

October 25, 1989

Those on Attached List

Gentlemen:

Enclosed is a document which describes the Region III Oversight of Licensee Self-Initiated Configuration Management Programs. I believe that these licensee programs are very important, since both licensee and NRC inspections under these programs have identified significant safety findings. I am forwarding the enclosed document to you so that you will be aware of Region III's approach relative to this important subject.

If you have any questions or comments on this approach, I would be pleased to discuss them with you.

Sincerely,

Original signed by
A. Bert Davis

A. Bert Davis
Regional Administrator

Enclosure: As stated

cc w/enclosure:

- E. G. Greenman, RIII
- H. J. Miller, RIII
- C. E. Norelius, RIII

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RIII
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Miller
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RIII
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Paperiello
10/23/89

RIII
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Davis/jr/mnj
10/20/89

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Distribution

Attached letter was sent to the following licensees:

Perry: 50-440; 50-441
Braidwood: 50-456; 50-457
Byron: 50-454; 50-455
Dresden: 50-10; 50-237; 50-249
LaSalle: 50-373; 50-374
Quad Cities: 50-254; 50-265
Zion: 50-295; 50-304
Big Rock Point: 50-155
Palisades: 50-255
Fermi: 50-341
Clinton: 50-461
D.C. Cook: 50-315; 50-316
Duane Arnold: 50-331
Monticello: 50-263
Prairie Island: 50-282; 50-306
Davis-Besse: 50-346
Callaway: 50-483
Point Beach: 50-266; 50-301
Kewaunee: 50-305

REGION III OVERSIGHT OF LICENSEE SELF-INITIATED
CONFIGURATION MANAGEMENT PROGRAMS

BY

H. J. MILLER, T. O. MARTIN, M. P. PHILLIPS, I. S. YIN
DIVISION OF REACTOR SAFETY, REGION III

In 1985 a new NRC inspection approach called a Safety System Functional Inspection (SSFI) was developed by the Office of Inspection and Enforcement. This inspection was intended to be a comprehensive "vertical slice" review to evaluate whether a particular safety system had been designed, constructed, maintained, tested, and operated in a manner that would ensure it met its required safety function. These resource intensive inspections, that typically involve 3 weeks of field time for up to 10 inspectors, have proven to be very effective in identifying major design, modification, maintenance, and operational deficiencies that could impact safe plant operation. SSFIs have continued to be performed, on a limited basis, by NRC headquarters and the regional offices.

The depth of review conducted as part of an SSFI inspection in many cases yielded findings that exposed major shortcomings in configuration management programs -- configuration management being the process of ensuring that plant systems and components are maintained within their intended design bases. It was discovered that in many cases equipment was maintained or modified without meeting original margins of safety often due to missing or inappropriate use of design basis documentation. SSFIs quickly received national recognition as a valuable diagnostic tool. Given the safety payoff of these inspections and limited NRC inspection resources, licensees were encouraged by NRC to conduct their own SSFI inspections. This encouragement took many forms, including participation in a special American Society for Quality Control (ASQC) industry seminar on SSFIs in 1986 to review the process and the experience of licensees that had been through an NRC led SSFI. Utilities that had received such inspections reinforced the message being sent to the industry at large that such inspections were likely to identify weaknesses at most plants and that it was desirable for licensees to find and correct their own weaknesses before they became significant problems. The industry through the auspices of the Electric Power Research Institute, developed NSAC-121, "Guidelines for Performing Safety System Functional Inspections", which was issued in November 1988.

With this encouragement and regional management emphasis, by the end of 1987 nearly all of the nuclear plants in Region III had implemented some form of self-initiated SSFI and configuration management review. This has involved a significant commitment of engineering oriented resources for most licensees. In several instances, these programs will take up to 5 years and encompass all safety-related systems as well as selected, nonsafety-related systems.

These programs, which have been developed to suit what each licensee has perceived to be its own needs have included the following elements: reconstitution of design basis information and documentation; detailed walkdown of electrical and mechanical systems to assure as-built conditions match design; and detailed evaluation of selected systems to confirm that they remain functional. In addition to gaining operator confidence in system design and reliability, the end product of such efforts is a better set of reference materials and tools for design engineers who will continue to modify plants and deal with equipment aging issues.

While the self-initiative of licensees may reduce somewhat the need for NRC to conduct SSFIs, the scope and potential safety significance of these efforts dictate some form of NRC oversight. The two principal objectives of this oversight are: (1) to understand the depth and effectiveness of licensee reviews as well as the findings that are being made; and (2) to assess the promptness and effectiveness of licensee corrective actions and the accuracy of licensee reports of significant findings. The former is important if NRC is to give appropriate credit to licensees for their efforts and to identify where such initiatives might be weak, making NRC inspection prudent. The challenge facing the Region has been to conduct such oversight without discouraging licensee initiative. To accomplish this, the Region has emphasized direct communication with senior licensee officials regarding NRC's expectations and views on these self-initiatives and how we will treat licensee findings. While the kind of costly and intense scrutiny that is a part of these reviews can be painful, we have emphasized the safety and other benefits that accrue from competent efforts. For example, licensees have been made aware that selection of candidate sites for NRC led SSFIs would be based partly on whether the facility had a credible self-initiated SSFI and configuration management program. Consistent with changes made to the NRC enforcement policy, Region III licensees have been told that enforcement discretion would be granted whenever possible for licensee identification of violations.

As a result of the level of licensee activity in this area, Region III reduced the number of SSFIs actively performed by the region and shifted resources instead to monitoring performance of licensee programs. This effort includes periodic meetings with licensees including senior management and on-site reviews of self-initiated SSFI reports. The on-site review has consisted of approximately one to two person-weeks of effort devoted to reviewing the licensee's report, conducting staff interviews, and evaluating corrective action taken as a result of the SSFI findings. In some cases, licensees have been reluctant to release off-site the results of their self-initiated reviews making it necessary to conduct the NRC review of this material at the licensee's facility. These reviews have shown that significant safety issues are often identified. The region has also found that while licensee corrective action has been acceptable in most cases it has sometimes been less aggressive than warranted. There appears to be a tendency on the part of licensees to treat the findings of an SSFI differently than when NRC performs the inspection even when the findings are just as significant.

On a selected basis, the Region expects to assess licensee efforts by actually performing SSFIs on the same systems reviewed by the licensee. Region III has recently completed an SSFI of the High Pressure Core Spray (HPCS) system at one utility to evaluate the utility's own SSFI of the same system. Based on the findings, the Region III team concluded that the utility initiated SSFI had some limitations in that it did not challenge original design or construction where warranted nor did it adequately verify that all Tech Spec required conditions were being monitored for conformance.

Currently, most Region III licensees have active configuration management improvement programs and many conduct system evaluations patterned directly after the NRC SSFI model. We have seen significant safety payoff from these efforts. For example, one licensee conducting an SSFI of the instrument air system identified a design deficiency that could render both station diesel generators inoperable. Another licensee identified a potential for complete loss of component cooling water during a postulated high energy line break. These and other findings have resulted in the submission of many voluntary LERs. However, some of the problems and limitations that the NRC has identified with these programs, particularly with respect to corrective action, have strengthened the Region's perception of the need for continued oversight. We have also found that our continued interest and involvement has helped senior licensee managers see the benefits of these often costly, difficult programs.