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U. S. Nuclear Regulatory Commission
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Subject: Arkansas Nuclear One - Units 1 and 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6
Response To NRC Request Under 10CFR50.54(f) Regarding Adequacy And Availability Of Design Bases Information

Gentlemen:

By letter dated October 9, 1996, the Nuclear Regulatory Commission (NRC) requested licensees to submit information pursuant to 10CFR50.54(f) which will provide the NRC added assurance that each licensee's plant(s) retain their design bases and are performing operating, maintenance and testing activities within its design bases. Based on 120 days from date of receipt, Entergy Operations is providing the response for Arkansas Nuclear One, Units 1 and 2 (ANO).

Entergy Operations has closely followed the design and licensing bases issues identified over the last eighteen months within the nuclear industry. While the individual licensee findings are addressed based on their own merit, Entergy Operations reaffirms our long-standing belief that compliance with our design and licensing bases is not optional. Compliance is a necessary element of an effective regulatory framework, and is a key aspect in meeting our operating license. Additionally, Entergy believes that an effective licensee assessment and corrective action program is essential for identifying and correcting adverse conditions that may exist at a facility. Prompted by the renewed focus on the design and licensing bases, UFSAR assessments were conducted at each Entergy Operations facility in mid-1996. We shared the results of these assessments with the NRC staff in meetings at NRR (November 14, 1996) and Region IV (December 17, 1996).

Upon receipt of the 10CFR50.54(f) letter, ANO and the other Entergy Operations plants jointly developed and implemented an assessment of configuration management and corrective action processes for completeness. The process reviews focused on those controls which translate the design basis into plant configuration and procedures. A review of internal and

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external assessments and program improvements were also conducted to determine process effectiveness. The ANO assessments and reviews including results are summarized in Attachment 1.

Our reviews did not detect any significant design basis issues at ANO; however, various process and control improvements were identified and are discussed in Section X of Attachment 1 to this response. The improvements will be addressed as part of our ongoing program enhancements. Attachment 2 provides a summary of the Design Configuration Documentation Project conducted at ANO including a listing of our Upper Level Design documents. Based on the assessments and reviews conducted, ANO believes that reasonable assurance exists to conclude that the design basis of systems, structures and components are adequately maintained and are appropriately reflected in the plant. Therefore, the ongoing program discussions and improvement actions provided in this letter are considered by ANO to be enhancements in maintaining an effective configuration management program and are not being provided as commitments necessary to ensure design basis adequacy. A commitment to perform a Safety Analysis Report Upgrade Project at ANO is being docketed separately from this submittal.

Recognizing that the attachment contains a large amount of information, we encourage your questions or comments. Please contact Dwight Mims for any additional information or clarification relative to the content of this response.

Very truly yours,

C. Randy Hutchinson

CRH/sab

Attachments

To the best of my knowledge and belief, the statements contained in this submittal are true.

SUBSCRIBED AND SWORN TO before me, a Notary Public in and for Johnson **County and the State of Arkansas, this** 7 **day of** February**, 1997.**

Juana M. Tapp
Notary Public
My Commission Expires 11-8-2000

OFFICIAL SEAL
JUANA M. TAPP
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ARKANSAS NUCLEAR ONE, UNITS 1 AND 2

RESPONSE TO NRC REQUEST REGARDING

ADEQUACY AND AVAILABILITY OF DESIGN BASES INFORMATION

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ATTACHMENT 1

ARKANSAS NUCLEAR ONE, UNITS 1 AND 2

RESPONSE TO REQUEST FOR INFORMATION REGARDING ADEQUACY AND AVAILABILITY OF DESIGN BASES INFORMATION

I. INTRODUCTION

The purpose of this letter is to provide added assurance that Entergy Operations, Incorporated (EOI) facilities are operated and maintained within their design bases with deviations reconciled in a timely manner as requested pursuant to the 10CFR50.54(f) by NRC's Executive Director for Operations on October 9, 1996. This response covers Arkansas Nuclear One (ANO), Units 1 and 2.

Although NRC's request focused on specific questions with respect to plant design control and configuration management, the request was made against a larger background of concern over licensees' ability to understand, maintain and operate their plants in accordance with a plant's licensing basis. Mindful of this broader perspective, EOI has taken steps not only to respond to the specific questions but to understand and address the wider messages:

- NRC's confidence in licensee control of their licensing and design bases has been shaken by events of the last year and a half,

- Likewise, public and Congressional confidence in the nuclear regulatory process has eroded as these events received publicity and scrutiny, and

- Compliance with licensing and design bases is not optional. Compliance is an expected and necessary element of an effective regulatory framework.

Consequently, we believe that the individual and collective responses to the 50.54(f) letters are an essential first step in restoring public and regulatory confidence in nuclear licensees.

Prior to issuance of the 50.54(f) letter, EOI developed and implemented licensing basis assessments at each of our facilities, and developed a design basis assessment that is presently ongoing. Upon receiving the 50.54(f) letter, we extended these concepts and built upon their insights to implement the critical review needed to respond in a pro-active manner to this letter. Overall we have found these efforts valuable. In particular, we have recognized a number of subtle means to change the configuration of a facility that may bypass traditional design and/or licensing basis controls. As a result, we are planning to implement additional programmatic controls at the applicable site(s) that provide added assurance that our plants' configuration and operation reflect the underlying design and

licensing bases. At ANO we will be performing a SAR Upgrade Project which will also address these potential concerns.

The ANO initiatives, assessments and results to respond to the 50.54(f) letter are provided in more detail below.

II. BACKGROUND

Nuclear plants, processes, regulations and regulators, change and evolve over time. EOI's first plant (ANO Unit 1) was licensed in 1974 and its last facility (Waterford 3) received its full power license in 1985. Over that time, the industry and the regulators experienced significant change ranging from the TMI accident to the 10CFR50.71(e) requirements to update the UFSAR. Since our facilities were licensed at different times and subject to differing regulations (e.g., both ANO units operated for a number of years before 10CFR50.71(e) was enacted), it is not surprising that their internal process development differed.

Similarly, the industry and the regulations have undergone significant change since the last EOI facility was licensed. The period from 1985 to the present is probably best characterized as one of increased understanding of the factors important to nuclear safety. Enhanced understanding of comfort with and use of probabilistic safety assessment techniques led to an increased capability to focus on safety significant elements of plant design, regardless of their safety-related or non-safety-related designation. Performance-based approaches to plant operation and regulation started to be applied because they focused on safety results rather than prescriptive details of how a function was accomplished.

Evolving regulation and evolving understanding of elements important to safety coupled with varying times of plant design, construction, and licensing led to different historical development for EOI facilities. This is apparent in how each facility's control and conception of licensing and design bases management evolved.

For example, ANO Unit 1 (licensed in 1974) uses an FSAR format based on a predecessor to Regulatory Guide 1.70 and has custom technical specifications different from the standard format. The design bases requirements under 10CFR50.2 for ANO may be viewed as more limited than a plant licensed in the mid 1980s. Consequently, the design documentation expectations under 10CFR50, Appendix B at that time were less demanding and design documentation was in many cases not readily accessible. As a result, ANO has undertaken (or is undertaking) several initiatives to upgrade design and licensing bases documentation.

In contrast, Grand Gulf was licensed in 1982, but went through an extended low power testing period due to discrepancies between the as-built plant and the technical specifications. The combination of a large technical specification re-validation effort at that time, later plant vintage, better turnover from the AE, and better documentation maintenance, led to much reduced design basis documentation efforts for Grand Gulf in comparison with ANO.

Each EOI facility has a unique background which resulted in varying levels of effort needed to develop, recapture or reconstitute their design basis. This historical development is reviewed in the responses to questions (b) and (c).

III. REGULATORY BASES

The difference between the design and licensing bases can be confusing and is often not clearly documented. While the distinction may be unimportant in many controlling processes, it is relevant to our response to the 50.54(f) letter and to the various assessments EOI has conducted either in response to the letter or as a result of the broader issues which led to the letter.

In the 50.54(f) letter, the NRC provided the request in terms of the 10CFR50.2 definition of design bases. As such, the design basis is a subset of the licensing basis. And, although the licensing basis itself is undefined in 10CFR50, in general, EOI facilities view the licensing basis to be similar to the 10CFR54.3 definition of current licensing basis.

In practical terms (although not strictly correct), the industry tends to think of the licensing basis as primarily consisting of the UFSAR and the 10CFR50.2 design basis as that portion of the UFSAR that addresses safety functional characteristics as defined in 10CFR50.2. Consequently, much of the introductory discussion of the 50.54(f) letter which addresses various concerns with UFSAR fidelity is concentrating on the licensing basis, while the information request itself (questions (a) - (e)) is limited to that portion of the UFSAR that constitutes the design basis.

Regardless of the distinctions, as discussed below, EOI has taken steps to address issues associated with both design and licensing bases fidelity.

Design Basis

The term "design basis" as defined in 10CFR50.2 differs from how we use that term in day-to-day activities. The "regulatory design basis" of 10CFR50.2 represents only the tip of the design basis iceberg. Underlying the regulatory design basis is a large amount of design basis information contained in documents such as design documents, calculations, analyses, drawings, tables, databases, and the like, which is not part of the regulatory design basis. Notwithstanding its status outside of the regulatory design basis, management and control of this larger body of information is necessary to ensure that the regulatory design basis of 10CFR50.2 is accurate, and to maintain compliance with 10CFR50, Appendix B.

In responding to the 50.54(f) letter, EOI has chosen to expand our review beyond the narrow confines of the regulatory design basis to identify and examine processes which could affect the broader design basis and plant configuration. Although those processes

(which are identified and reviewed in Section VI, Response to Question (a)) are extensive, we found our review valuable in identifying and refining controls on plant configuration.[1]

Licensing Basis

Last June, recognizing the importance of the licensing basis issues associated with recent industry events, EOI management directed that licensing basis assessments be developed and conducted for EOI facilities to determine if additional action was needed to maintain and control our plants' licensing basis.

These assessments, which were conducted in July and August, 1996 at each EOI plant, recognized the potential for subtle ways in which the plant's operating basis could be changed while bypassing the traditional licensing basis change mechanisms.

While the UFSAR assessments are outside the scope of the 50.54(f) request[2], their insights were utilized in developing the review approach to respond to the 50.54(f) letter. EOI has also shared our UFSAR assessment approach and findings with the industry and the NRC. In particular, we met with NRR on November 14, 1996 and Region IV on December 17, 1996 to provide a detailed presentation on the UFSAR assessments.

Overall, the UFSAR assessments found that traditional licensing basis controls such as the 10CFR50.59 and 50.71(e) processes are effective in maintaining and updating the licensing basis. Process enhancements were identified in some cases to address non-traditional change mechanisms. At two of our facilities (ANO and River Bend) there were sufficient discrepancies in the original UFSAR text to merit a UFSAR upgrade effort. That effort, which was briefly described during the NRC presentations, is beginning at the two plants and is expected to be complete in approximately two years.

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[1] In addition to the review conducted to respond to the 50.54(f) request, EOI is conducting design basis team evaluations at each of our facilities. Similar to the FSAR assessments described below, the design basis evaluations are expected to yield further insight into useful areas to enhance the design basis documentation and control. These evaluations are scheduled to be complete in 1997.

[2] As noted in footnote 8 to the 50.54(f) letter, the Commission has adopted enforcement policy changes to encourage licensees to voluntarily undertake initiatives to identify and correct FSAR noncompliances. We believe the FSAR assessments and other initiatives qualify for such enforcement discretion. This action is being docketed separately from the response.

IV. RESPONSE DEVELOPMENT AND OVERSIGHT

Planning for and preparation of the 50.54(f) response was coordinated by an EOI team of knowledgeable representatives from each EOI facility and the corporate office. As directed by management, the team developed a response approach (described in Section V, below) involving a critical review of site process completeness and effectiveness. The intent was to go beyond process description, and develop an approach capable of identifying new insight into the adequacy of design basis and configuration management processes.

Each site assembled a separate team to implement the assessment. The site team was responsible for investigating site processes, evaluating the resultant information and identifying and documenting any deficiencies or process enhancements. The site team also compiled sufficient records of their review to substantiate the accuracy of the findings.

One advantage of a system-wide team approach is that throughout the response development period, site-specific findings and insights were shared among the EOI team. Common concerns were addressed, and, where appropriate, consistency in evaluation and approach was facilitated.

Draft information was shared with nuclear facilities outside of EOI in order to benefit from external insights. Knowledgeable external and legal personnel also provided valuable feedback.

The response was reviewed by a broad range of site personnel including engineering, licensing and management personnel. In addition, the on-site safety review committee performed site-specific reviews.

V. APPROACH TO ADDRESSING QUESTIONS (A) THROUGH (D)

Before providing the detailed response to questions (a) - (d), it is worthwhile to discuss how these questions interrelate and our understanding of NRC's intent in posing the questions.

Questions (a) and (d) request descriptive information concerning the design/configuration control processes and the corrective action processes. Questions (b) and (c) request our reasons for concluding that these processes are implemented such that actual plant configuration and activities accurately reflect the design basis. In constructing our review to be responsive to the spirit of these requests, EOI focused on addressing two key issues:

- Completeness (questions (a) and (d))
  - Have we identified the ways (processes) by which plant configuration can be changed?
  - Does the corrective action program contain the appropriate elements?
  - Do the identified processes contain the elements necessary for effective control?
- Effectiveness (questions (b) and (c))
  - Do we have previous assessments (e.g., audits, vertical slice inspections, etc.) that provide reasonable assurance of process effectiveness (i.e., that the design basis is reflected in plant configuration and procedures)?
  - Have we undertaken major process or other upgrade efforts (e.g., design basis reconstitution, improved technical specification implementation, etc.) that provide reasonable assurance of process effectiveness?

The concepts of completeness and effectiveness deserve further discussion in order to fully understand our response.

Completeness

In reality, engineering design, configuration control and corrective action processes are a complex set of intertwining proceduralized processes spanning multiple departments. For example, in the area of design control there are many processes (and even more procedures) that address different control mechanisms such as design specifications, drawing updates, internal standards, vendor manual changes, software control, database control (e.g., cable, EQ, seismic, setpoints, etc.), and many other control activities.

The question of completeness becomes more complex when we move beyond the traditional design change and configuration management processes to evaluate other potential ways that plant configuration can be changed. As we found through the UFSAR assessments, there are ways in which plant configuration can be changed that may bypass traditional configuration control processes.

There are numerous processes/procedures that can affect, in one way or another, plant configuration. Similarly, there are multiple processes that can affect corrective action. These processes are listed and discussed in the response to questions (a) and (d).

In addition to identifying the processes by which plant configuration or corrective action can be affected, it is important to identify the elements which should be present in those processes in order for them to be effective. For configuration management, process effectiveness elements control a change from conception to implementation and closure of documentation including update of design files. For example, initial process effectiveness elements are a design review for compliance with appropriate codes and standards, and a 10CFR50.59 review for licensing basis impact. Post-implementation elements include periodic surveillance/testing to confirm function and, if the change is temporary, a provision to revisit the basis for the change or restore its initial condition. For corrective action, process effectiveness elements are also defined. Like the processes themselves, the process effectiveness elements are listed and discussed in the response to questions (a) and (d), and in Appendix A (for configuration management elements) and Appendix B (for corrective action elements).

Based upon identification of processes and identification of process effectiveness elements we can draw conclusions (with reasonable assurance) about the completeness of our programmatic controls for configuration management and corrective action. This is the focus of our response to question (a), and the detailed evaluations in Appendix A.

Effectiveness

The effectiveness of a process is a measure of how well it performs its intended function. For example, prior to a change being implemented in plant procedure or design, does the 10CFR50.59 process consistently ensure that the change has been appropriately evaluated for its effects on safety and the licensing basis? If so, the 10CFR50.59 process is considered effective.

Determining process effectiveness is largely a matter of inference based on a sampling of individual process products. For instance, an audit of the 10CFR50.59 process may sample 20 plant procedure and design changes and find that in each case, the change (prior to implementation) was evaluated in accordance with 10CFR50.59 and that the quality of the evaluation was high. Although all plant procedure and design changes were not reviewed, the consistent nature of the sampling findings leads to the inference that the 10CFR50.59 process is effective.

In responding to the 50.54(f) request, EOI chose to identify and review the results of past assessment activities that in some way either reached conclusions about process effectiveness or developed information from which such conclusions could be inferred. There is a wide array of useful process effectiveness assessments. In the regulatory arena these include inspections by NRC personnel. Under EOI's purview, we conduct quality assurance audits, self-assessments, vertical slice system assessments, and upgrades of particular process areas such as design basis documentation upgrades.

The combination of process effectiveness assessment results, over a period of time, provide a reasonable basis upon which to draw overall conclusions about process effectiveness. This is the focus of our response to questions (b) and (c) in Section VII.

Finally, this assessment approach is necessarily qualitative rather than an exhaustive revalidation of the design basis. We have made judgments based on our assessments and a standard of "reasonable assurance". By this we mean that we have drawn inferences from our assessments that we feel would be drawn by other objective and knowledgeable people, based on the same information.[3]

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[3] It is important to note that this response is not based on a detailed, line-by-line review of a facility's design and licensing basis (which is not possible in the time allowed for this response). Our response should not be interpreted as a guarantee that discrepancies are not present somewhere in a design or license basis document, or that there are no equipment discrepancies. Rather, it should be interpreted as a good faith effort to respond to global questions on a limited schedule.

VI. RESPONSE TO QUESTION (A)

Question (a) requests the following information:

> Description of engineering design and configuration control processes, including those that implement 10CFR50.59, 10CFR50.71(e), and Appendix B to 10CFR Part 50

As previously discussed, there are two key aspects to addressing this question - identification of the processes which could affect plant configuration, and identification of the elements necessary for process effectiveness.

Processes which could affect plant configuration are numerous and go well beyond those thought to traditionally constitute configuration management. Those we considered in responding to the 50.54(f) request are listed in Table 1 to this attachment.

These processes range from a narrow focus with a single controlling procedure (e.g., maintaining the setpoint list) to broad processes that span several procedures and departments (e.g., the design change process). However, regardless of scope, they share a common characteristic in their capacity to change some aspect of plant configuration. Collectively, they also represent our judgment of a reasonably complete set of ways to affect plant configuration. Each of these processes is described broadly for all EOI sites in Appendix A.

In order to effectively control plant configuration, there are a limited set of process elements which are expected to be in place[4]. The process elements were derived by the EOI team based on general considerations of configuration management including 10CFR50 Appendix B[5] and the primary licensing/design basis control requirements such as 10CFR50.59 and 10CFR50.71(e). These process effectiveness elements are listed in Table 2 to this attachment and in Appendix A.

