preparedness. NWI has assisted clients in other, more specialized efforts including Leadership/Management Development, Executive Coaching, Conflict Resolution, Multi-Discipline Assessments, Root Cause Analyses, NRC 95-003 Preparations and specialized Safety Analysis (50.59).

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NWI News Update

The following key activities are being conducted by NWI professionals...

- Idaho National Laboratory CAP Support
- SONGS Training, Operations, SGRP, Work Control, Performance Improvement Pgm Support
- Palo Verde 's Procedure Development and SGR Projects.
- DC Cook Training and Human Performance Support
- Duke's Oconee Human Performance Support
- Progress Energy's HB Robinson Operations Support
- Xcel's Monticello & Prairie Island Project Mgt. & Engineering EPU Support
- Entergy—Operations/Nuclear Oversight/Safety Review

Thank You

We wish to express special thanks to the following clients for making NWI a preferred consulting company.

- AEP's D.C. Cook Nuclear Power Plant
- APS's Palo Verde Nuclear Station
- Duke Energy's Oconee Station
- Exelon Nuclear Partners
- Entergy
- Idaho National Laboratory
- SCE's San Onofre Nuclear Station
- TVA Nuclear Power Group's Watts Bar, & Browns Ferry Nuclear Plants
- Xcel Energy's Monticello & Prairie Island Nuclear Generating Plants

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