



White Paper: Extent Of Condition
Evaluations

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Working Group
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This white paper is being issued for a 6-month period where feedback and improvement suggestions are being solicited from users. The document, along with feedback and improvement suggestions, will be reassigned to the EFCOG ISM Working Group; Feedback & Improvement Subgroup for continued maintenance and possible conversion into a Contractor Implementation Guide.

I. Introduction

Extent of Condition is generally defined as a generic implication of a failure, malfunction, deficiency, defective item, weakness or problem; i.e., the actual or potential applicability for an event or condition to exist in other activities, projects, programs, facilities or organizations. The use of an Extent of Condition evaluation is a critical component in our goal to find and fix problems before they become events. Further, it is encouraged by the Department of Energy (DOE) Office of Enforcement. This paper has been developed with the cooperation of the Office of Enforcement by the Energy Facility Contractors Operating Group (EFCOG) Price-Anderson Amendments Act Working Group to provide guidance to the DOE contractor community as part of the program to appropriately address nuclear safety and occupational safety and health (OSH) concerns. The Nuclear Safety Management Rule, 10 CFR 830, identifies several areas, including training, work processes, procurement and the identification and control of items, services and requirements, that could benefit from appropriate use of Extent of Condition evaluations. An Extent of Condition evaluation contributes to feedback and improvement loops, which are implemented through the Integrated Safety Management System processes.

There are interrelationships between and among Extent of Condition evaluation, causal analysis and corrective actions which suggests the reviewer should have flexibility in problem solving for safety problems. Some issues will be self evident candidates for an Extent of Condition evaluation at the inception of problem identification. Others, however, might not become logical candidates until a causal analysis is underway. Occasionally, the need for an Extent of Condition evaluation might not become clear until the corrective action process has begun. It is important to maintain an inquiring mind throughout the process and avoid a checklist mentality. This means Extent of Condition evaluation, root cause and corrective actions must be considered throughout the process. New information learned could result in reanalysis of a portion of the process previously reviewed. Appropriate use of Extent of Condition evaluations will enhance nuclear safety and be cost effective for the contractor because problems will be identified and addressed before they become events.

A key element of an effective corrective evaluation process for a nuclear safety or OSH noncompliance is the determination of extent of condition with respect to potential impact on operations. A fully defined and well established Extent of Condition evaluation process will assist in the identification of matters transcending a particular event or organizational boundary. Identifying and correcting these cross-cutting issues, deficiencies, weaknesses, or problems will reduce risk and operating costs and result in a safer working environment through the detection and correction of both latent and obvious adverse conditions. A graded approach is encouraged, with matters of greater potential consequence receiving greater attention than matters of lesser consequence.

Thus, the decision on how to conduct an Extent of Condition evaluation will be tailored to the facts and circumstances of the particular matter. A robust and active management

system will use assessment, issues management, causal analysis, Extent of Condition evaluation, trending and other management indicators to understand what is happening at a facility, activity or site. The Extent of Condition evaluation process does not stand alone. It is a key element in the overall continuous improvement cycle. An Extent of Condition evaluation may contribute to the causal analysis by confirming an underlying programmatic issue.

II. Recommendations

Managers should consider performing an Extent of Condition evaluation every time an issue is identified. Key questions to consider may include:

- Have I seen this before?
- If I am seeing it again, why?
- Is the management system deficient in some way since this circumstance occurred? How?
- Could other activities and facilities at the site be experiencing the same problem?
- To what extent does this problem have an impact or potential impact on the project or activity?
- Can this matter affect the ability of my company to conduct work safely and in compliance with requirements at the site?

Consideration of Extent of Condition evaluation should be captured as part of each corrective action management plan. Companies should formally integrate Extent of Condition evaluations into the graded approach used for corrective action management. There should be criteria for determining when a formal Extent of Condition evaluation is required and when an informal review may be acceptable. For example, a company may require a formal determination of Extent of Condition evaluation for matters that are reported into the noncompliance tracking system (NTS) or event reports of significance category 2 or above in the Occurrence Reporting and Processing System (ORPS). A further example of a candidate for formal Extent of Condition evaluation consideration would include repetitive or programmatic issues.

The breadth of the Extent of Condition evaluation should be driven by the potential safety impact and probability of occurrence, as appropriate. The evaluation can be narrow or broad, depending in part on whether the issue is unique or potentially transcends organizational boundaries. (An example of the former is addressing ineffective procedures that are particular to a unique activity at the site. An example of the latter is a determination that the procedure for changing out HEPA filters is inadequate, and such filters are used in many facilities at the site.)

Extent of Condition evaluations should either be performed by an appropriate subject matter expert (SME) or by staff personnel that have been trained and understands Extent of Condition evaluations and the substance of the issue. Such individuals will need a particular knowledge of the area under study for the entire site. When considering the breadth of an investigation for Extent of Condition evaluation, managers should be aware

of the benefits of eliminating a programmatic problem and the costs of failing to address a problem before it becomes an event.