By their nature, the process effectiveness elements may have somewhat different meanings depending on the process to which they are applied. For instance, interface controls (#5) for a design change may be different than interface controls for an off-normal procedure change. In addition, many processes will not be sufficiently broad to encompass all

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[4] It is important to note that the critical process elements were selected with respect to their importance for design and configuration control as requested in question (a). An individual process such as maintenance work orders may have a large number of other elements important for the successful implementation of that unique process. However, for the sole purpose of maintaining configuration control while implementing maintenance work orders (or any other process) the applicable elements listed in Table 2 should be present.

[5] For instance, see applicable elements of ANSI N45.2.11.

process effectiveness elements. As examples, changing an internal civil engineering standard for non-category I structures will likely not have any provision for restoration controls (#6), or a permanent design/procedure change will not need a provision to periodically revisit the change (#8).

The process effectiveness elements are described in more detail in Appendix A.

By assessing the processes which may affect configuration control (Table 1) against the critical elements necessary to control configuration (Table 2), we can make a judgment as to the completeness of our configuration control processes.[6] The detailed results of the ANO site-specific reviews for completeness are included in Appendix A.

<u>Summary of Response to Question (a)</u>

In large measure, EOI facilities determined that those processes (Table 1) and process effectiveness elements (Table 2) necessary for effective configuration management (including design control) are present and implemented. In particular, Arkansas Nuclear One determined the following (the details of which can be found in Appendix A):

As a result of the extensive review of our controlling procedures for configuration management processes, Arkansas Nuclear One has concluded, with one minor exception, that these processes contain the proper control elements to ensure that the plant design bases for both units are being properly maintained. This exception is the absence of a specific 50.59 review requirement for software packages not developed and revised as part of a configuration change process. This item has been resolved by a procedure change to OP 1000.151. Over this decade, ANO has greatly enhanced the configuration management processes and controls as a result of a significant improvement program initiated at the site. The result is a comprehensive set of procedural controls specifically designed to maintain a high level of configuration management. ANO is still continuing to evaluate and improve its processes as opportunities are identified. A current example is the implementation of a new Engineering Request process to provide a single document to initiate engineering responses to technical issues.

ANO also identified a number of improvement items from this effort, ranging from minor procedure changes to the need for further evaluation of portions of several existing processes. These items will be addressed as part of our normal improvement action processes. A few examples of improvements identified from this review effort are as follows:

1. ANO has developed a valuable set of Upper Level Design Documents (ULDs), but has not clearly established the expectations for timely update and utilization of these documents.

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[6] The effectiveness of the processes is included in the response to Questions (b) and (c).

2. For a configuration control process that is not evaluated through the 50.59 review program, ANO utilizes a Configuration Checklist to evaluate the impact of the change on other controlled design documents. This level of review for impact on controlled design documents needs to be better defined for consistent application.
3. For configuration changes other than design changes, the thoroughness and timeliness of the process for notifying Operations and/or Maintenance organizations of potential procedure changes need improvement.

While ANO did identify some enhancement areas, none of these findings were a direct adverse impact on the plant design basis. Therefore, ANO concludes that we have a comprehensive engineering design and configuration control program in place that provides reasonable assurance of the adequacy of our plant design basis activities.

Processes Which May Affect Configuration Control
Table 1

CONTROL OF CONFIGURATION DOCUMENTS

- DESIGN INPUT: e.g.
  - DESIGN BASES DOCUMENTS
  - SYSTEM DESIGN CRITERIA
  - ANALYSIS BASIS DOCUMENTS
  - UPPER LEVEL DOCUMENTS
  - TOPICALS
- DESIGN PROCESS:
  - CALCULATIONS
  - STANDARDS/GUIDES
  - SOFTWARE
- DESIGN OUTPUT:
  - SPECIFICATIONS:
  - DRAWINGS
  - VENDOR DOCUMENTS
  - DATABASES, e.g.,
    - CABLE AND CONDUIT LIST
    - STATION INFORMATION MANAGEMENT SYSTEM
    - EQUIPMENT QUALIFICATION
    - COMPONENT DATABASE
    - SEISMIC QUALIFICATION
    - SETPOINT LIST
    - INSTRUMENT LIST

PLANT CONFIGURATION CHANGE CONTROL

- DESIGN CHANGE
- REPAIR OR USE AS-IS
- PART EQUIVALENCY
- SETPOINT CHANGES
- TEMPORARY ALTERATIONS
- SOFTWARE CONTROL (PLANT PROCESS)
- RELOAD

MATERIALS/PROCUREMENT

- COMMERCIAL GRADE ITEMS
- MATERIAL TECHNICAL EVALUATIONS
- STORAGE/INVENTORY CONTROLS
- END USE AUTHORIZATION

IMPLEMENTING DOCUMENTS

- PROCEDURES e.g.
  - ADMINISTRATIVE
  - IMPLEMENTING
  - WORK PLANS
- PROGRAM DOCUMENTATION/STANDARDS/GUIDES

CONTROL OF LICENSE DOCUMENTS

- UFSAR UPDATE (50.59/50.71(e))
- LICENSE CHANGE (50.54/50.59/50.90)
  - TECHNICAL SPECIFICATIONS
  - TECHNICAL REQUIREMENTS MANUAL
- COMMITMENT MANAGEMENT

OPERATIONS

- NORMAL, OFF-NORMAL AND ALARM RESPONSE PROCEDURES
- EMERGENCY OPERATION PROCEDURES
- TAGOUTS/CAUTION TAGS
- TECH. SPEC. INTERPRETATIONS
- OPERATOR WORK-AROUNDS
- NIGHT ORDERS/STANDING ORDERS

MAINTENANCE

- MAINTENANCE WORK ORDERS
- PREVENTIVE MAINTENANCE
- CORRECTIVE MAINTENANCE
- REPAIR AND REPLACEMENT PROGRAM
- CALIBRATION PERFORMANCE

PERFORMANCE MONITORING*

- SURVEILLANCES
- IN-SERVICE TESTING
- SPECIAL TESTS
- RETEST
- MOV/AOV/CHECK VALVE TESTING
- HEAT EXCHANGER TESTING
- SNUBBER TESTING
- INTEGRATED AND LOCAL LEAK RATE TESTING
- FAN/FILTER TESTING
- PRESSURE TESTING
- FIRE PROTECTION

CONDITION MONITORING*

- IN-SERVICE INSPECTION
- CORROSION MONITORING
- NON-DESTRUCTIVE EXAMINATION
- WELDING PROGRAM
- SYSTEM/COMPONENT TRENDING
- STEAM GENERATOR INTEGRITY PROGRAM

* These processes were examined for their ability to confirm SSC performance is consistent with the design basis (question (c))

Design and Configuration Control
Process Effectiveness Elements

Table 2

1. Design basis review
2. Licensing basis review
3. Review and approval process
4. Document update controls
5. Interface controls - processes, configuration documents, functional organizations
6. Restoration controls - post-maintenance and post-modification testing, restoration checks
7. Deficiency controls
8. If change is temporary, are there adequate provisions to revisit/restore

VII. RESPONSE TO QUESTIONS (B) AND (C)

The basis for responding to questions (b) and (c) relates to the effectiveness of various common or overlapping configuration management processes identified in Table 1 to this attachment. Therefore, we have combined the responses for both questions.

Question (b) requests the following information:

> Rationale for concluding that design bases requirements are translated into operating, maintenance, and testing procedures

Question (c) requests the following information:

> Rationale for concluding that system, structure, and component configuration and performance are consistent with the design bases

A portion of the rationale to respond to questions (b) and (c) has to do with the completeness of the programmatic controls discussed in response to question (a). The remainder of the rationale consists of numerous historical and current design basis program improvements. In the remainder of this section, a discussion is provided regarding recent assessments, audits, and vertical slice inspections which provide additional confidence that programmatic controls are effective in reflecting design bases requirements in the various plant procedures and effective in maintaining plant configuration and performance consistent with the design bases.

The following information includes a discussion of where ANO has determined the appropriate baseline for evaluating design bases adequacy, improvement efforts that support design bases of ANO and a review of recent assessments to confirm that the design bases are being maintained.

ANO REVIEW BASELINE

The Arkansas Nuclear One site contains two nuclear power units. Unit 1 is a 2568 MWt Babcock & Wilcox pressurized water reactor with Bechtel Corporation as the architect-engineer. The unit received its construction permit in December 1968 and its operating license in May 1974. Unit 2 is a 2815 MWt Combustion Engineering pressurized water reactor also with the architect-engineer being Bechtel Corporation. The unit received its construction permit in December 1972 and its operating license in July 1978. The licensing bases of the units are consistent with plants of similar vintage. The early licensing processes did not result in the same level of design and licensing bases information as newer plants licensed to operate in the mid to late 1980s.

Prior to 1990 the lack of ready access to design bases information at ANO contributed to the inability of the engineering and plant organizations to effectively respond to plant concerns that arose on a routine basis. This became evident in 1987 when several plant and design basis concerns arose. The NRC conducted an evaluation of ANO operations via an NRC Diagnostic Evaluation Team (DET) in 1989 and identified, among other things, that the design bases at ANO was not readily accessible or effectively maintained. Similar concerns were identified in a Systematic Assessment of Licensee Performance report during the same time. As a result of this and other internal assessments, ANO developed a comprehensive action plan in the form of a business plan that initiated corrective actions in each identified weakness area. The ANO Business Plan was docketed with the NRC in March of 1990 in response to the DET evaluation.

The ANO Business Plan established comprehensive direction to ensure that the facility could be managed and operated in a safe and efficient manner. Five key root cause areas were identified by ANO as needing improvement. These involved improvements in (1) management involvement and leadership, (2) safety culture, (3) planning, scheduling and resource requirements, (4) assessment, trending and root cause analysis, and (5) engineering and technical support. Increased support in each of these areas provided direction for ANO to establish an effective site-wide improvement program. This period was a turning point for ANO to begin development of more effective processes for identifying, developing, and managing improvements that addressed plant operations and in particular design bases concerns.

The ANO Business Plan provided the overall plan for ensuring that adequate design bases existed at ANO and that design bases information was retrievable and adequately translated into plant processes. The implementation of these actions significantly changed the way ANO performed oversight activities, established accountability and ensured proper availability and maintenance of design information. A few of the actions taken or already underway at ANO to address issues which affect design bases and design basis implementation are listed below.

In the area of Configuration Management:

- The Design Configuration Documentation (DCD) program was established for ensuring that design documentation was available and organized to support plant design and operations.
- Databases and design documents were developed to ensure that a design basis information roadmap was readily available electronically.
- Other programs addressing specific design issues such as the Electrical Drawing Upgrade Project and the Isometric Update Project were initiated.

In the area of Engineering:

- The System Engineering Program was developed to ensure that day-to-day operational support and system ownership by an onsite engineering organization was provided to the plant.

- The Design Engineering organization was moved from the corporate office to the site for improved design involvement and communications.
- Engineering backlogs were addressed and reduced.

In the area of Operations:
- Improved operability training for the recognition of potentially inoperable conditions was conducted for operations personnel.
- A mechanism for actively tracking out-of-service equipment required by Technical Specifications was implemented.
- The temporary alteration process was revised to require temporary changes to be periodically revisited to justify appropriateness.

In the area of Maintenance:
- Preventive Maintenance Engineering Evaluations were developed to justify appropriate deviations to vendor recommended maintenance.
- Maintenance Engineers became more involved in routine evaluations of potential deviations affecting design basis issues.
- Work packages were improved to reference appropriate drawings and evaluate the impact on plant safety and operations.

In the area of Materials:
- A Commercial Grade Item Procurement process was established based on EPRI NCIG-07. Procurement Engineering conducts the necessary evaluations on commercial grade items for acceptability.
- A Shelf Life Program for Q, F, and S component classifications was developed to ensure that design life is not exceeded.
- The Procurement Engineering organization underwent reorganization for effective response to materials concerns which can affect design basis.

One of the primary factors instituted at ANO during this time frame was the improvement of onsite communication through reorganization of site resources including assignment of responsibilities to designated departments for design basis information. Design Engineering is the design authority at ANO. The other primary departments having responsibility for control of design basis activities have been staffed with engineering personnel having responsibility over designated configuration management processes. Examples of the organizational improvements that support maintenance of design basis (in addition to Design Engineers) are: System Engineers which provide support for plant systems; Shift Engineers which provide support to the Operations staff; Maintenance Engineers which provide oversight of maintenance related activities; and Procurement Engineers which are involved in procurement evaluations. This organizational structure has enhanced communication and controls such that a better accountability of design basis processes is maintained.

ANO has conducted a number of projects or programs to improve design basis documentation and to reflect design basis information into operations, maintenance and testing activities. As discussed in the ANO Business Plan actions above, many of these efforts began between 1988 and 1990 and culminated in the 1993 to 1995 time frame. The primary improvement efforts are discussed in more detail below. The focus and resources of these programs provide substantial basis for reasonably concluding that ANO is maintaining and operating within its design basis.

POST BASELINE ACTIVITIES

PROGRAMMATIC REVIEWS PREVIOUSLY CONDUCTED TO SUPPORT DESIGN BASIS ADEQUACY

The **Design Configuration Documentation (DCD) Project** at ANO began in April 1988, to ensure proper use, maintenance and control of design configuration documentation. This involved a major program similar to that provided by NUMARC 90-12, "Design Basis Program Guidelines" to collect, organize, and index documents that contain design-related information and make this available to both the general user as well as the DCD Project team. As part of this effort, Upper Level Design (ULD) documents were developed which define the design criteria, requirements, and bases for most ANO systems, structures, and topical (generic design) areas. In addition, detailed "system reviews" of design documentation were performed to evaluate completeness, consistency, and accuracy using a vertical slice review approach. These system reviews involved evaluations of the Safety Analysis Reports, Technical Specifications, design drawings, calculations, evaluations, engineering reports, plant component database, station procedures, and the System Training Manuals.

The project also developed and implemented a Design Configuration Documentation Information Management System (DCIMS) which provides a roadmap to design documentation and provides a tool for maintenance of the ANO design documents. A detailed description of the DCD project including the system reviews, ULD documents, and the DCIMS database is provided in Attachment 2.

The ANO DCD Project was completed in December 1994. Discrepancies were generated and issued against the SAR, calculations, and other design or operational documents. The higher priority items were resolved during the project. The remainder of the discrepancies were turned over to the ongoing DCD Program to coordinate final resolution. Approximately 90% of the original discrepancies have been resolved from the project or subsequent closure. However, ANO recognizes the need to dedicate additional resources to gain resolution of the remaining discrepancies.

The **Isometric Drawing Upgrade Project (IUP)** began in 1987 to as-built the piping and pipe support drawings for the seismically qualified piping systems in both ANO

units. The scope of piping included not only that defined by I.E. Bulletin 79-14 but also seismic small bore piping. The project scope included the following actions:

1. Identify and list the seismically qualified piping and supports in ANO 1 & 2.
2. Retrieve the as-installed configuration of the piping of interest by field walkdown.
3. Identify discrepancies between the as-installed, the calculation, and the drawing configuration and assess impact on code compliance and/or operability.
4. Correct drawing and calculation discrepancies.
5. Report other discrepancies recognized (such as with the design, with the installation, or with other non-piping drawings) as appropriate.

The project scope was completed in July 1995. Approximately 1,800 isometric drawings comprising over 90,000 linear feet of piping and 11,000 supports were processed. Over 60,000 drawing and calculation discrepancies were resolved with approximately 2000 minor support/piping restorations being worked (via job requests). Discrepancies that were code compliance concerns were addressed via engineering action requests and condition reports. Modifications required for code compliance were implemented as design changes (resulting in approximately 350 piping and pipe support modifications). Unit 1 discrepancies that resulted in modifications were completed during 1R13 (fall of 1996). The remaining Unit 2 discrepancies that require plant modifications are scheduled to be completed during 2R12 (spring 1997).

The **Electrical Drawing Upgrade Project (EDUP)** was begun in 1990 to perform a field installation verification of certain class 1E electrical equipment and upgrade the quality and accuracy of the design documents. The EDUP project included establishing a program to as-build field wiring, identify and correct discrepancies, and generate new human factored electrical drawings on a computer aided drawing (CAD) system. The equipment in this project covered class 1E motor control centers, 4160 switchgear equipment, diesel generator panels, and selected control room panels in both Units 1 and 2. The EDUP provides assurance that safety-related equipment electrical design and field configuration are maintained and reflected on user friendly design drawings. After the walkdowns, the electrical drawings were upgraded to:

1. Reproduce accurate and legible electrical design drawings on CAD software including standardizing symbols and wiring presentation format. Drawings included in this effort were schematic diagrams showing each scheme on a separate drawing, and composite wiring diagrams showing internal and external connections.
2. Verify the accuracy of selected Site Information Management System (SIMS) and Plant Data Management System (PDMS) database fields information for components installed in selected safety related equipment and update the database to reflect existing configuration.
3. Visually inspect equipment materiel condition by EDUP personnel. The EDUP group documented materiel condition deficiencies in the walkdown data packages, then acted on correcting the deficiencies.

The project was completed in December 1994. The work was performed by a dedicated contract staff with oversight provided by site personnel. Discrepancies were identified and resolved using such processes as job orders, maintenance engineering requests, and condition reports.

The **ANO MOV Program** improved the documentation of the design bases by the production of a series of calculations for each of the over 250 MOVs included in the program. These calculations were largely the result of ANO's commitments to G.L. 89-10. The calculations produced for each MOV established the individual valve's design basis requirements and included maximum expected differential pressure during operation, voltage delivered to the actuator under design basis conditions, seismic qualification, valve part strength, and torque switch setting ranges of thrust and torque. Other design basis documents have also been produced on a program-wide basis (one for each unit). These include reports evaluating the results of the dynamic testing, reports evaluating the as-set margins for each MOV at its torque switch setting, reports to determine the safety significance of each MOV and a single report establishing the gate valve friction factors. The formulation of the above design basis documentation has over the course of the program identified many MOVs which required various modifications to enable the design basis conditions, including sufficient margins, to be satisfactorily met. While many modifications have been made throughout the program, ANO is continuing to pursue valve improvements for each unit to provide certain MOVs with greater margins.

In resolution of NRC USI A-46 on verification of seismic adequacy, **Seismic Evaluations and Equipment Walkdowns** were conducted at both of the ANO units. The program concentrated on verifying the seismic adequacy of plant equipment, large tanks, cable trays, conduit and raceway systems and relays. The components were selected based on a specific path for ensuring safe shutdown. The screening and walkdowns verified that the selected components were able to withstand the design basis safe shutdown earthquake (SSE) at the plant and still provide their safe shutdown functions. The equipment list included over 700 items for each unit. Actual plant walkdowns identified outliers that have required resolution by either additional analytical evaluation or by plant modifications. In addition to those activities conducted for USI A-46 resolution, ANO has conducted **I.E. Bulletin 80-11 Walkdowns of Seismic Block Walls**. The program included identifying and performing analysis of concrete block walls that are required to ensure safe shutdown after an SSE. Walkdowns of the required walls were also conducted to ensure the actual as-built configuration meets its design basis. Recent concerns identified by condition reports have required a number of specific actions to further ensure block wall configuration is being properly maintained. These evaluations and walkdowns provided additional assurance that ANO plant systems meet their design basis requirements for seismic capability.

The ANO **Service Water Integrity Program (SWIP)** provides an overall program for evaluation, testing, planning, control, and deficiency resolution of service water related issues. The program was initially developed for ANO specific concerns (i.e. biofouling), but was expanded to include additional areas for Generic Letter 89-13. The program is administered by Systems Engineering and contains a living SWIP program document to capture known service water related issues and conditions that may impact the design basis of the units. The program includes testing of heat exchangers and coolers, flow rate monitoring, sluice gate leakage measurement, biofouling and corrosion control evaluations. Non destructive examinations of service water piping are conducted to measure and predict potential system degradation for replacement. Specific site procedures implement the requirements and expectations established by the SWIP program. Deficiencies identified by the SWIP program that may impact plant safety are documented and resolved in the condition reporting system.

Per the requirements of 10CFR50.63, ANO performed **Station Blackout** (SBO) evaluations for Units 1 and 2. These evaluations and other aspects of the ANO SBO program were established following the guidance of NUMARC 87-00. ANO elected to commit to a ten minute Alternate AC (AAC) System, in lieu of a four hour coping strategy. The SBO Project designed and installed a new fully capable non-safety AAC diesel generator, which has the capability of accessing either of the two safety 4.16 KV buses in either of the two units for station blackout events. As part of this effort ANO performed evaluations of offsite power availability and emergency diesel loading in support of design basis confirmation. The AAC machine strengthens the ANO defense in depth for both operational and shutdown events.

The **EOP Setpoint Basis Document** Project provides documentation and basis for the setpoints used in the Emergency Operating Procedures. The setpoints include automatic actuation setpoints (i.e. Technical Specification and RPS setpoints) and specified setpoints which are used by the operator to mitigate the consequences of an accident. The EOP revision process includes a direct avenue for engineering to review changes to the EOPs from a safety analysis and technical perspective. During the early 1990s an **EOP Improvement Program** was also conducted to better ensure the overall accuracy of the EOPs. This program established new review and verification/validation guidelines and technical bases documents. An Engineering review of the EOP is also procedurally required and provided by the Nuclear Engineering Design department as a part of the EOP Verification & Validation process, using the setpoint basis document and vendor EOP Technical Basis Documents as the fundamental basis for these reviews. Therefore, these projects and any future EOP revisions better assure that the design basis of the plant are accurately reflected into the ANO emergency procedures.

The ANO Preventive Maintenance Program consists of pre-planned repetitive tasks which contain instructions and prerequisite actions for the performance of maintenance

activities on plant components and systems. The required maintenance activities are defined by **Preventive Maintenance Engineering Evaluations (PMEEs)** which evaluate vendor recommendations, ANO commitments, equipment history, industry experience and owners group recommendations. Over 170 PMEEs have been issued to date for plant equipment. As the need arises, additional PMEEs will be developed. The PMEEs provide the basis for equipment maintenance and the justification for any deviations from vendor recommendations. ANO Engineering personnel review the maintenance evaluations and intervals for the actual service duty of plant equipment. Adjustments to the performance interval are made in accordance with the actual service the equipment experienced. Programs which provide feedback to the preventive maintenance program and indicate the effectiveness of the program include maintenance rule performance indicators, system engineering performance monitoring, reliability centered maintenance evaluations, the repeat maintenance program and failure analysis performed as part of the condition reporting system. The PMEEs provide a documented basis and evaluation process for changes to preventive maintenance tasks.

Environmental Qualification (EQ) Program Upgrade efforts were initiated in early 1995, building upon improvements made since the early 1990's. These improvements included:

- Enhancing the interface and responsibilities between the EQ Group in Design Engineering and the Maintenance resources at the Maintenance Superintendent level.
- Modernizing the EQ database to provide automatic electronic data linking (electronic entry) to EQ documents.
- Converting documentation supporting DBA profile evaluations into a consolidated calculation and generating an enveloping profile to decrease the complexity of the evaluations.

The program upgrade cleaned-up and re-formatted the primary EQ documents (i.e., SCEW sheets, EQ Report Assessments, and EQ Data Record Summary Sheets). The EQ document reformat effort improved understanding and application of the EQ design requirements, provided an end-user convenient process that will facilitate regular use and will reduce the required resources to maintain equipment within its environmental qualification design basis. This effort was completed in 1996.

The **Pressure-Temperature Calculation Project (P-T)** was initiated to establish and/or revise design basis pressure and temperature information for 39 ANO systems (19 Unit 1 and 20 Unit 2). Each P-T calculation documents various modes of operation during normal, upset, emergency, and faulted plant conditions, as well as the corresponding pressures and temperatures for each line class in the system. This information is being utilized to upgrade the piping class summaries with the correct pressure-temperature information. The Piping Stress Analysis group is using the new P-T information to verify that the correct information was utilized in applicable system pipe stress analyses. The P-T calculations provide detailed descriptions of system

operation and operating parameters which will assist engineers in component procurement, piping stress analysis, operability assessments, design change package development, etc. The project is nearing completion.

The **Pressure Locking And Thermal Binding Valve Evaluation** was initiated as an issue identified in Generic Letter 95-07. This document requested licensees to evaluate power-operated, safety-related gate valves for pressure locking and thermal binding. ANO evaluated 214 Unit 1 and 2 power-operated, safety-related gate valves. The evaluation encompassed system modes of operation within the plant's design basis. The evaluations were conducted by reviewing ANO system operating and emergency operating procedures, system design basis documents, piping and instrumentation drawings, surveillance testing and maintenance evolutions. Each valve was categorized under hydraulic locking, boiler effect or thermal binding as either Not Susceptible, Potentially Susceptible, or Susceptible. A total of 56 valves were identified as potentially susceptible to binding or locking. These valves have either been modified, are being modified in future outages, or are being administratively controlled to avoid pressure locking or thermal binding. Entergy has established a Peer Group consisting of representatives from all EOI nuclear sites and headquarters coordinating support in this area.

The **ANO 50.59 Review Program** has undergone continuous improvement since 1986. An initial improvement included a comprehensive revision to the 50.59 program, expanded reviews to subject matter experts, added a 50.59 reviewer qualification program and increased the level of detail of 50.59 documentation. The ANO process has continued to evolve and mature to include a full text electronic search capability of the ANO licensing basis documents (including Tech Specs, SAR, Quality Assurance Manual, Emergency Plan, Fire Hazards Analysis, Core Operating Limits Report, NRC Safety Evaluation Reports and NRC orders) and to provide more guidance and tools to the 50.59 reviewer. A recent change was also added to ensure that during 50.59 reviews, the 10CFR72.48 requirements for onsite dry spent fuel storage are properly performed.

The ANO 50.59 Review Program is controlled by a sitewide administrative procedure that ensures activities are screened for potential licensing basis document impact and full 50.59 evaluations are conducted if determined necessary. Clear guidance is provided in the procedure on how to respond to the seven criteria for an unreviewed safety question. The ANO 50.59 Review Program is generally consistent with the guidance provided by NSAC-125.

PROGRAMMATIC REVIEWS CURRENTLY BEING CONDUCTED TO SUPPORT DESIGN BASIS ADEQUACY

The ANO **Plant Setpoint Control Program (PSCP)** is being developed based on INPO 84-026 Revision 01, Setpoint Change Control Program. The PSCP was undertaken for the development of Setpoint Documentation Packages on selected components and systems. Setpoint information is entered and controlled in the ANO Component Database. ANO procedural controls set forth the configuration change processes/controls for equipment setpoints within the scope of the procedure. The process required to make a physical change to a setpoint ranges from a documentation package (similar to an equivalency evaluation) for non design basis changes to generation of a modification package (PC, LCP, or DCP) for those changes that affect the design basis. Therefore, this program will help ensure that setpoints used in the plant are supported by design basis values.

ANO Unit 1 is currently completing detailed aging management reviews of the plant structures and components in accordance with the requirements of 10CFR Part 54 as part of a **License Renewal Program Initiative**. One of the major elements of 10CFR Part 54 is the identification of the intended functions of systems and structures in the scope of license renewal. The License Renewal Program at ANO-1 utilizes the system functional design requirements that are defined in the Upper Level Design Documents. To date, 23 of 24 draft Aging Management Review Reports have been prepared. The experience received from the License Renewal Program will additionally ensure the adequacy of the design basis documentation at ANO-1.

ANO is also in the process of conversion to **Improved Technical Specifications (ITS)** on Unit 1. The conversion will utilize the appropriate portions of NUREG-1430, "Standard Technical Specifications for Babcock and Wilcox Plants". Each section of the ITS is being evaluated with respect to the licensing basis of the plant for the proposed specification. The proposed technical specification section and bases statements will have documentation packages prepared to support the conclusions reached by each of the reviews. Implementation of the Improved Technical Specifications will provide enhanced regulatory, safety and operating performance while ensuring the unit's design basis is addressed in the technical specification conversion process. The Unit 2 Improved Technical Specification conversion process is scheduled to commence after the Unit 1 conversion is completed.

An ANO **Safety Analysis Report (SAR) Upgrade Project** is currently underway with the program plan and team staffing of the project in progress. The project will involve a detailed review of each section of the ANO-1 and ANO-2 SARs for potential inaccuracies in the description. The effort will consist of a discrepancy identification phase and an evaluation and resolution phase. The discrepancy identification phase will involve a multi-discipline review team including members from Operations, Design Engineering, System Engineering and Licensing. This will include a prompt review of discrepancies for potential plant operability impact and initiation of condition reports.

if required. Discrepancies will be entered into a database, reviewed, and consolidated for resolution as part of the evaluation and resolution phase. As appropriate, SAR change requests will be prepared and 50.59 reviews will be conducted.

ANO has recognized that design margins provide inherent safety factors that help to minimize concerns over emergent problems and design basis issues. Over a period of time, these design margins can erode to an unacceptable level if they are not monitored and controlled. ANO has aggressively pursued restoration of margins in various areas in the past (e.g. service water and MOV programs). In early 1996, ANO began adding margin related issues to our planning efforts. Recently, a decision was made that a more formal **Margin Recovery Program** was needed to increase site-wide involvement and improve overall design margins. Therefore, this process has recently been initiated and is part of the ongoing ANO goals.

REVIEW OF ANO PLANT EVALUATIONS, ASSESSMENTS AND EVENT REPORTS

In the preparation of the response to the 50.54(f) request regarding the adequacy and availability of design basis information, ANO performed a review of internal assessments including Safety System Functional Assessments (SSFAs), Licensee Event Reports, Condition Report trends and third party assessments that have occurred over the last several years to assess the concerns identified with design basis requirements or configuration management. A review was also completed of NRC inspection reports, NRC SSFI type inspections, the ANO Integrated Performance Assessment Process (IPAP) inspection and SALP reports to confirm the conclusions reached during the review. This review was then utilized to evaluate if these reviews and event reports supported the conclusion that design basis requirements are being translated into operating, maintenance and testing procedures and that system, structure and component configuration and performance are consistent with the design basis. Even though many documents were reviewed, only those aspects of these reviews that support the rationale for design basis or configuration management adequacy or that may indicate the need for design basis follow-up actions are discussed below.

In addition to the system review effort of the DCD Project (discussed in Attachment 2), ANO has performed detailed vertical slice **Safety System Functional Assessments** (SSFAs) for the electrical systems and the service water systems since 1990 (ANO-1 EFW and Decay Heat Removal SSFIs were conducted in the late 1980s). The ANO Unit 2 Electrical Distribution System was evaluated in June of 1991. This report identified certain calculation file concerns including having outdated calculations not superseded, calculation discrepancies, or calculations that were difficult to use. The report also identified a need for a fuse control program and correction of SAR discrepancies. The ANO Unit 1 Electrical Distribution System was evaluated in April of 1992 and found similar weaknesses. In response to these findings, ANO has completed new or revised calculations and analyses, drawings were corrected, and technical manuals were updated. The fuse control program was

initiated and the Electrical Drawing Upgrade Project and the Plant Setpoint Control Program was used to reconcile the field as-built configuration to the design documents.

The Unit 2 Service Water self assessment was performed in November of 1993 with strengths identified in knowledgeable, experienced and helpful staff, detailed and accurate design change packages, effective inservice and surveillance testing, and a good predictive maintenance program. Findings identified certain SAR discrepancies, calculation revision concerns, procedure errors, and several drawing inaccuracies. Similar findings were noted in the Unit 1 Service Water self assessment performed in February of 1994. These Service Water self assessment findings were reviewed and corrective actions initiated as required. The corrective actions were also evaluated in light of the NRC Service Water Inspection and the remaining concerns were addressed as a part of the NRC Inspection resolution.

ANO has also performed **Self Assessments** of the following areas:

Assessment Area	*Date*
Design Engineering	Aug. 94
Maintenance	Aug. 94
Unit 2 Reactor Engineering	Oct. 94
System Engineering	Oct. 94
Engineering Program	Oct. 94
Engineering Review Internal Assessment	June 95
Surveillance Program	Sept. 95
Fire Protection	Nov. 95
Materials and Purchasing	Dec 95
Minor Modifications	March 96
Drawing Revision Notice Process	March 96
Motor Operated Valves	March 96
Engineering Performance Assessment	March 96
Operating Experience Reviews	July 96
Reactivity Management	Aug. 96

These self assessments were often performed with assistance from personnel from other sites and are in-depth evaluations of the area under review. Recommendations are then provided to the responsible organizations for the implementation of necessary enhancements. These reviews indicate that ANO has been diligent in performing periodic self assessments that help to ensure proper configuration is maintained. Even though various findings were identified, there were no extensive configuration management issues raised.

A review of the **Licensee Event Reports** (LERs) involving conditions which were classified as "outside design basis" addressed various configuration management controls and certain specific component or procedural weaknesses which were not consistent with design basis. The LERs had various examples for increased scope of testing procedures, procedure deficiency in restoring configuration, leaking valves, a control system modification deficiency, missed surveillance, inadequate sampling, and cases of insufficient inspection and testing. Even though such examples have arisen in the last few years, ANO believes that these findings generally represent our continued efforts to identify and correct potential design basis concerns. These specific findings were evaluated and have been, or are being, corrected through our condition reporting program. The review of the Licensee Event Reports determined that ANO personnel continue to perform detailed reviews of newly identified concerns and maintain a questioning attitude to ensure concerns are fully evaluated and addressed. Two recent examples of this are the detailed evaluation of the effects of a loss of DC power on the Unit 2 Emergency Feedwater System and the in-depth review of the effects of a loss of DC power with one Plant Protection System channel in bypass. These recent LERs reflect the commitment to identify discrepancies, determine the root cause, and take proper corrective action.

The **Quality Assurance (QA) Program**, as reflected in the ANO QA Manual - Operations, controls site processes, as applicable, for the design, procurement, manufacture and fabrication, installation, testing, refueling, repair, maintenance or modification to existing safety related structures, systems and components. With respect to control of design bases, the QA Program is designed to comply with the requirements of 10CFR50 Appendix B, ANSI N45.2.11-1974 and Reg. Guide 1.64 Rev. 2 and with quality assurance requirements of the ASME Boiler and Pressure Vessel Code Section XI for repair, replacement and inservice inspection of items covered by the Code. Design control processes are controlled under the QA Program and its implementing procedures to assure that proposed plant changes to structures, systems, equipment and components conform to the applicable regulatory requirements and that design bases are correctly translated into appropriate design documents. Provisions are included for design verification, review and approvals, corrective action and records management considerations. Procedures reflecting design basis information, as with other site-wide procedures, are required to be specifically followed and are controlled by a common procedure control process. **Quality Assurance audits** document, classify and follow-up deficiencies per QA procedure. Prior to 1993, QA used a resolution process that was different than the plant corrective action system, called the Quality Audit Finding Report, but has subsequently changed to document all findings as part of the ANO corrective action program. When deficiencies adverse to quality are discovered they are documented in audit and surveillance reports as findings and the auditor initiates a condition report. condition reports initiated through QA Audits/Surveillances are included in the plant condition report database which are also analyzed for adverse trends as discussed below.

ANO Condition Reporting Trending process. In addition to the normal screening and reviews, each condition report is routed through a separate and independent trending and assessment process. The trending process at ANO utilizes four major condition categories: Administrative Controls, Configuration Controls, Equipment Deficiencies, and Work Practices. Each major category is then broken down into subcategories which describe specific problem areas. Problems such as setpoint controls, drawing deficiencies, material controls, calculation and upper level document discrepancies are some examples in the Configuration Control category. When trend information is assessed and meets pre-established criteria in a specific problem area a "trend watch" report is generated. If problems in a specific subcategory continue to be reported in the following quarter or other subsequent quarters a "potential adverse trend", having a separate condition report is written. Some recent examples of plant configuration weaknesses identified and corrective actions being taken from this process include the following:

- In 1995 a potential adverse trend was identified in the area of drawing tracking and revision process. A joint corporate and plant assessment was completed in the first quarter of 1996 and the recommendations for improvement were tracked in the Condition Reporting system.
- In the latter half of 1996 a potential adverse trend was documented involving several reports that indicated possible weaknesses related to the ANO MOV program. A comprehensive review and analysis of the examples was performed and the resulting recommendations are being tracked in the condition reporting system.
- In late 1996, a potential adverse trend was identified in the area of Materials, Procurement and Contracts. This trend was based on several reports that indicated problems with the control and issuance of equipment and/or component spare parts. An assessment has been completed and recommended actions are being implemented.

ANO believes that this process has been effective in identifying and addressing potential weaknesses that may impact the maintenance and implementation of design basis information.

Design Basis Confirmation through Testing The ANO units were originally subjected to start-up testing which was intended to verify that all plants systems, structures and components performed in accordance with plant design. Subsequent to start-up, plant configuration can be altered through activities associated with operating the plant, maintaining the plant, or modifying the plant. As described in the response to NRC question "a", the site process activities have a "restoration control" element, for the purpose of assuring that the plant stays within its design basis. Surveillance tests performed on a periodic bases verify that plant SSCs are performing in accordance with acceptance criteria which are derived from plant design. Post-Maintenance Testing and Post-Modifications Testing have two aspects - maintenance/ modifications testing, and operability testing. Maintenance/Modifications testing

assures that the work performed is successful, while operability testing assures that system functionality is restored. Post Maintenance Testing includes Operations and Engineering assistance, when necessary. Post-Modification tests are specified by the design and modification engineers. Testing and test results are reviewed for acceptability.