III. The following criteria should be considered for an Extent of Condition evaluation:

- Causal Factors. A key element of the corrective action process is the determination of causes. Understanding an issue's causes, including apparent, contributing, direct, or root, as part of the issue's investigative phase, will have a definitive influence on Extent of Condition evaluations and resulting determinations. Similarly, an understanding of Extent of Condition issues could play a useful role in cause analysis. For example, in a case where an electrical safety noncompliance occurred because of failure to maintain equipment to current standards, an Extent of Condition evaluation will look at all similar pieces of equipment to determine if there are other examples at the site of a failure to upgrade standards. In fact, if such examples are numerous, it might lead to a fresh review of equipment maintenance requirements in general at the site. Thus, the Extent of Condition evaluations will contribute to more accurate identification of the underlying issue. Similarly, such a review could indicate that the issue is confined to a single piece of equipment or a single building. It is important to remember that in many situations it is not possible to conduct a causal analysis until the Extent of Condition is identified. The important thing is to have an inquiring mind and respond to the facts as they develop.
- Uniqueness. Uniqueness is another consideration in deciding the formality needed to evaluate Extent of Condition. If the issue uniquely relates to a single activity or process at the site, a graded approach to the formality and documentation of an Extent of Condition evaluation should be considered. On the other hand, if the issue is found to be generic or programmatic, then it is likely that an Extent of Condition evaluation should be performed and documented. For example, a failure to use a respirator properly in a particular facility may be considered unique if that is the only facility on site that utilized respirators. If, however, the source of the failure to use the respirator properly is inadequate training and such equipment is used in many places around the site, it would be appropriate to conduct an Extent of Condition evaluation. In at least some circumstances, the question of uniqueness may only be answerable after some preliminary Extent of Condition evaluation.
- Recurrence. If the issue under study is similar to other issues that have occurred at the site, then an Extent of Condition evaluation of the site as a whole may be warranted, probably in conjunction with a root cause analysis.
- Seriousness (Potential or Actual). Factors to consider with respect to the seriousness of the matter under consideration include the potential for physical harm, environmental impact, public perceptions and regulatory and contractual performance requirements. Issues that do not meet the criteria being adverse to quality may not be appropriate candidates for an extensive Extent of Condition evaluation. Matters involving multiple failures, on the other hand, would make such an evaluation more appropriate.

- Cost. It is expected that managers will make decisions regarding an Extent of Condition evaluation using the graded approach that takes the potential safety impact and cost into consideration.

IV. EOC Evaluation Process

As part of the corrective action planning process, the individuals assigned the task of reviewing, critiquing and investigating individual significant noncompliance matters or lower threshold issues and safety concerns, should have initial responsibility for making a determination on the breadth of Extent of Condition evaluation that would be appropriate. Other individuals responsible for occurrence reporting, Price-Anderson reporting, and lessons learned should have familiarity with the process as well. All individuals charged with Extent of Condition responsibility should be trained on how to perform an Extent of Condition evaluation so there is a uniform approach to Extent of Condition evaluations at a site.

Individuals conducting Extent of Condition evaluations should have appropriate expertise in the areas being evaluated and across the site. They should also have the problem solving skills to understand the corrective actions needed to resolve issues on a site-wide basis. Subject matter experts should be utilized in appropriate circumstances. The level of effort required for the evaluation will depend on the significance and complexity of the issue. For more complex cases, formal lines of inquiry may need to be developed and implemented. Outside of the context of events, issues may be identified through management and independent assessment processes. This behavior should be encouraged. An Extent of Condition evaluation could be developed from an assessment finding or because in a manager's professional judgment something needs to be reviewed more closely. Some Extent of Condition evaluations may only require a review of documents while others may require a walk-down of a facility. Efforts should be made to avoid a "checklist" mentality. Regardless of the level of evaluation performed, the results should be documented either within an existing process (e.g. corrective action management or assessments) or in a report format.

In summary, the following steps should be considered and incorporated into the Extent of Condition evaluation as appropriate:

- Review the background and circumstances that led to identification of the issue or condition triggering the review. There may be multiple issues or conditions that should be evaluated.
- Assure the level of effort will help identify all relevant causal factors.
- Evaluate the issue or condition for uniqueness, recurrence and potential or actual consequences.
- Determine what issues require follow-up and whether an SME needs to be utilized in the evaluation.
- Determine the breadth of facilities and activities at the site that might be similarly situated.

- Consider what might have been inadequate in previous assessments, investigations, critique results and cause determinations if this is a repetitive problem.
- Identify and/or investigate the extent of applicability to other activities, processes, equipment, programs, facilities, operations and organizations.
- Assure involvement by both the appropriate subject matter expert and manager in the development of findings.
- Document such findings and assure incorporation of the findings in development of corrective actions. Recognize that the problem solving loop might require going back to Extent of Condition issues during implementation of a corrective action plan if new information or insights develop during the implementation process.

A properly scoped, implemented and documented Extent of Condition evaluation can help identify and correct problems before they become events. This will save contractor and DOE resources and create a safer, better managed work environment.