REVIEW OF NRC RELATED INSPECTIONS

The **Integrated Performance Assessment Process** (IPAP) inspection that was performed in April and May of 1996 (Inspection Report 96-10) found that ANO has been effective in identifying and resolving performance problems and that a strong safety culture was functioning effectively. Although the IPAP inspection was not designed to evaluate the fidelity of the complete design basis for ANO, the report did recommend reduced inspections in all engineering areas. The NRC inspection that was performed in June of 1996 (Inspection Report 96-18) of engineering and fire protection found that the permanent plant modification program was being effectively implemented, engineering was properly performing calculations, overall housekeeping and materiel conditions were good, and the procedures reviewed were technically adequate. These NRC inspections generally confirm the types of findings that are being discovered in ANO assessments.

The **SALP Reports** for this period had a variety of conclusions regarding design basis requirements or configuration management. For instance, the SALP report covering the 7/11/93 to 1/7/95 period had positive statements about the dry fuel storage program. The most recent SALP report had positive statements on design controls and the high quality of design packages but also identified some concerns such as a weakness in the fidelity of the SAR. ANO has instituted corrective actions such as the SAR Upgrade Review which is currently underway. These SALP reports tend to support a conclusion that proper program controls are generally in place at ANO and also confirm the types of findings that are being discovered in self assessments.

ANO has undergone detailed NRC **Safety System Functional Inspections** (SSFI) for the electrical systems (EDSFI) and the Service Water Systems (SWSOPI). These inspections found a number of system and component specific concerns that have been aggressively addressed and also identified positive practices such as the Service Water Integrity Program (SWIP) at ANO. A follow-up inspection of the EDSFI (i.e., Inspection Report 93-29) determined the response to the identified items were found to be good and a proactive corrective action program was in place. In the service water area, corrective actions have also been completed such as modifying both units to reduce water hammer susceptibility. This action has been reviewed and found to be acceptable in follow-up inspections. The proactive improvements initiated indicate ANO maintains the necessary commitment to establish and maintain the appropriate controls to ensure proper plant operation and configuration. These NRC SSFIs tend to confirm the types of findings that are being discovered in self assessments.

SUMMARY CONCLUSIONS OF RECENT PLANT EVALUATIONS, ASSESSMENTS AND PROGRAM REVIEWS FOR RESPONSE TO NRC QUESTIONS "B" AND "C"

The specific documentation upgrades and plant improvement efforts initiated as a result of the ANO Business Plan provide substantiated documentation for confirming that design basis information has been translated into plant systems, structures and components. Significant resources were expended by ANO to gain these improvements which ensure that the plant design basis documentation is available and accessible and the plant is operated and maintained accordingly. The DCD Project was a key aspect in developing and reorganizing design basis information into readily accessible files and databases. ANO plans to dedicate additional resources to resolve the remaining DCD discrepancies.

In the review of the recent plant evaluations and assessments, discrepancies have been identified in the ANO 1 and 2 Safety Analysis Reports (SARs). ANO is currently pursuing a SAR Upgrade Review that will improve SAR accuracy. The review of recent documentation also identified a need for improvement in the quality and control of calculations. The ANO self assessments and NRC SSFI have also identified discrepancies in the calculation files that supported the system under review. These discrepancies are concluded to not impact the operability of the units, but to reflect the need to provide a better organized and retrievable calculation file. ANO intends to further assess the scope of calculation control and maintenance and will take necessary action based on our findings.

The reviews of the documentation do emphasize the usefulness of safety system functional assessments and plant walkdowns in determining if the systems, structures, or components are consistent with the design basis. ANO has performed walkdowns in such areas as seismic adequacy, blockwall design, EDUP reviews, MOV testing and safety system functional assessments. In addition, System Engineers conduct periodic system walkdown on their respective systems. However, ANO also recognizes the need to continue these assessments including plant walkdowns to better substantiate specific system design basis documentation.

During the Service Water self assessment, it was determined that the Service Water Upper Level Design (ULD) Documents were not updated as required. A review of the current ULDs show that this is a potentially generic concern in that the ULD documents have not been revised consistently and a number of change requests are outstanding.

Additional enhancements from this response assessment have been identified and compiled as an overall assessment finding and are being evaluated and dispositioned appropriately. Other than the related areas for improvement identified above, the

review of the recent documentation did not identify overall configuration control concerns or that the design basis is not adequately reflected in systems, structures and components. Therefore, based on our review and the planned actions for the above enhancements, ANO believes that reasonable assurance exists to indicate that system, structures and component configuration are consistent with the design basis and are accurately reflected in plant procedures.

VIII. RESPONSE TO QUESTION (D)

Question (d) requests the following information:

> Processes for identification of problems and implementation of corrective actions, including actions to determine the extent of problems, action to prevent recurrence, and reporting to NRC

As in the response to Question (a), there are two key aspects to addressing this question - identification of the processes which could affect corrective action, and identification of the elements necessary for process effectiveness.

Unlike the processes examined in response to Question (a), there is only one corrective action program. Most critical is the link between the corrective action process and those processes which could affect configuration management. We confirm that link exists by explicitly including "deficiency identification and resolution" (i.e., corrective action) as one of the essential elements (Table 2) for configuration management.

It is difficult to overstate the importance of the corrective action process for effectively managing plant configuration (or any other process important to nuclear safety). It is the self-correcting mechanism that leads to the continuing health of whatever process to which it is applied.

It is essential, therefore, that the process effectiveness elements for corrective action be well-defined and understood. At EOI facilities, those elements (contained in Table 3) are largely common. Each element is described in more detail in Appendix B

The corrective action process at each EOI facility is regularly reviewed through vehicles such as quality assurance audits and self-assessments. While process deficiencies have been identified over the years, they have invariably resulted in programmatic enhancements.

Much of the evolution of corrective action processes at EOI facilities is due to the recognition of the unique importance of this process to plant safety and future performance. ANO has evaluated and established an effective threshold for problem identification and increased the quality of various elements of the corrective action process, particularly root cause evaluation.

The Corrective Action process was identified by Entergy Operations executive staff as one of the company's key processes because of its significant impact on nuclear safety, cost and generation. The Corrective Action Key Process Team was chartered in March, 1993 to analyze the existing processes at each Entergy Operations facility and make recommendations for process improvements. The team's short term goal was to identify

and address any current program weaknesses and share process strengths. The short term enhancements included various process adjustments, but more importantly, the changes included the development of common terminology, threshold criteria and measurement plans to enhance the capability to measure, trend and compare performance at each facility.

The team's long term goal was to converge the various processes towards a "best" process including the development and implementation of some of the following process improvement examples:

- An integrated database for documenting adverse conditions
- Condition identification/resolution sharing between facilities
- A common approach to root cause analysis at each facility
- Common threshold criteria at each facility for identification, significance classifications, and required root cause analysis
- Common performance measures and goals for each facility
- Identification and elimination of excessive processes and process steps

These ongoing initiatives have improved the corrective action process at each facility and are expected to lead to further process enhancements in the future.

ANO Conclusions:

The ANO Condition Reporting System contains the elements identified in Table 3 and is considered effective in identifying and correcting adverse plant conditions. ANO also uses the Condition Reporting System as a line management tool to prioritize and correct potentially safety significant conditions. The system is a manager based system with senior line management providing guidance and prioritization. ANO utilizes two senior line management tools or processes that ensures senior line management involvement - the Condition Review Group (CRG) and the Corrective Action Review Board (CARB).

The CRG is a meeting of senior line management including plant managers, directors, or their designees that meet most workday mornings to review and classify new condition reports. The CRG provides each new condition report with an administrative disposition (Significant, Non-Significant, or Administratively Closed) and an owner. The group is organized to take advantage of peer checks, broad experience base, and to provide a sound conservative approach to addressing plant problems with the correct amount of time and effort going to the right problems. The CRG is provided with consultation from an oversight group that checks each new problem for recurrence and significance.

ANO also utilizes its senior line managers to review and approve the root cause analysis and long term corrective action plan for each significant condition report. In the case of corrective action plans that will require actions involving multiple departments, ANO utilizes a CARB (chaired by the affected plant manager or director) to help ensure that the corrective action plan is both sound (should help prevent recurrence) and has the up front

buy-in from the managers that will be performing the corrective actions. This meeting has been very beneficial in helping ANO correctly address complex corrective actions.

ANO's consistent emphasis on the importance of the corrective action process coupled with our findings of process completeness provide confidence in the ability of our corrective action process to identify and prevent recurrence of problems.

Corrective Action
Process Effectiveness Elements
Table 3

1. Problem Identification
    - Defined problem-reporting threshold
    - Problem ID document provided
    - Problem processing
        - Operability determination
        - Reportability determination
            * 50.72
            * 50.73
            * Part 21
        - Significance determination
        - Generic application
        - Management review

2. Cause Determination
    - Apparent/Root Cause analysis
    - Evaluation review

3. Corrective Actions
    - Defined and documented
    - Corrects specific deficiency and apparent/root cause
    - Addresses
        - Generic implications
        - Timeliness of implementation
    - Action responsibilities assigned/accepted

4. Tracking
    - Periodic reporting through closure
    - Additional corrective actions identified (follow-up)

5. Closure
    - Documented completion of corrective actions
    - Review/verification of corrective action closure

6. Link to Problem Trending Process

7. Periodic Effectiveness Review of the Corrective Action Process

IX. RESPONSE TO QUESTION (E)

Question (e) requests the following information:

> The overall effectiveness of your current processes and programs in concluding that the configuration of your plant(s) is consistent with the design basis

Arkansas Nuclear One has established a strong commitment to operating and maintaining both units in accordance with their design basis. To support this commitment, ANO has implemented a comprehensive set of controlling procedures and programs to ensure that the design basis is properly communicated and maintained. Our basis for confidence that the configuration of these units is consistent with the design basis is based on the evaluations documented in this response to verify the completeness and effectiveness of the configuration management program at ANO.

The overall configuration management process reviews performed in response to question (a) allowed us to conclude that, with very few exceptions, these processes contain the proper control elements to ensure that the plant design bases are being properly maintained. Several improvement items have been identified from this review and will be evaluated and implemented in a timely manner.

ANO has implemented significant improvement projects and programs to address issues relating to design bases adequacy over the past decade. These projects, especially the Design Configuration Documentation Project, have allowed ANO to establish an effective design basis program for both units. The ongoing programs described in our response to questions (b) and (c) help to maintain the design basis and integrate design basis information into plant operations. Recent assessments by ANO have identified several areas for improvement; however, these findings do not invalidate our conclusion that ANO has reasonable assurance that design basis is maintained. Recent NRC inspections and reports tend to confirm these conclusions.

The ANO Condition Reporting and Corrective Action program maintains the primary elements needed for an effective program and is integrated into all site processes for condition identification. The reviews and assessments performed over the past several years help confirm the effectiveness of the ANO corrective action program.

ANO recognizes several areas related to maintaining the adequacy of the plant design basis that need to be improved. The most significant improvement item is the SAR Upgrade Project which is currently underway. Other areas of improvement that we will be evaluating and addressing in the near future are discussed in Section X.

Based upon the above, Arkansas Nuclear One has reasonable assurance that the processes and procedures supporting plant configuration management are being effectively

maintained and applied in accordance with the design basis of both Unit One and Unit Two.

X. SUMMARY OF FUTURE INITIATIVES

The 50.54(f) letter has provided the opportunity to view as a whole our design basis implementation and initiatives. In the course of conducting an assessment to respond to the letter, Arkansas Nuclear One identified certain areas of improvement as well as compiled the ongoing initiatives related to design basis and configuration management. Primary areas for additional review and improvement are as follows:

1. The current calculation maintenance activities are not totally effective in controlling active calculations and ensuring that outdated calculations are properly dispositioned and archived. ANO intends to further assess the scope of calculation control and maintenance and will take necessary action based on our findings.

2. ANO recognizes the need to continue the safety system functional assessments including plant walkdowns to better substantiate specific system design basis documentation.

3. ANO has identified potential concerns relating to the timely updating and overall utilization of Upper Level Design (ULD) documents and resolution of the remaining Design Configuration Documentation Project discrepancies. ANO plans to increase management expectations for maintenance and utilization of ULDs. In addition, ANO will be dedicating additional resources to resolve the remaining discrepancies expeditiously.

4. Entergy is conducting design basis team evaluations at each facility. The design basis evaluations are expected to yield further insight into useful areas to improve the design basis. The ANO design basis evaluation is expected to be completed in mid-1997.

5. ANO has also initiated a SAR Upgrade Project which will review and correct identified SAR discrepancies. Section VII of this attachment provides a description of the SAR Upgrade Project.

ANO has identified other enhancements from this response assessment. These issues have been compiled in an overall assessment finding and are being evaluated and dispositioned appropriately.

In our continuing efforts for reviewing the design basis and configuration control of our plant, the possibility exists for finding discrepancies between our design basis and plant configuration. Should this occur, discrepancies will be documented and resolved through the ANO corrective action program. We believe these initiatives and any such

discrepancies would qualify for enforcement discretion under section VII.B.3 of the enforcement policy, "Violations Involving Old Design Issues," with no time limit.

ANO DESIGN CONFIGURATION DOCUMENTATION (DCD) PROJECT

I. SCOPE

In April 1988, actions were initiated to create a project team of Entergy and consultant personnel to conduct a detailed needs assessment, to develop an action plan to address upgrades and improvements of design documentation and to identify configuration management related activities needing improvement. In general, the action plan was designed to:

A. Address programmatic areas outside the primary scope of the DCD Project that nevertheless require attention to ensure proper use, maintenance and control of Design Configuration Documentation.

B. Collect, organize, and index documents that contain design-related information and make this available to both the general user as well as the DCD Project team as soon as possible.

C. Prepare Upper Level Design (ULD) documents which define the design criteria, requirements, and bases for ANO systems, structures, and topical (generic design) areas.

D. Perform detailed reviews of design documentation to evaluate completeness, consistency, and accuracy using a system and structure "vertical review" concept.

E. Develop and implement a Design Configuration Documentation Information Management System (DCIMS) which will provide access to the information in a design documentation database and provide a tool for maintenance of the ANO design documents and for ensuring that other departments use validated design information.

F. Address specific discrepancies and weaknesses related to design configuration documentation as identified in the development of ULDs and the performance of "vertical reviews", using a methodology similar to NUMARC 90-12, "Design Basis Program Guidelines".

II. IMPLEMENTATION

The action plan for the DCD Project contained both programmatic and specific activities which required over 400,000 man-hours (through 1994). The action plan

was structured to make efficient use of resources, to accomplish activities in a logical and coordinated sequence, and to produce products and deliverables that are immediately useful, without dependence upon completion of later activities. The DCD Project was completed on December 31, 1994. Remaining open items plus maintenance of the products from the DCD Project were converted into the DCD Program within Design Engineering.

The implementation of various elements of the Action Plan are summarized below:

A. **Programs** - Several projects and programmatic areas outside the primary scope of the DCD Project, but performing important upgrades and maintenance of ANO Design Basis, were initiated including the Isometric Drawing Upgrade Project (IUP), Pressure-Temperature Calculation Project (P-T), and the Electrical Drawing Upgrade Project (EDUP). Other projects and programs initiated are discussed in Attachment 1.

B. **Document Indexing** - The DCD Project collected, organized, and indexed documents that contain design-related information and made this available to both the general user as well as the DCD Project team. This element was performed in conjunction with the design implementation and incorporating of information into DCIMS. Sources of documents that were collected and organized and indexed were:
   1. Original Bechtel (A/E) files and documents that had been incompletely turned over
   2. Original B&W files
   3. Original C-E files
   4. Existing ANO microfilm records in the various formats available dating back to pre-construction

   Over a million documents were converted to hard-copy, reviewed for applicability to design basis, collated, indexed, and entered into DCIMS. As the design bases were compiled, the indexing of documents was refined to improve the electronic "related document search" capability of DCIMS. The applicable hard copies are readily available in the calculation room.

C. **Upper Level Design Documents** - The DCD Project prepared Upper Level Design (ULD) Documents which define the design criteria, requirements, and bases for ANO systems, structures, and topical (generic design) areas. A ULD is a condensed source document for design basis and design input information related to ANO systems, structures and components. Sources of requirements include regulatory documents, applicable industry codes and standards, and static ("non-living") documents such as closed Design Change Packages and correspondence. In the creation of ULDs the documents researched were those identified in the indexing portion of the project. ULDs were prepared in accordance

with approved procedures and writer's guides. The ULDs are organized as either a System, Structure, Accident Analyses, or Topical document which are controlled design documents, and receive independent reviews in accordance with ANSI N45.2.11. ULDs were reviewed by a panel of senior engineers, operations and maintenance personnel, known as the Design Configuration Review Group (DCRG). The DCD project has established over 100 specific ULDs. A complete listing of these ULDs are provided on the attached ANO Table 1, ANO Upper Level Design Documents. Design Engineering procedures and processes are in place to maintain, update, and create (if necessary) ULDs.

D. **System Reviews** - The DCD Project performed detailed "system reviews" of design documentation to evaluate completeness, consistency, and accuracy, using a vertical slice type review concept. These reviews sought to assure that system documentation was sufficiently complete, consistent and correct to demonstrate system functionality. However, this effort was not intended to involve a comprehensive review for system design adequacy and did not include field walkdowns as part of this review. The scope of documentation reviewed included the Safety Analysis Reports, Technical Specifications, design drawings, calculations, evaluations, engineering reports, ANO component database (SIMS), station procedures, and the System Training Manuals. For each system, these documents were reviewed against the ULD and evaluated for consistency, correctness, and completeness. Discrepancies were immediately evaluated for safety significance, documented, prioritized, and recommended for disposition. The discrepancies were also evaluated for cumulative or synergistic effects. A total of sixty eight system reviews were conducted by the DCD project. A final report was prepared for each system review, summarizing how system functionality was supported by the documentation.

E. **DCIMS Database** - The DCD Project developed and implemented the Design Configuration Documentation Information Management System (DCIMS) which is maintained by Design Engineering. The primary purpose of DCIMS was to provide the capability to electronically search for design documentation by providing related information such as systems, components, documents, topicals and keywords, without requiring the user to know the actual document number. DCIMS also provides the crucial feature of "related document searches". This allows a user to identify input, as well as downstream documents when revising a design document. DCIMS involved the development of specialized software and the compilation and input (indexing) of a vast amount of data by the DCD project. DCIMS also provides the document control and indexing capability for calculations, specifications, and engineering reports.

F. **Discrepancy Resolution** - The development of ULDs and the performance of system reviews resulted in the identification of many discrepancies. These were addressed systematically using a methodology similar to that contained in NUMARC 90-12. A DCD project procedure was created specifically to provide a method for identifying, categorizing, evaluating, resolving and tracking identified discrepancies. Discrepancies were immediately evaluated by the identifier for any adverse effect on operational function or design basis. "Adverse" discrepancies were immediately elevated to a senior engineer in Design Engineering for further evaluation. If warranted, a Condition Report was generated. Discrepancies were reviewed and prioritized by the DCRG and tracked on DCIMS. The Entergy Project engineer responsible for the ULD carried out the recommended disposition based on its priority. Over 900 discrepancies were identified by the DCD project. These discrepancies resulted in almost 50 condition reports and 50 SAR Change Requests.

III. DESIGN BASIS IMPROVEMENT

The DCD project has improved the overall ability of the ANO staff to obtain design basis information by:

- Improving the quality of the documents that define the design basis of Arkansas Nuclear One
- Improving and maintaining accessibility and retrievability of design-related information
- Improving coordination, and communication between the configuration management organization and Design/System Engineering
- Maintaining condensed source documentation for design basis and design input information related to ANO systems, structures, and topical areas
- Providing a "road map" information system to improve the ability to research sources of design information through DCIMS.

ANO TABLE 1

ANO UPPER LEVEL DESIGN DOCUMENTS

SYSTEM/STRUCTURE ULDs

ULD-0-SYS-01	CONTROL ROOM HVAC
ULD-0-SYS-02	OFFSITE POWER DISTRIBUTION
ULD-0-SYS-07	EMERGENCY LIGHTING SYSTEM
ULD-0-SYS-09	FIRE PROTECTION
ULD-1-STR-02	REACTOR BUILDING
ULD-1-SYS-01	EMERGENCY DIESEL GENERATOR
ULD-1-SYS-02	MAKEUP PURIFICATION & HIGH PRESSURE INJECTION SYSTEM
ULD-1-SYS-03	125V DC SYSTEM
ULD-1-SYS-04	DECAY HEAT / LOW PRESSURE INJECTION
ULD-1-SYS-05	REACTOR BUILDING SPRAY
ULD-1-SYS-06	REACTOR BUILDING HEATING & VENTILATION & RB PURGE
ULD-1-SYS-07	CORE FLOOD SYSTEM
ULD-1-SYS-08	EMERGENCY FEEDWATER INITIATION CONTROL
ULD-1-SYS-09	ENGINEERED SAFEGUARDS ACTUATION SYSTEM
ULD-1-SYS-10	SERVICE WATER SYSTEM
ULD-1-SYS-11	INSTRUMENT AIR SYSTEM
ULD-1-SYS-12	EMERGENCY FEEDWATER SYSTEM
ULD-1-SYS-13	MAIN FEEDWATER SYSTEM
ULD-1-SYS-15	REACTOR PROTECTION SYSTEM
ULD-1-SYS-16	4.16 KV SYSTEM
ULD-1-SYS-17	480 VOLT AC DISTRIBUTION SYSTEM
ULD-1-SYS-18	CONTAINMENT HYDROGEN CONTROL SYSTEM
ULD-1-SYS-20	120 VOLT AC SYSTEM
ULD-1-SYS-21	MAIN STEAM SYSTEM MS
ULD-1-SYS-23	PENETRATION ROOM VENTILATION
ULD-1-SYS-24	INADEQUATE CORE COOLING
ULD-1-SYS-25	NUCLEAR INSTRUMENTATION SYSTEM
ULD-1-SYS-26	INTERMEDIATE COOLING WATER
ULD-1-SYS-28	POST ACCIDENT SAMPLING SYSTEM
ULD-1-SYS-29	CIRCULATING WATER SYSTEM
ULD-1-SYS-30	AUXILIARY BUILDING HVAC SYSTEM
ULD-1-SYS-32	RADIATION MONITORING SYSTEM
ULD-1-SYS-34	DIVERSE REACTOR OVERPRESSURE PROTECTION SYSTEM
ULD-1-SYS-36	CONTROL ROD DRIVE SYSTEM
ULD-1-SYS-41	SOLID LIQUID AND GASEOUS RADWASTE
ULD-1-SYS-43	INCORE INSTRUMENTATION SYSTEM
ULD-1-SYS-48	CONDENSATE STORAGE, DEMINERALIZER SYSTEM
ULD-1-SYS-49	CONDENSER AND CONDENSER VACUUM

ULD-1-SYS-51	MAIN GENERATOR GAS SEAL AND LUBE OIL
ULD-2-STR-01	AUXILIARY BUILDING
ULD-2-STR-02	REACTOR BUILDING STRUCTURE
ULD-2-SYS-01	EMERGENCY DIESEL GENERATOR SYSTEM
ULD-2-SYS-02	HIGH PRESSURE SAFETY INJECTION
ULD-2-SYS-03	125 VOLT DC SYSTEM
ULD-2-SYS-04	LOW PRESSURE SAFETY INJECTION
ULD-2-SYS-05	CONTAINMENT SPRAY
ULD-2-SYS-06	CONTAINMENT HEAT/VENT/PURGE SYSTEM
ULD-2-SYS-07	SAFETY INJECTION TANK
ULD-2-SYS-09	ENGINEERED SAFETY FEATURE ACTUATION
ULD-2-SYS-10	SERVICE WATER SYSTEM
ULD-2-SYS-11	INSTRUMENT AIR
ULD-2-SYS-12	EMERGENCY FEEDWATER SYSTEM
ULD-2-SYS-13	FEEDWATER AND STEAM GENERATOR BLOWDOWN
ULD-2-SYS-15	REACTOR AND CORE PROTECTION
ULD-2-SYS-16	4.16 KV SYSTEM
ULD-2-SYS-17	480 VOLT AC DISTRIBUTION SYSTEM
ULD-2-SYS-18	CONTAINMENT HYDROGEN CONTROLS
ULD-2-SYS-20	120 VOLT AC
ULD-2-SYS-21	MAIN STEAM SYSTEM
ULD-2-SYS-22	REACTOR REGULATING SYSTEM
ULD-2-SYS-24	INADEQUATE CORE COOLING MONITORING
ULD-2-SYS-25	EXCORE INSTRUMENTATION SYSTEM
ULD-2-SYS-26	COMPONENT COOLING
ULD-2-SYS-28	POST ACCIDENT SAMPLING SYSTEM
ULD-2-SYS-30	AUXILIARY BUILDING HVAC SYSTEM
ULD-2-SYS-32	AREA RADIATION MONITORING
ULD-2-SYS-33	CHEMICAL & VOLUME CONTROL SYSTEM
ULD-2-SYS-34	DEFAS REACTOR TRIP SYSTEM
ULD-2-SYS-35	CORE OPERATING LIMIT SUPERVISORY SYSTEM
ULD-2-SYS-36	CONTROL ELEMENT DRIVE MECHANISM
ULD-2-SYS-41	LIQUID & GAS RADWASTE & AUX BLDG DRAIN
ULD-2-SYS-43	INCORE FLUX MONITORING SYSTEM
ULD-2-SYS-46	STEAM DUMP AND BYPASS SYSTEM
ULD-2-SYS-48	CONDENSATE/ CONDENSATE STORAGE DEMINERALIZER
ULD-2-SYS-49	CONDENSER/ CONDENSER VACUUM SYSTEM
ULD-2-SYS-51	MAIN GENERATOR GAS SEAL LUBE OIL

ACCIDENT ANALYSIS ULDs

ULD-1-TOP-01	SMALL BREAK LOSS OF COOLANT ACCIDENT
ULD-1-TOP-02	MAIN STEAM LINE BREAK ACCIDENT
ULD-1-TOP-03	FUEL HANDLING ACCIDENT
ULD-1-TOP-04	CONTAINMENT RESPONSE TO DESIGN BASIS
ULD-1-TOP-05	MAXIMUM HYPOTHETICAL ACCIDENT
ULD-1-TOP-06	MODERATOR DILUTION ACCIDENT
ULD-1-TOP-07	EMERGENCY FEEDWATER SIZING
ULD-1-TOP-08	S/G TUBE RUPTURE
ULD-1-TOP-09	LARGE BREAK LOCA ACCIDENT
ULD-1-TOP-11	LOSS OF FORCED REACTOR COOLANT FLOW
ULD-1-TOP-13	CONTROL ROD WITHDRAWAL ACCIDENT
ULD-1-TOP-14	COLD WATER ACCIDENT
ULD-1-TOP-15	STUCK OUT/ IN OR DROPPED CONTROL ROD ACCIDENT
ULD-1-TOP-16	ROD EJECTION ACCIDENT
ULD-2-TOP-01	UNCONTROLLED BORON DILUTION INCIDENT
ULD-2-TOP-02	FUEL HANDLING ACCIDENT
ULD-2-TOP-03	CONTAINMENT DESIGN BASIS ACCIDENT
ULD-2-TOP-04	STEAM GENERATOR TUBE RUPTURE
ULD-2-TOP-05	SMALL BREAK LOSS OF COOLANT ACCIDENT
ULD-2-TOP-06	LARGE BREAK LOSS OF COOLANT ACCIDENT
ULD-2-TOP-07	LOSS OF NORMAL FEEDWATER
ULD-2-TOP-10	LOSS OF CONDENSER VACUUM
ULD-2-TOP-12	EXCESS HEAT REMOVAL
ULD-2-TOP-13	UNCONTROLLED CONTROL ELEMENT ASSEMBLY WITHDRAWAL FROM SUBCRITICAL
ULD-2-TOP-15	CONTROL ELEMENT ASSEMBLY MISOPERATIONS
ULD-2-TOP-16	CONTROL ELEMENT ASSEMBLY EJECTION
ULD-2-TOP-17	UNCONTROLLED CONTROL ELEMENT ASSEMBLY WITHDRAWAL FROM CRITICAL
ULD-2-TOP-18	CORE PROTECTION CALCULATOR ADDRESSABLE CONSTANTS

TOPICAL AREA ULDs

ULD-0-TOP-01	ENVIRONMENTAL QUALIFICATION
ULD-0-TOP-02	FIRE PROTECTION
ULD-0-TOP-04	CONTROL OF INSTRUMENT SETPOINT
ULD-0-TOP-05	REG. GUIDE 1.97 ACCIDENT MONITORING
ULD-0-TOP-07	HIGH ENERGY/MODERATE ENERGY LINE BREAK
ULD-0-TOP-08	MISSILES
ULD-0-TOP-09	LOSS OF DECAY HEAT REMOVAL
ULD-0-TOP-10	ELECTRICAL SEPARATION
ULD-0-TOP-11	DEGRADED VOLTAGE
ULD-0-TOP-12	ELECTRICAL PROTECTION / COORDINATION
ULD-0-TOP-13	CONTROL ROOM HABITABILITY
ULD-0-TOP-14	CONTAINMENT ISOLATION / LEAK RATE
ULD-0-TOP-16	LOW TEMPERATURE OVERPRESSURE PROTECTION
ULD-0-TOP-17	ANO FLOODING
ULD-0-TOP-18	SINGLE FAILURE CRITERIA
ULD-0-TOP-22	COMPONENT CLASSIFICATION
ULD-0-TOP-27	ULTIMATE HEAT SINK ANALYSIS

PROCESS COMPLETENESS ASSESSMENT

Configuration Control Processes and Process Effectiveness Elements

As discussed in Section VI (Response to Question (a)), in order to make a judgment about the completeness of the processes that could affect plant configuration, it is necessary to identify such processes and determine the configuration management elements that are necessary for effective configuration control. This Appendix provides the results of Arkansas Nuclear One's completeness review for processes which could affect plant configuration and design in response to question (a).

Table 1 in Section VI identified the processes which may affect configuration control. Each process in the table is described below as requested by question (a).

Table 2 in Section VI identified the key design and configuration control process elements necessary for effective configuration management processes. Each element in the table is also described below. As discussed in Section VI, every process element may not be applicable to each configuration control process.

In this Appendix, we combine the configuration control processes (Table 1 of Attachment 1) with their essential elements (Table 2 of Attachment 1). Below, we first summarize our findings and conclusions regarding the completeness of site processes necessary to change and maintain plant configuration control. We then review each process, note the procedure(s) that implement that process in whole or in part, and determine if applicable process elements are present in the procedures. Should a process element be missing, we also note the plans to repair that omission.

It is important to recognize that processes and procedures have developed separately and under different conditions at each of the EOI sites and, therefore, the mechanism for implementing each of the processes is typically going to be different. In some cases, implementation of a process element may be found in a secondary procedure and therefore, would not be contained in the specific procedure cited. In other cases, a single procedure may be adequate to completely control a process at one site where at another site, it may involve multiple procedures.

ANO Conclusions

As a result of an extensive review of our controlling procedures for configuration management processes, Arkansas Nuclear One has concluded, with one minor exception, that these processes contain the proper control elements to ensure that the plant design bases for both units are being properly maintained. This exception is the absence of a specific 50.59 review requirement for software packages not developed and revised as part of a configuration change process. This item has been resolved by a procedure

change to OP 1000.151. Over this decade, ANO has greatly enhanced the configuration management processes and controls as a result of a significant improvement program initiated at the site. The result is a comprehensive set of procedural controls specifically designed to maintain a high level of configuration management. ANO is still continuing to evaluate and improve its processes as opportunities are identified. A current example is the implementation of a new Engineering Request process to provide a single document to initiate all types of engineering responses to technical issues.

ANO also identified a number of improvement items from this effort, ranging from minor procedure changes to the need for further evaluation of portions of several existing processes. These items will be addressed as part of our normal improvement action processes. A few examples of improvements identified from this review effort are as follows:

1. ANO has developed a valuable set of Upper Level Design Documents (ULDs), but has not clearly established the expectations for timely update and utilization of these documents.
2. For a configuration control process that is not evaluated through the 50.59 review program, ANO utilizes a Configuration Checklist to evaluate the impact of the change on other controlled design documents. This level of review for impact on controlled design documents needs to be better defined for consistent application.
3. For configuration changes other than design changes, the thoroughness and timeliness of the process for notifying Operations and/or Maintenance organizations of potential procedure changes need improvement.

While ANO did identify some enhancement areas, none of these findings were a direct adverse impact on the plant design basis. Therefore, ANO concludes that we have a comprehensive engineering design and configuration control program in place that provides reasonable assurance of the adequacy of our plant design basis activities.

Process Completeness Review

Each process identified in Table 1 of Attachment 1 is described and examined against the applicable criteria of Table 2 of Attachment 1 to determine if the process is present and if the applicable process effectiveness elements are implemented. Where omissions are identified, they are so noted along with a brief description of plans to correct the deficiency. Procedures which implement the process are also noted.

Description of Design and Configuration Control Process Effectiveness Elements (Table 2 of Attachment 1)

Element #1 - Design Basis Review

This element sets the expectation that the proposed change will be reviewed to determine if there is an impact on the design basis (both the 10CFR50.2 design basis and the underlying design documents) and, if so, a judgment made as to the acceptability of the change with respect to the design basis. Inherent in this element is a review to determine that the change is compliant with required/committed design codes and standards (which are a subset of the design basis).

Element # 2 - Licensing Basis Review

This element, which begins with a 50.59 review, applies to any process which could change the facility or procedures as described in the SAR, and results in the determination as to whether a proposed change involves an unreviewed safety question.

The 50.59 programs for the four Entergy Operations sites have undergone significant improvement in the last six years and continue to incorporate new and improved means to understand, identify and document 50.59 reviews. The 50.59 programs at each of the Entergy Operations facilities are very similar, and primarily only differ in the documentation process. Each of the site 50.59 programs contain the following elements:

- Applicability Screening: A detailed screening (screening or pre-screening) is performed on facility changes, temporary changes, procedure changes, tests and experiments and SAR discrepancies against designated licensing basis documents including NRC SERs. These screenings include a review of SAR text, figures and tables that is documented on established 50.59 forms and retained in permanent records for retrievability. In general, documentation consists of identifying what documents were searched, the means of how the search was conducted, the computerized search criteria and a summary of findings (although there are some site-specific differences).

- Electronic Search Capability: The licensing basis documents are primarily searched using a comprehensive full text searchable computerized database. This database uses an indexing system that allows complete searching of the documents for potential impact by use of individual, multiple word strings or Boolean searches. Searches can be performed typically in a matter of seconds. This SAR search system provides a highly reliable tool in finding potential areas where the SAR can be impacted.

- Application of USQ criteria: With only a few exceptions, the criteria for determining an unreviewed safety question (USQ) are identical at each EOI site. In most cases, the guidance is similar to, or based on, that provided by NSAC-125. The evaluations for determining a USQ are documented and receive on-site safety committee review.

- 50.59 Reviewer Training: Each of the sites has a detailed two to three day 50.59 training program that involves both theory and direct application study. Each trainee is required to take an examination in order to become qualified to perform 50.59 applicability screenings and reviews.

- Periodic Review: The 50.59 process is periodically reviewed to determine process effectiveness and compliance to regulatory requirements. This review includes both the applicability screening and the application of USQ criteria.

EOI facilities also use the 50.59 review as a convenient way to trigger other licensing/design basis control processes. The initial 50.59 review (termed a 50.59 "screening" at EOI facilities) determines if the following additional process sub-elements (all of which are considered a part of Element #2) should be invoked:

- 10CFR50.90 - A license amendment request for prior NRC approval of a change will be generated if a Technical Specification change is necessary or should the proposed change constitute an unreviewed safety question

- 10CFR50.54 - Acceptability of a proposed change to the QA Program, the Emergency Plan, the Security Plan, or certain aspects of the Training Program will be evaluated under the appropriate requirements of 10CFR50.54 and may result in a request for NRC approval prior to implementation

- 10CFR50.71(e) - Potential changes to the SAR due to the proposed change are identified in the course of determining if 10CFR50.59 applies to the change (i.e., does the proposed activity change the facility or procedures as described in the SAR?). If there is an impact on the SAR, the SAR change process is invoked, resulting in an update to the SAR following implementation of the change (and on a schedule consistent with the requirements of 10CFR50.71(e)).

Element #3 - Review and Approval Process

This element provides review of a process product by person(s) other than the executors of the process to identify any deficiencies, inconsistencies, inaccuracies or other problems before the product is approved and issued. It applies to any process that could change the plant configuration. It offers additional assurance that no mistakes have been made during the execution of the process that could compromise the effectiveness of the product and

also that the process has not adversely affected the design basis of the plant. This may include independent verification required for design control and peer, supervisor, management, plant safety committee review, etc. for process control changes.

Element #4 - Document Update Controls

This element requires that, when changes in the plant are made, whether physical or operational, the design basis is updated to reflect the changes in a timely manner. Applicable processes contain appropriate feedback mechanisms to ensure that the design authority is notified of changes to the design basis that have been implemented (i.e., installed in the plant, implemented in plant operational procedures, etc.). Applicable processes also contain controls to maintain the pedigree of design basis information affected by a change (i.e., identification, distribution, document update and record storage).

Element #5 - Interface Controls

This element ensures that the process contains instructions to notify or interface with all appropriate organizations/functions when the plant configuration is being changed. This may be either a specific reference for interface to a function/organization or a general consideration of the organization/function that could be impacted, and may include either distribution of information or direct contact. This element is essential to ensure that applicable organizations revise appropriate documentation in a timely and consistent manner to operate and maintain the plant and train personnel in accordance with the as-built configuration.

Element #6 - Restoration Controls

Applicable processes contain appropriate steps to verify that the product of the process meets the design basis expectations, and that controls exist, as needed, to ensure that plant changes undergo a confirmation test. This may include post-modification, post-maintenance or performance testing of plant systems, structures and components to verify that they will perform as expected, or other confirmation activities such as validating computer software (i.e. is there a means to ensure that the change meets the expectations for which it was designed?). Failure of the plant to function per the design could invalidate the design basis.

Element #7 - Deficiency Controls

As discussed in 10CFR50, Appendix B, Criterion XVI, deficiency controls are needed to ensure that conditions adverse to quality (e.g., failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances) are promptly identified and corrected. Each EOI facility has implemented a corrective action program

to satisfy this criterion. The corrective action program itself consists of key elements which are described in Appendix B.

As required by each facility's policy, the provisions of the corrective action program are applicable to any site activity potentially affecting nuclear safety. This element ensures that a process contains provisions for documenting, correcting and reporting products that do not conform to the acceptance criteria for the process. If the process does not require a condition report, is there a specific mechanism to address and correct the condition (i.e. drawing revisions, SAR errors, inaccuracies in design documents, procedure improvements, etc.)? Inherent in this element is the expectation that the process must have acceptance standards by which the product can be evaluated. It may also include acceptance standards that must be met during the process in order for the process to continue.

Element #8 - Revisiting Temporary Changes

By their nature, temporary changes (such as temporary alterations) typically receive a safety review (e.g., Element #1, Element #2) applicable only for a limited period of time. In order to ensure that the design and licensing basis review assumptions are maintained for temporary changes, as well as to confirm the continuing safety of the change, it is necessary to revisit such changes prior to expiration of the time period for which the review is applicable. This element is relevant only to those processes which can generate or control temporary changes.

Description and ANO Review of Design and Configuration Control Processes
(Table 1 of Attachment 1)

The matrices below contain one of three potential values:

- "Y" - the configuration management process element should be, and is, contained in relevant site procedures

- "N" - the configuration management process element should be, but is not, contained in relevant site procedures

- "NA" - the configuration management process element is not applicable to the subject process.

In general, the procedures listed below are those procedures that control each process. In some cases, however, every controlling procedure may not be listed. For example, the corrective action program procedure is not listed for every process even though that process is available for reporting all deficiencies. There are also cases in which other processes that have already been evaluated actually control the process. In this case, references are made to the other process. In other cases, details may not be present in the procedures, but are understood to exist based on site training or expectations (e.g., issuing changes for SAR accuracy).

CONTROL OF CONFIGURATION DOCUMENTS:

Design configuration documents are of various types and classes that define the design bases and criteria; translate those bases and criteria into the final design; and depict the final design that is installed, operated, and maintained. A design configuration document may be used as input to any process or activity affecting plant configuration. Most design configuration documents are considered to be "living" documents in that they are maintained current with the physical plant.

Design documents fall into 3 broad categories[7]:

- Design Input - which document design criteria, parameters, bases, and other requirements upon which the detailed final design is based,
- Design Process - which document the design practices and activities that substantiate the final design, and
- Design Output - which depict final design, and define technical and configuration characteristics for systems, structures, and components.

Design configuration documents constitute the "Why" and the "What" of the plant. These documents provide the technical bases for the various activities of design, installation, operation, maintenance, and testing, all of which affect plant configuration. The level of control required for any document is dependent on the extent to which its information is relied upon by any activity, and, the potential of that activity to adversely affect plant configuration as required by design and licensing bases.

Control of design configuration documents is required by 10CFR50 Appendix B and ANSI N45.2.11. Control of design documents covers activities that could affect the content of design documents , and their use in plant activity. These activities include preparation, revision, review, approval, release, distribution, maintenance and retrieval.

Design Input Documents

Design input documents identify system design criteria. Sources of design criteria include regulatory documents, applicable industry codes and standards, and static ("non-living") documents such as closed Design Change Packages and correspondence. Design input

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[7] These categories are used only as a convenient framework to illustrate the design process. Design is an iterative process - as such, there will be times when process and output documents will be used as input documents.

information may be contained in such documents as Design Basis Documents, Upper Level Documents, System Design Criteria, Analysis Basis Documents, and Topicals.

Configuration Management Process Elements - Design Input Documents							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	NA	Y	NA

Procedures: OP 5010.007 REV. 2, (Preparation, Review, Revision, and Approval of ULD Documents)
OP 6010.001 Rev. 08, (DCP Development)
OP 5010.004 Rev. 00, (Design Document Updates)

Notes: OP 6010.001 contains the procedural steps to ensure that design inputs are properly documented and verified in design changes. For ULD changes that have no initiating document, a Configuration Checklist (OP 5010.004) is used to determine if any controlled design documents are affected. OP 5010.004 is used for configuration/document changes outside the scope of design changes as the focal point for considering the impact on other documents. Included in this checklist are the LBDs, DBDs, Design Outputs, and Operation procedures, training, and labeling.

Design Process Documents

Calculations

A calculation is a design analysis or documented engineering evaluation performed by a technically qualified individual, using the necessary design inputs, assumptions, and appropriate methodology to provide a conclusion. Calculations may include the formal documentation of test results, research, or other engineering work.

Configuration Management Process Elements - Calculations							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	NA	Y	NA

Procedures: OP 5010.015 Rev. 1, (Control of Calculations)
OP 5010.017 Rev. 1, (Control of Engineering Reports)
OP 5010.004 Rev. 00, (Design Document Updates)

Notes: Calculations are reviewed for impact on LBDs, DBDs, Design Outputs, and Operation procedures, training, and labeling through the Configuration Checklist (OP 5010.004).

Engineering Standards/Guides

An Engineering Standard is a document that establishes technical requirements for the accomplishment of various tasks. Standards are developed to provide uniformity in task performance. Standards are also used as source documents for engineering programs. (The standard described here is a document within the control of EOI as differentiated from an Industry Standard, which is not within EOI control. Industry Standards are part of the design input process.) An Engineering Guide is a document that presents particular provisions which are considered good engineering practices.

Configuration Management Process Elements - Engineering Standards/ Guides							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	Y	Y	Y	Y	NA	Y	NA

Procedures: OP 5000.011 Rev. 3, (Engineering Standards Control)

Notes: The intent of Engineering Standards is to provide technical direction within the controls already established by procedures. Design Engineering has generated over 100 standards to assist the engineer in performing his/ her duties. These standards are prepared and maintained by the responsible Design Engineering Department and receive an independent review. The procedure states that the standard should be reviewed to ensure consistency with LBDs but no 50.59 review is required.

Software

Software consists of computer programs, procedures, rules, databases, macros, firmware, and data, guiding or controlling the operation of a computer system. Software is classified based on the application for which it is used. Each site has established controls for the classification, documentation, and maintenance of designated software that can impact the plant design basis.

Configuration Management Process Elements - Software Control							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	N	Y	Y	Y	Y	Y	NA

Procedures: OP 1000.151 Rev. 0, (Classification and Control of Site Software)
OP 5010.018 Rev. 0, (Microprocessor Software Documentation)
OP 5010.019 Rev. 1, (Computer Software Control)

Notes: The software classification process does not currently require an LBD

review as the software itself cannot affect the plant unless implemented through other controlled processes. OP 1000.151 has been changed to require a 50.59 review for any software packages that are not part of a separate change control process. This concern does not apply to plant process software which is addressed in the Software Control (Plant) review.

Design Output Documents:

Specifications

A specification is an engineering document that defines technical or quality requirements to be satisfied by systems, structures, components, processes, or materials. Primarily used for procurement of items, specifications may also be used for design, installation, and testing. By establishing the basis for design and/or installation, a specification may document existing plant configuration or authorize alternatives to existing plant configuration.

Configuration Management Process Elements - Specifications							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	NA	Y	NA

Procedures: OP 5010.016 Rev. 1, (Control of Specifications)

Notes: Specifications do not receive a 50.59 review as part of this procedure; however, they are required to comply with the QAMO and ANSI N45.2.11. Typically, a specification is implemented through the Design Change process or the Material Technical Evaluation process for non design changes. Attachment 8 to OP 5010.016 does require that all engineering specifications be reviewed for consistency with LBDs. The procedure does not provide for periodic updating or deleting of the current specifications; however, the procedure does state that each specification should be reviewed to ensure it is current prior to use. While a specification may call out the need for testing to qualify the installation/ manufacture of a SSC, the actual testing is controlled by other processes.

Drawings

A drawing is a document that provides technical or configuration details about systems, structures, or components, usually in a graphical format. Drawings are used for design,

installation, procurement, operating, testing and maintenance activities. Drawings are categorized by the priority of their application in plant activities.

Configuration Management Process Elements - Drawings							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	Y	Y	NA

Procedures: OP 5010.020 Rev. 04, (Drawing Revision Notices(DRNs))
OP 5010.004 Rev. 00, (Design Document Updates)
OP 1013.012 Rev. 02, (Drawing Control)

Notes: The drawing control process does not cause Temporary Alterations. Any drawing affected by Temporary Alterations will be handled per procedure OP 1000.028. DRNs that are not part of another engineering change document use the Configuration Checklist to determine if any LBDs are impacted. Changes to drawings included in the SAR are reviewed per procedure OP 1000.150.

Vendor Documents

These constitute the various documents, drawings, manuals, correspondence, update bulletins and the like that originate from a vendor and are applicable to plant systems and components. These documents are used in various design, installation, testing and maintenance activities. Vendor documents are maintained in a Vendor Technical Manual (VTM) program. Changes to vendor documents, on their own, cannot be used to make permanent configuration changes or authorize physical plant changes.

Configuration Management Process Elements - Vendor Documents							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	NA	Y	NA

Procedures: OP 5510.203 Rev. 01, (Vendor Technical Manual Review and Update)
OP 5510.204 Rev. 03, (Component Database Control)
OP 5010.004 Rev. 00, (Design Document Update)

Notes: Vendor drawings are controlled under the ANO Drawing system. VTM changes and revisions not initiated as part of a design change will be accompanied by a Configuration Checklist (OP 5010.004) which includes a review for LBD impact.

<u>Databases</u>

Plant technical data is often stored in computer databases, and used for various design, installation, operating, maintenance, and testing activities. Controls on databases are established for their application. The primary databases used in configuration management may include the Component Database, the Station Information Management System (SIMS), the Cable and Conduit List, the EQ Database, the Setpoint Database and the Instrument List.

Configuration Management Process Elements - Databases							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	Y	Y	Y	Y	NA	Y	Y

Procedures: OP 5010.024 Rev. 01, (Plant Data Management System (PDMS) Control)
OP 5510.204 Rev. 03, (Component Database (CDB) Control)
OP 5510.200 Rev. 00, (Setpoint Data Control in SIMS Database)
OP 5510.201 Rev. 00, (Component Classification Control in SIMS Database)

Notes: PDMS is maintained as a separate database, while the other databases mentioned in the description are part of the Station Information Management System (SIMS) at ANO. Additional databases are used in support of specialized CM processes (i.e., Drawing Tracking System, Design Configuration Information Management System , Penetration Seal Log, Materials Management Information System, etc.) and are addressed in the review of those processes.

PLANT CONFIGURATION CHANGE CONTROL

Design Change

A design change is a change to those technical requirements which govern performance of a structure, system or component's design bases. Design bases is defined as information that identifies the specific functions to be performed by a structure, system or component of a facility and the specific values, or ranges of values, chosen for controlling parameters as reference bounds for design. Design change includes the entire process from initial conceptual design through installation, testing, close-out, and document updates.

Configuration Management Process Elements - Design Change							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	Y	Y	NA

Procedures:
OP 1000.024 Rev. 43, (Control of Maintenance)
OP 1000.103 Rev. 06, (Plant Modification Process)
OP 6000.010 Rev. 06, (Design Control Process)
OP 6000.020 Rev. 07, (Design Document Control)
OP 6000.030 Rev. 07, (Control of Installation)
OP 6000.060 Rev. 06, (Project Close-out)
OP 6010.001 Rev. 08, (DCP Development)
OP 6010.003 Rev. 03, (Limited Change Package and Plant Change Development)
OP 6020.002 Rev. 04, (Control of Design Change Documents)
OP 6030.001 Rev. 11, (Installation Plan)
OP 6030.002 Rev. 05, (Field Change Requests (FCR) Preparation and Control)
OP 6030.005 Rev. 03, (Control of Modification Work)
OP 6060.001 Rev. 08, (Modification Package Close-out)

Notes: The current design change process at ANO provides three levels of changes based upon the complexity of the change and the extent of its impact on the design bases of the affected SSC. The overall administrative process is defined in OP 1000.103. A set of 6000.XXX procedures provide controls for the various elements of the modification process. OP 6000.010 and the OP 6010.XXX series describe the development process and define the 3 levels of design changes - Plant Changes, Limited Change Packages, and Design Change Packages. OP 6000.030 and the OP 6030.XXX series describe the implementation phase, including post modification testing and turn over to Operations. OP 6000.060 and 6060.001 describe the close-out activities for completed design changes. The design change process is being revised

and incorporated into the ER process in the near future.

Repair or Use-As-Is

Repair is the process of restoring a degraded or non-conforming condition such that the capability of an item to function reliably and safely is unimpaired, even though the item still may not conform to the original requirements. Use-As-Is is a material disposition which may be assigned to a deficient part, component or material when it can be established that the deficiency will result in no adverse conditions and that the item under consideration will continue to meet engineering functional requirements including performance, maintainability, fit and safety.

Configuration Management Process Elements - Repair or Use-As-Is							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	Y	Y	NA

Procedures: OP 1000.104 Rev. 13, (Condition Reporting and Corrective Action)
OP 1000.153 Rev. 00, (Engineering Request (ER) Process Control)
OP 1032.001 Rev. 12, (Plant Engineering Action Requests)
OP 5010.001 Rev. 01, (Engineering Action Requests)
OP 5000.017 Rev. 01, (Engineering Equivalency Evaluations)
OP 5010.002 Rev. 01, (Internal Engineering Interface)

Notes: The engineering evaluation process to consider repair or use-as-is options is controlled under the Engineering Request Process (OP 1000.153). OP 1000.153 was implemented in 1996 to supersede the existing processes for PEARS, EARS, IRFs, and Equivalency Evaluations. It is currently the procedure used for new engineering requests. These other procedures are being phased out as old requests are completed or converted to the ER process. The element review is based on OP 1000.153. The Repair/ Replacement Program is addressed under the Maintenance Process.

Part Equivalency

Part equivalency is a technical evaluation performed to confirm that a replacement item, not identical to the original, will perform its intended function. An identical part is the same part, make and model, which exhibits the same technical and physical characteristics.

Configuration Management Process Elements - Part Equivalency							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	Y	Y	NA

Procedures: OP 1000.153 Rev. 00, (Engineering Request (ER) Process Control)

OP 1032.001 Rev. 12, (Plant Engineering Action Requests)
OP 5010.001 Rev. 01, (Engineering Action Requests)
OP 5000.017 Rev. 01, (Engineering Equivalency Evaluations)
OP 5010.002 Rev. 01, (Internal Engineering Interface)

Notes: The engineering evaluation process to consider part equivalencies is controlled under the Engineering Request Process (OP 1000.153) and Engineering Equivalency Evaluation Process (OP 5000.017) which is being deleted in the near future. OP 1000.153 was implemented in 1996 to supersede the existing processes for PEARS, EARS, IRFs, and Equivalency Evaluations. It is currently the procedure used for new engineering requests. These other procedures are being phased out as old requests are completed or converted to the ER process.

Setpoint Change

Setpoints required for plant operations are documented and controlled at each site. Setpoint Changes are developed, approved, and implemented in accordance with the appropriate configuration change process. Setpoint Changes affecting design bases of a component and/or its interfaces are processed as design changes.

Configuration Management Process Elements - Setpoint Change							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	Y	Y	NA

Procedures: OP 6010.005 Rev. 3, (Plant Setpoint Control)

Temporary Alteration

A temporary alteration is a change that places a SSC in use in a condition that deviates from plant configuration documentation. Temporary Alterations are intended to be returned to normal or converted to a permanent design change at some later date.

Configuration Management Process Elements - Temporary Alterations							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	Y	Y	Y

Procedures: OP 1000.028 Rev. 18,(Temporary Alteration Control)

Software Control (Plant)

Software is the code (executable, object and source), database information, command language structure, etc. used to control the operation of the plant or provides on-line information to plant operators. Software is categorized as safety-related software or other controlled software. An example of safety-related software is the Core Protection Calculators at ANO and Waterford. Examples of other controlled software are the Safety Parameter Display System (SPDS), Security, Emergency Response Data System (ERDS), Plant Monitoring and Fire Protection.

Configuration Management Process Elements - Software Control (Plant)							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	Y	Y	NA

Procedures: OP 1000.151 Rev. 00, (Classification and Control of Site Software)
OP 1022.002 Rev. 09, (Core Protection Calculator Software Change Control)
OP 1082.004 Rev. 06, (Computer Software Change Control)
OP 5010.018 Rev. 00, (Microprocessor Software Documentation)

Reload

Reload design involves analysis to evaluate the changes to the fuel and reactor core design each fuel cycle. Cycle design objectives, including key plant operating parameters, are set early in the reload process. The key design inputs to the reload process are re-evaluated for each cycle based on the expected plant design configuration and are transmitted to the fuel vendor. NRC approved methodologies are employed in the reload licensing analyses. The results of each cycle's reload licensing analyses are reviewed to ensure conformance with the plant's technical specifications. The plant's licensing basis is updated to reflect the new reload design. Key core design parameters are verified during startup testing at the beginning of each cycle.

Configuration Management Process Elements - Reload							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	Y	Y	NA

Procedures: OP 5420.003 Rev. 1, " Reload Design Review"
OP 1022.013 Rev. 5, " Preparation and Conduct of Refueling Activities"
NF-101 Rev. 3, " Nuclear Fuel Program and Division Responsibility"

Notes: This process also addresses the update of the Core Operating Limits Report (COLR).

MATERIALS/PROCUREMENT

Commercial Grade Item (CGI)

Commercial Grade Item (CGI) dedication is a process to evaluate the acceptability of a commercial grade item for a safety-related application and to prepare the documentation needed to demonstrate that the CGI is equivalent in its safety function performance to a similar item designed and manufactured under a 10CFR50 Appendix B program. CGI dedication involves testing and/or analysis to verify the item's ability to perform its intended functions.

Configuration Management Process Elements - Dedication (CGI)							
#1	#2	#3	#4	#5	#6	#7	#8
Y	NA	Y	Y	Y	Y	Y	NA

Procedures: OP 1033.005 Rev. 13, (Control and Use of PRs and MARs)
OP 1033.013 Rev. 01, (Coordination of Special Testing and Inspection of Commercial Grade Items)
OP 6050.002 Rev. 03, (Dedication of Commercial Grade Items and Service)

Notes: The CGI process does not require a LBD review; however, it does require a Material Technical Evaluation or Design Change document to provide the technical requirements for performing a CGI dedication.

Material Technical Evaluation

This process focuses on evaluating and analyzing an item to be procured or transferred; determining its Safety classification; identifying technical and quality assurance requirements; assigning receipt inspection attributes; and evaluating material related discrepancies.

Configuration Management Process Elements - Material Technical Evaluations							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	Y	Y	NA

Procedures: OP 1033.023 Rev. 00, (Preparation and Control of Material Technical Requirements)
OP 5010.006 Rev. 03, (Design Engineering Procurement)
OP 5510.300 Rev. 00, (Materials Technical Evaluation)

Notes: Material Technical Evaluations (MTE) do not require a 50.59 review, but the procedure does require a review of design basis and licensing basis documents to obtain the technical requirements for the item being evaluated.

Storage/Inventory Controls

The process of receiving, inspecting, and storing material in an environment that ensures its control and suitability for use in the plant. This process includes such activities as receipt inspection, storage, environmental controls, and shelf life controls.

Configuration Management Process Elements - Storage/Inventory Control							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	NA	Y	Y	Y	Y	Y	NA

Procedures: OP 1033.001 Rev. 24, (Receipt Inspection)
OP 1033.002 Rev. 27 (Control Of Material)
OP 1033.005 Rev. 13 (Control and Use of PRs and MARs)
OP 1033.006 Rev. 30 (Stores Receipt, Issue, and Return)
OP 1033.023 Rev. 00 (Preparation and Control of Material Technical Requirements)
OP 5010.032 Rev. 00 (Shelf Life Evaluations)

Notes: No review of LBDs is required for establishing storage/ inventory requirements unless special requirements are provided as part of the design change or MTE process.

End Use Authorization

This consists of the review of purchase order documentation of the item against the intended application of the item. This review determines if the documentation is technically accurate, complete and of sufficient quality to warrant approval of item for use.

Configuration Management Process Elements - End-Use Authorization							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	NA	Y	Y	Y	Y	Y	NA

Procedures: OP 1033.006 Rev. 30, (Stores Receipt, Issue, and Return)
OP 1033.014 Rev. 03, (Material Use Authorization)

Notes: This process is considered an in-line process for issuing materials. It does

not require a LBD review because the impact of the procured item has already been addressed by a design change or MTE. Documents from this process are not treated as quality records - single copy records are maintained for no specific time interval. However, this review is recorded in MMIS as authorization for the specific application.

IMPLEMENTING DOCUMENTS

Procedures

Administrative and implementing procedures are those written instructions or guidelines for performing various activities. Generally, these procedures specify the administrative and quality assurance policies and practices, assign responsibilities, address activities of interest to many plant departments and detail the performance of particular activities.

The issuance of these documents is controlled to ensure that the most recent revisions are used to perform plant activities. The documents are issued in a controlled manner to specified locations or individuals and inserted into the appropriate manuals in a timely manner.

Changes to the documents are controlled to ensure that the information contained in the document is accurate. Procedures dictate the requirements for changing a plant document. The revision process requires the appropriate technical, safety evaluation and interdepartmental reviews and approvals before the document is issued for use.

Configuration Management Process Elements - Procedures							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	NA	Y	Y

Procedures: Op 1000.006 Rev. 44,(Procedure Control)

Notes: OP 1000.006 controls the development and revision of all station procedures at ANO.

Program Documentation/Standards/Guides

A Standard is a document which establishes technical requirements for work to be accomplished. Standards may be required to establish the requirements for equipment, material, parts, components, processes, spare parts and services. They may also establish the requirements for a specific design change activity that is repetitive in nature.

A Guide is a document that presents particular provisions which are considered good practices, i.e., options or recommendations, but which are not mandatory. Adherence to a guide is expected, unless there exists a good reason not to comply.

A Program Plan is a non-design output document containing the details for a particular inspection, testing or other program including requirements for specific equipment/components or conditions. A Program Plan may include a compilation of

various technical information upon which the requirements are based. In the case of ASME code related programs, justification for altered test frequency and/or requests for relief from testing are also included.

These documents are procedurally controlled for development and revision.

Configuration Management Process Elements - Program Documentation/Standards/Guides							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	Y	Y	Y	Y	NA	Y	NA

Procedures: OP 5000.011 Rev. 3,(Standards Control)
OP 1015.004 Rev. 3, (Control of Operations Department Documents)

Notes: The intent of Engineering Standards is to provide technical direction within the controls already established by procedures. These standards are prepared and maintained by the responsible Design Engineering department and receive an independent review. OP 5000.011 states that the standard should be reviewed to ensure consistency with LBDs but no 50.59 review is required. OP 1015.004 provides controls for guides developed by Operations for either unit.

CONTROL OF LICENSING DOCUMENTS

UFSAR Update

The UFSAR is periodically updated in accordance with 10CFR50.71(e) to include the effects of changes to the facility or procedures as described in the UFSAR, safety evaluations performed in support of requested license amendments, and analyses of new safety issues performed at the request of the Commission.

The primary mechanism for initiating identification of UFSAR changes is the 10CFR50.59 process. As noted in the description of Process Element #2, the 50.59 process provides a convenient trigger point for UFSAR updating since the initial step of the 50.59 process requires that a facility or procedure change be evaluated to determine its impact on the UFSAR. Having identified an impact to the UFSAR, the responsible individual identifies any other potential UFSAR changes, documents the proposed changes to the UFSAR and transmits the proposed change(s) to the licensing organization.

Provided that no unreviewed safety question exists, the licensing organization makes an internal update to the UFSAR following implementation of the proposed change. Periodically (on a nominal refueling cycle schedule, not to exceed 24 months), the accumulated internal changes to the UFSAR are required to be transmitted to the NRC and other controlled document holders, and reflect facility changes up to a maximum of six months prior to the submittal date.

Configuration Management Process Elements - UFSAR Update							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	NA	Y	NA

Procedures: OP 1000.150 Rev. 0, (Licensing Document Maintenance)
OP 1000.131 Rev. 2, (ANO 50.59 Review Program)

Notes: OP 100.150 also controls updates to the Quality Assurance Manual - Operations (QAMO), Emergency Plan, Security Plan, and other documents considered LBDs at ANO. OP 1000.131 also requires a 10CFR72.48 review for activities related to onsite dry spent fuel storage.

Technical Specifications Change

Technical Specifications (and the broader category of the Operating License) are changed through application of the requirements of 10CFR50.90 and 10CFR50.91. A license amendment request is prepared by responsible personnel, describing the proposed change and addressing the standard "no significant hazards consideration" questions. Upon

approval by the on-site and off-site safety review committees, the license amendment request is transmitted to the NRC for approval. Implementation of the proposed change is held pending NRC approval. This process also applies to any unreviewed safety questions identified during a 10CFR50.59 evaluation.

Configuration Management Process Elements - Technical Specifications Change							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	Y	Y	Y	Y	NA	Y	NA

Procedures: OP 1000.150 Rev. 0,(Licensing Document Maintenance)
OP 1000.131 Rev. 2, (ANO 10CFR50.59 Review Program)

Notes: Uses the same process as above for UFSAR Update.

Technical Requirements Manual Change

The Technical Requirements Manual (TRM) in general contains those requirements that have been relocated from the Technical Specifications or Operating License. Usually, relocation occurs due to implementation of a generic letter line item improvement or implementation of the improved technical specifications.

Initial relocation of a technical specification (and its consequent inclusion in the TRM) requires prior NRC approval under the provisions of 10CFR50.90 through a license amendment (as discussed above). Subsequent changes to material contained within the TRM are controlled through the 10CFR50.59 process (with the exception of a few unique TRM items that are changed through evaluation under 10CFR50.54(a)).

Configuration Management Process Elements - Technical Requirements Manual Change							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
NA	NA	NA	NA	NA	NA	NA	NA

Notes: The Technical Requirements Manual is only used in conjunction with implementation of improved technical specifications. While scheduled to do so, ANO has not yet implemented.

Commitment Management

The commitment management process ensures the timely implementation of regulatory commitments and provides a point of control to ensure that, once implemented,

commitments remain implemented. It is this latter characteristic of commitment management that is important to configuration control.

Commitments related to design control and configuration management may be made in response to notices of violation, reportable events, generic letters, and the like. Implementation of a commitment may be through procedure or design changes. Regardless of the vehicle for implementing a commitment, the commitment management process provides a means for ensuring that an implemented commitment cannot be reversed at a later time without proper evaluation. Evaluation of commitment changes is controlled by the site specific application of the NEI "Guidelines for Managing NRC Commitments."

Configuration Management Process Elements -Commitment Management							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	Y	Y	Y	Y	NA	Y	NA

Procedures: OP 1062.009 Rev. 3, (Commitment Management System)
OP 1000.006 Rev. 44 (Procedure Control)
OP 1062.002 Rev. 6 (NRC Correspondence Control)

OPERATIONS:

Normal, Off-Normal, and Alarm Response

Throughout plant life, the plant experiences different types of conditions which require equipment operation to ensure safety and reliability. These conditions generally fall into the following categories:

- Normal operation
- Off-Normal (or abnormal) operation
- Response to degrading/changing system conditions (alarm response)

Procedures exist which instruct operations personnel regarding proper equipment manipulation to respond to the specific condition. These procedures, which can be a means of altering plant configuration, are written and updated in accordance with plant design.

Configuration Management Process Elements - Normal, Off-Normal and Alarm Response Procedures							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	Y	Y	Y	Y	Y	Y	Y

Procedures: OP 1000.006 Rev. 44, (Procedure Control)
OP 1015.XXX Series (Operations Administrative Procedures)

Notes: Alarm response procedures are a sub-set of Abnormal Operating Procedures at ANO. Although a portion of element #4 does not apply to the procedure process, the document update and record storage controls are applicable and documented in these Operations Procedures. Also, OP 1000.006 requires a validation review of new safety related Operations procedures and revisions are reviewed by a senior reactor operator. AOPs also receive a V&V per OP 1015.026. OP 1000.006 provides controls for temporary changes to Operations procedures.

Emergency Operating Procedures

During the life of a plant, there may be times when the plant is found to be in a condition outside the boundaries of normal operation, as defined by its design basis. During such times, emergency actions are taken by Operations personnel to ensure the plant is returned to a stable condition. These actions are governed by emergency operating procedures.

Configuration Management Process Elements - Emergency Operating Procedures							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	Y	Y	Y

Procedures: OP 1000.006 Rev. 44, (Procedure Control)
OP 1015.020 Rev. 3, (EOP/AOP Writers Guide)
OP 1015.022 Rev. 3, (ANO-1 EOP Verification and Validation)
OP 1015.026 Rev. 3, (ANO-2 EOP/ AOP Verification and Validation)
OP 1015.029 Rev. 3, (Unit One EOP Writers Guide)
OP 1015.XXX Series (Operations Administrative Procedures)
OP 1202.XXX Series (Unit 1 EOPs)
OP 2202.XXX Series (Unit 2 EOPs)

Tagouts / Caution Tags

A protective tagging system establishes an administrative control for equipment status to prevent operating components which may cause personnel injury or equipment damage. Through protective tagging, equipment normally operating or available for service may be removed from service to perform maintenance activities.

Configuration Management Process Elements - Tagouts							
#1	#2	#3	#4	#5	#6	#7	#8
NA	NA	Y	NA	Y	Y	Y	NA

Procedures: OP 1000.027 Rev. 22, (Hold and Caution Card Control)
OP 1015.XXX Series (Operations Administrative Procedures)
OP 1000.006 Rev. 44, (Procedure Control)

Notes: OP 1000.027 does not require a formal 50.59 review or design basis impact review as part of the hold/ caution card process. The procedure does require that a licensed operator verify that the tag-out does not violate any Technical Specification limiting condition for operation. A periodic review of tag-outs is required by OP 1000.027, but this review does not include a safety review.

Technical Specifications Interpretations

A Technical Specifications (TS) Interpretation may be used to document a position clarifying the meaning of a TS which, because of vague or imprecise wording, may otherwise lead to inconsistent application. The TS Interpretation provides the consistency to ensure the TS requirement is properly met. The TS Interpretation process is not

intended to circumvent the TS amendment process (10CFR50.90), nor may it be used to change a TS.

Configuration Management Process Elements - Tech Spec Interpretations							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	Y	Y	Y	Y	NA	Y	Y

Procedures: OP 1062.006 Rev. 00, (Technical Specification Interpretations)

Notes: This process is owned by ANO Licensing. The criteria of 10CFR50.59 are required to be evaluated per this procedure; however, it is not a formal 50.59 review. It does receive all the reviews and approvals normally received by a formal 50.59 review.

Operator Work-Arounds

An operator work-around is a condition resulting from degraded plant equipment or a shortcoming in plant design. Operator Work-Arounds are expected to be of limited scope and duration, while a corrective action plan is implemented to resolve the underlying problem.

Configuration Management Process Elements - Operator Workarounds							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	Y	Y	Y	Y	NA	Y	Y

Procedures: Unit 1 Operations P&S Liaison Guide
Unit 2 Operations P&S Liaison Guide

Notes: Operator Work Around (OWA) is not a configuration controlling process at ANO, but is a method to classify and prioritize deficiencies based on criteria that also ensure that the deficiency does not take the plant outside of design and licensing basis space. OWAs are prioritized and issued to functional groups (Eng., Maintenance.) to resolve. The actual resolution of the OWA occurs through either Corrective Maintenance or the Plant Configuration Change process, which is discussed elsewhere. Therefore, the actual OWA process only looks at design basis and licensing basis impact, and tracking of the OWA to completion. All the other elements are addressed either by the Corrective Maintenance (OP 1000.024) or the Plant Configuration Change (OP 1000.153)control processes.

Night Orders / Standing Orders

Night Orders are generated to inform the operating shifts of work schedule activities, industry events, and departmental issues. Standing orders are typically generated to provide additional operational considerations until long term resolutions are obtained. Neither night or standing orders are written to contradict existing plant procedures.

Configuration Management Process Elements - Night Orders / Standing Orders							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
NA	NA	NA	NA	NA	NA	Y	NA

Procedures: OPD-006, 2OPD-006 (Unit 1/2 Night Orders)
OP-1015.xxx series (Operations Administrative procedures)

Notes: Night orders at ANO are a communications device. They cannot be used to supersede any plant procedure, and as such cannot cause configuration changes that are outside of design or licensing bases.

MAINTENANCE

Maintenance Work Orders

The maintenance work order is the primary vehicle used to initiate and conduct preventive maintenance and corrective maintenance activities on plant systems, structures, and components (SSCs). The maintenance work order package is composed of drawings, instructions, procedures, forms, and other information necessary to perform the identified activity. Prior to beginning work, the maintenance work order package is assessed to determine impact on plant safety by Operations department personnel. Post-maintenance tests are performed as needed to ensure equipment performs its intended function.

Configuration Management Process Elements - Maintenance Work Orders							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	Y	Y	Y	Y	Y	Y	Y

Procedures: OP 1000.006 Rev. 44, (Procedure Control)
OP 1000.024 Rev. 43, (Control Of Maintenance)
OP 1025.003 Rev. 42, (Conduct Of Maintenance)
OP 1000.027 Rev. 22, (Hold and Caution Card Control)
OP 1025.033 Rev. 05, (Post Maintenance Testing)
OP 5000.008 Rev. 03, (Welding Administration)
OP 1025 Series (Maintenance Administrative Procedures)
OP 1303 Series (Calibration of M&TE)
OP 5120 Series (Welding Control)

Notes: Maintenance activities (General, Corrective, and Preventive) are administered through the Job Order process. The Job Order process is governed by OP-1000.024 (Control Of Maintenance). Within a job order, maintenance activities are performed, in accordance with the QAMO, using the appropriate procedures.

Preventive Maintenance

In order to ensure systems, structures, and components are available to perform their function(s), a Preventive Maintenance (PM) program has been established, covering three areas: predictive maintenance, periodic maintenance, and planned maintenance.

- Predictive Maintenance:

- Predictive maintenance involves continuous or periodic monitoring and diagnosis of equipment and components in order to forecast equipment failure. Predictive maintenance results are used to trend and monitor equipment performance so that planned maintenance can be performed prior to equipment failure.

- Periodic Maintenance

Periodic maintenance involves activities accomplished on a routine basis, such as operating hours or calendar time, and include any combination of external inspections, alignments or calibrations, internal inspections, overhauls, and component or equipment replacements.

- Planned Maintenance

Planned maintenance involves activities performed prior to equipment failure. The activities can be initiated by predictive or periodic maintenance results, by vendor recommendations or by experience.

Configuration Management Process Elements - Preventive Maintenance							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	Y	Y	Y	Y	Y	Y	NA

Procedures: OP 1000.006 Rev. 44, (Procedure Control)
OP 1000.024 Rev. 43, (Control Of Maintenance)
OP 1025.003 Rev. 42 (Conduct Of Maintenance)
OP 1000.027 Rev. 22, (Hold and Caution Card Control)
OP 1000.115 Rev. 04, (Preventive Maintenance Program)
OP 1025.026 Rev. 03, (Preparation, Review, and Approval of PMEEs)
OP 1025.033 Rev. 05, (Post Maintenance Testing)
OP 1025 Series (Maintenance Administrative Procedures)
OP 1303 Series (Calibration of M&TE)

Notes: PMEE is a Preventive Maintenance Engineering Evaluation.

Corrective Maintenance

Corrective maintenance involves activities which repair or restore equipment or components which have failed or are malfunctioning and not performing their intended function(s).

Configuration Management Process Elements - Corrective Maintenance							
#1	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**#8**
Y	Y	Y	Y	Y	Y	Y	NA

Procedures: OP 1000.006 Rev. 44, (Procedure Control)
OP 1000.024 Rev. 43, (Control Of Maintenance)
OP 1025.003 Rev. 42 (Conduct Of Maintenance)
OP 1000.027 Rev. 22, (Hold and Caution Card Control)
OP 1025.033 Rev. 05, (Post Maintenance Testing)
OP 5000.008 Rev. 03, (Welding Administration)
OP 1025 Series (Maintenance Administrative Procedures)

Repair and Replacement

The Repair and Replacement Program determines the ASME Code requirements during task planning, and ensures those requirements have been met and documented after task completion. The Repair and Replacement Program has controls to prevent unauthorized repairs and replacements of ASME Code systems, structures, and components. These controls also help ensure original design is maintained on ASME Section III systems, structures, and components. The Repair and Replacement Program is not a design change process. The program enables field work to be performed, in accordance with applicable Code requirements, to approved design change implementation packages.

Configuration Management Process Elements - Repair and Replacement							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	Y	Y	Y

Procedures: HES-11 Rev. 2, (Repair/Replacement Program)
OP-5000.009 Rev. 1, (Repair/Replacement Program Administration)
OP-5120.120 Rev. 1, (Implementing and Control of Welding)
OP-1000.006 Rev. 44, (Procedure Control)
OP-1000.024 Rev. 43, (Control Of Maintenance)

Notes: The ANO Repair/Replacement program assures compliance with the requirements of ASME Section XI. At ANO Unit-1, these rules have been extended to include certain safety related components which were constructed to ANSI/ASME B31.1, and are being treated as ISI Class 2 and 3. The Repair/Replacement program is integrated into the Job Order process (OP-1000.024) and covers both Maintenance and Plant Configuration Changes

Calibration Performance

Plant instrumentation is periodically calibrated to ensure it properly performs its intended function(s) and meets the range and resolution assumptions of the design basis. Calibration includes activities which check and set instrument range, setpoints, alarm functions, trip and isolation functions, etc., as appropriate. The frequency intervals for calibration activities are determined via the plant design basis for the specific instrument and the function(s) performed.

Configuration Management Process Elements - Calibration Performance							
#1	#2	#3	#4	#5	#6	#7	#8
Y	Y	Y	Y	Y	Y	Y	NA

Procedures:
OP-1000.009 Rev. 27, (Surveillance Test Program Control).
OP-1001.009 Rev. 20, (Master Test Control List)
OP-1000.006 Rev. 44, (Procedure Control)
OP-1000.024 Rev. 43, Control Of Maintenance)
OP-1025.003 Rev. 42, (Conduct Of Maintenance)
OP-1000.027 Rev. 22, (Hold and Caution Card Control)
OP-1000.115 Rev. 04, (Preventive Maintenance Program
OP-1025.033 Rev. 05, (Post Maintenance Testing)
OP-1025 Series (Maintenance Administrative Procedures)
OP-1303 Series (Calibration of M&TE)

Notes: Calibrations required by Technical Specifications are administered by OP-1000.009 (Surveillance Test Program Control). This procedure identifies the controls for the identification, review, coordination, tracking, scheduling and implementation of surveillance tests. The tests that are part of the program are listed in the Master Test Control List (MTCL).

PERFORMANCE MONITORING

Performance monitoring is a set of processes that provide a feedback mechanism to ensure that the plant is performing in accordance with design basis and other assumptions. Performance monitoring processes are not utilized to introduce a permanent plant configuration change.

For this set of processes, our evaluation focus is on how the results of the monitoring activity are used to confirm that the plant performs consistent with the design basis. While we recognize that the reason for monitoring activities is founded upon the design and licensing bases, we have chosen to restrict our review to those process elements (Table 2 of Attachment 1) associated with the monitoring output:

4. Document update controls
5. Interface controls - for communicating the results of the monitoring,
6. Restoration controls - for restoring any plant configuration changes needed to perform the monitoring, and
7. Deficiency controls - for documenting and resolving any monitoring results which exceed acceptance criteria.

Surveillances

Operations, Maintenance, and Engineering have a variety of surveillance tests and rework procedures that ensure various components are capable of performing their intended function. The scheduling of surveillances is based on a Technical Specification or other requirement.

Configuration Management Process Elements - Surveillances			
#4	#5	#6	#7
Y	Y	Y	Y

Procedures: OP-1000.009 Rev. 27, (Surveillance Test Program Control)
OP-1001.009 Rev. 20, (Master Test Control List)
OP-1000.006 Rev. 44, (Procedure Control)

Notes: In order to assure that these tests are performed at the required intervals, ANO has instituted a Surveillance Test Program. This program is governed by OP-1000.009. The actual performance of these tests is controlled by the procedures developed by the responsible organization and referenced in the Master Test Control List (MTCL). At ANO, Chemistry and Health Physics also perform surveillance tests.

In-Service Testing

In-Service Testing (IST) is an ASME Code driven testing program for ASME Section III Class I, II, and III and other selected safety-related pumps and valves. IST is a prescriptive program of routine tests designed to confirm the continued ability of these components to perform designated safety-related functions.

Configuration Management Process Elements - In-Service Testing			
#4	#5	#6	#7
Y	Y	Y	Y

Procedures: OP-1000.009 Rev. 27, (Surveillance Test Program Control)
OP-1001.009 Rev. 20, (Master Test Control List)
OP-1000.006 Rev. 44, (Procedure Control)
OP-5120.260 Rev. 2, (IST Program Administration)
HES-07 Rev. 3, (Unit 1 IST Plan)
HES-08 Rev. 4, (Unit 2 IST Plan)

Special Tests

Special Tests are conducted when a system or component must be tested for conditions not addressed in current procedures. This may be the result of a design change, a question on the actual performance of the piece of equipment, or some other reason. To insure this test is properly performed and that no safety concerns are involved, a special test procedure is prepared.

Configuration Management Process Elements - Special Tests			
#4	#5	#6	#7
Y	Y	Y	Y

Procedures: OP-1000.006 Rev. 44, (Procedure Control)

Notes: This procedure provides guidelines on when workplans/procedures are to be used in the performance of special tests. This procedure also provides requirements on the use of and adherence to procedures.

Retests

Whenever equipment or systems undergo maintenance or configuration change activities, a retest is conducted. The intent of the retest is to verify the component will meet the design basis parameters. The complexity of the retest depends on the complexity of the work performed or the extent that the normal configuration was changed.

Configuration Management Process Elements - Retests			
#4	#5	#6	#7
Y	Y	Y	Y

Procedures: OP 1000.006 Rev. 44, (Procedure Control)
OP 1000.024 Rev. 43, (Control of Maintenance)
OP 1025.033 Rev. 05, (Control of Post Maintenance Testing)
OP 6000.010 Rev. 06 (Design Control Process)
OP 6000.030 Rev. 07, (Control of Installation)

MOV/AOV/Check Valve Testing

Motor operated valves receive testing to verify their operation in accordance with commitments to Generic Letter 89-10. Testing includes periodic static testing and limited dynamic testing. This test data used to trend the valve performance and look for degradation in the valve operator. A program for selected air operated valves is being developed. Since this testing is relatively new, some baseline data is still being obtained. Check valves that perform safety functions are tested to verify that they will perform their required design basis functions.

Configuration Management Process Elements - MOV/AOV/Check Valve Testing			
#4	#5	#6	#7
Y	Y	Y	Y

Procedures: OP 1000.009 Rev. 27, (Surveillance Test Program Control)
OP 5120.260 Rev. 02, (IST Program Administration)
OP 5120.200 Rev. 02, (ISI Program Administration)
OP 5120.410 Rev. 01, (Check Valve Inspection)
OP 1025.011 Rev. 06, (MOV Maintenance Program)

Heat Exchanger Testing

Testing for safety-related heat exchangers is performed in accordance with NRC Generic Letter 89-13. Initial and periodic testing of safety-related heat exchangers cooled by service water is accomplished to confirm their heat transfer capability meets its intended design function.

Configuration Management Process Elements - Heat Exchanger Testing			
#4	#5	#6	#7
Y	Y	Y	Y

Procedures: OP 1000.006 Rev. 44, (Procedure Control)
OP 1000.009 Rev. 27, (Surveillance Test Program Control)
OP 1001.009 Rev. 20, (Master Test Control List)
OP 1309 Series (U1 Engineering Periodic Activities)
OP 2311 Series (U2 Engineering Periodic Activities)
Service Water Integrity Program (SWIP) Manual

Snubber Testing

Snubbers are tested per requirements specified in the individual site Technical Specifications. The snubbers are tested for free motion and activation. Free motion tests verify that the snubber will allow for thermal growth. The activation tests verify that the snubber will restrain movement in a transient condition.

Configuration Management Process Elements - Snubber Testing			
#4	**#5**	**#6**	**#7**
Y	Y	Y	Y

Procedures: OP-1000.009 Rev. 27, (Surveillance Test Program Control)
OP-1001.009 Rev. 20, (Master Test Control List)
OP-1000.006 Rev. 44, (Procedure Control)
OP-1306.023 Rev. 10, (Snubber Functional Testing)
OP-1306.003 Rev. 20, (Snubber Visual Inspection)
OP-1306.030 Rev. 03, (Snubber Pre-Heatup Walkdown)
OP-1402.130 Rev. 07, (Snubber Removal and Installation)

Integrated and Local Leak Rate Testing

In accordance with 10CFR50, Appendix J, integrated and local leak rate testing is conducted periodically for the containment as a whole (integrated testing) and individual containment penetrations (local testing).

Configuration Management Process Elements - Integrated and Local Leak Rate Testing			
#4	**#5**	**#6**	**#7**
Y	Y	Y	Y

Procedures: OP-1000.009 Rev. 27, (Surveillance Test Program Control)
OP-1001.009 Rev. 20, (Master Test Control List)
OP-1000.006 Rev. 44, (Procedure Control)
OP-1304.023 Rev. 16, (LLRT of Electrical Penetrations)
OP-1305.031 Rev. 03, (Integrated Leak Rate Testing)

OP-5120.400 Rev. 01, (Unit 1 Integrated Leak Rate Test)
OP-2305.017 Rev. 08, (LLRT)
OP-2305.036 Rev. 00, (OP Control Integrated Leak Test)
OP-5120.401 (Unit 2 Integrated Leak Rate Test)
HES-02 (Containment Leak Rate Testing Program)

Ventilation Filter Testing

The engineered safety feature filters are tested to ensure that they will perform their function of removing radionuclides from air before it is exhausted to the atmosphere. This testing is per Reg Guide 1.52, Reg Guide 1.140, and ANSI N510.

Configuration Management Process Elements -Ventilation Filter Testing			
#4	#5	#6	#7
Y	Y	Y	Y

Procedures: OP 1000.009 Rev. 27, (Surveillance Test Program Control)
OP 1001.009 Rev. 20, (Master Test Control List)
OP 1000.006 Rev. 44, (Procedure Control)
HES-06 Rev. 2, (Ventilation Filtration Testing Program)

Pressure Testing

In service pressure testing is performed on ASME Section III Class 1, 2, and 3 piping and components over a specified period. This testing consists of a visual inspection of the piping while it is at normal operating pressure.

Configuration Management Process Elements - Pressure Testing			
#4	#5	#6	#7
Y	Y	Y	Y

Procedures: OP 1000.009 Rev. 27, (Surveillance Test Program Control)
OP 1001.009 Rev. 20, (Master Test Control List)
OP 1000.006 Rev. 44, (Procedure Control)
OP 5120.247 Rev. 00, (Pressure Test)

Fire Protection Testing

The fire protection system consists of several sub-systems such as fire barriers, fire detection equipment, and fire pre. .ntion equipment. They each receive testing to ensure

their performance is within the design requirements established for the system or component.

Configuration Management Process Elements - Fire Protection Testing			
#4	#5	#6	#7
Y	Y	Y	Y

Procedures: OP 1000.009 Rev. 27, (Surveillance Test Program Control)
OP 1001.009 Rev. 20, (Master Test Control List)
OP 1000.006 Rev. 44, (Procedure Control)
OP 1000.047 Rev. 12, (Control of Combustibles)
OP 1003.001 Rev. 00, (Fire Protection Procedure Review)
OP 5010.022 Rev. 00, (Fire Barrier Penetration Log Control)

CONDITION MONITORING

As with performance monitoring, condition monitoring ensures design parameters have been maintained. Condition monitoring processes are not utilized to introduce a permanent plant configuration change.

For this set of processes, our evaluation focus is on how the results of the monitoring activity are used to confirm that the plant condition is maintained consistent with the design basis. While we recognize that the reason for monitoring activities is founded upon the design and licensing bases, we have chosen to restrict our review to those process control elements (Table 2 of Attachment 1) associated with the monitoring output:

4. Document Update Controls
5. Interface controls - for communicating the results of the monitoring,
6. Restoration controls - for restoring any plant configuration changes needed to perform the monitoring, and
7. Deficiency controls - for documenting and resolving any monitoring results which exceed acceptance criteria.

<u>Inservice Inspection (ISI) Program</u>

The purpose of ISI is to ensure the continued structural integrity of the pressure-retaining boundary of ASME Section III Class 1, 2, and 3 mechanical systems. This is accomplished by performing regularly-scheduled non-destructive examinations (NDE). ISI activities are performed in accordance with requirements published in 10CFR50.55a(g) and ASME Section XI.

ISI Program activities include the development and submittal to the NRC of a 10-Year ISI Plan which details the scope of ISI examinations for each nuclear unit. These Plans include the selection of components for examination to comply with mandated requirements as well as relief requests whenever compliance with ASME Code requirements is not practical. Reports are filed periodically with the NRC to document completion of the examinations as well as compliance with other requirements, such as proper selection of components, calibration of equipment, and qualification of examination personnel.

Configuration Management Process Elements - In-Service Inspection			
#4	#5	#6	#7
Y	Y	Y	Y

Procedures: OP 5000.006 Rev. 01, (ISI Program Administration)
OP 5120.200 Rev. 02, (ISI Program Implementation)
OP 5120.201 Rev. 01, (Control of ISI Program Documents)

ANO 1 ISI Program Manual
ANO 2 ISI Program Manual
HES-09 Rev. 01, (ISI Program Standard)
OP 1000.006 Rev. 44, (Procedure Control)

Corrosion Monitoring

The purpose of corrosion monitoring is to routinely inspect systems that have some indication of susceptibility to one or more forms of corrosion such as Flow Accelerated Corrosion, Boric Acid Corrosion, and Microbiologically Influenced Corrosion. This information is regularly trended and evaluated to identify degrading conditions before they prevent the system from performing its intended function.

Configuration Management Process Elements - Corrosion Monitoring			
#4	**#5**	**#6**	**#7**
Y	Y	Y	Y

Procedures: OP 5120.430 Rev. 03, (Flow Accelerated Corrosion(FAC) Prevention Program)
OP 5120.440 Rev. 02, (Inspection and Evaluation of Boric Acid Leaks)
HES-05 Rev. 01, (Flow Accelerated Corrosion(FAC) Program Standard)
OP 5000.005 Rev. 00, (Boric Acid Corrosion(BAC) Prevention Program)
HES-10 Rev. 0, (Boric Acid Corrosion(BAC) Program Standard)
Service Water Integrity Program (SWIP) Manual
Chemistry Sampling Procedures

Notes: ANO Plant Chemistry routinely samples Primary and Secondary system for corrosion products and operates corrosion inhibiting systems as needed. ANO Engineering Programs administers the FAC and BAC prevention and analyses programs. MIC is monitored under the SWIP Program

Non-Destructive Examination (NDE)

The NDE program consists of testing to detect internal or concealed defects in materials. This program uses non-intrusive techniques and is performed as a subset of other programs such as ISI, surveillances, retests, corrective action etc.

Configuration Management Process Elements - Non-Destructive Examination			
#4	**#5**	**#6**	**#7**
Y	Y	Y	Y

Procedures: OP 1000.061 Rev. 05, (Control of Site NDE)
QCO-10 (Qualification, Training, and Testing of NDE Personnel)
OP 1415.XXX Series, (NDE Procedures)

Welding Program

10CFR50, Appendix B, 10CFR50.55a, and ASME Sections III and IX form the basis for the EOI welding program. The EOI welding program consists of one administrative procedure - EP-P-001, thirty-one standards, and numerous Welding Procedure Specifications (WPSs). Procedure qualification testing, performance qualification testing, production welding, heat treatment, nondestructive examinations (NDE), and NDE personnel qualifications and certifications are performed in accordance with these documents.

Configuration Management Process Elements - Welding Program			
#4	#5	#6	#7
Y	Y	Y	Y

Procedures: OP 1000.006 Rev. 44, (Procedure Control)
HES-04 Rev. 01, (Entergy Operation Welding Program)
OP 5000.008 Rev. 03, (Welding Administration)
OP 5120.007 Rev. 00, (Selection, Assignment, and Control of Special Process)
OP 5120.120 Rev. 01, (Weld Documentation Requirements and Controls)
OP 5120.XXX Series, (Welding Control Procedures)

System/Component Trending

System engineers collect available operating data on the plant computer and on system instruments. The computerized operations log is reviewed by engineers for significant events and subtle operating changes. Engineers review the Inservice Testing data and predictive maintenance adverse trend information. Some systems are reviewed daily, while others are reviewed only when an adverse trend appears.

Configuration Management Process Elements - System/Component Trending			
#4	#5	#6	#7
Y	Y	NA	Y

Procedures: OP 1015.006 Rev. 04, (Operations Equipment Trending Program)
OP 1025.004 Rev. 04, (Maintenance Trending Program)
OP 1045.001 Rev. 04, (Equipment Failure Trending Program)

OP 1025.040 Rev. 01, (Predictive Maintenance Programs and Communications)
OP 1025.011 Rev. 06, (Motor Operated Valve (MOV) Maintenance Program)
System Engineering Desk Guide (for Maintenance Rule Program)

Notes: System and equipment trending at ANO is performed by various groups including Operations, Maintenance, System Engineering, and Chemistry. Trending does not impact plant operation and does not require restoration controls.

Steam Generator Integrity/Eddy Current Testing Program

Steam Generator eddy current testing ensures that the structural integrity of this portion of the reactor coolant system will be maintained in accordance with USNRC Regulatory Guide 1.83, "Inservice Inspection of Pressurized Water Reactor Steam Generator Tubes, Rev. 1 July 1975."

Configuration Management Process Elements - Steam Generator Integrity/Eddy Current Testing Program			
#4	**#5**	**#6**	**#7**
Y	Y	Y	Y

Procedures: OP 5120.500 Rev. 04, (Unit 1 Steam Generator Integrity Program)
OP 5120.501 Rev. 06, (Unit 2 Steam Generator Integrity Program)
OP 1000.006 Rev. 44, (Procedure Control)
HES-27 Rev. 4, 28 Rev. 4, 35 Rev. 3, (Eddy Current Analysis Standards)
HES-23 Rev. 1, 29 Rev. 2, (Eddy Current Performance Demonstration Standards)
HES-24 Rev. 2, 31 Rev. 0, 33 Rev. 0, (Control Of Data Management Standards)
HES-32 Rev. 1, (Secondary Side Inspection Standard)
HES-26 Rev. 6, (Tube Plug Defect Management Standard)
HES-42 Rev. 0, (Tube Sleeve Management Standard)
HES-41 Rev. 2, (Loose Parts Tracking Standard)
HES-34 Rev. 0, (OTSG Fouling Prediction Standard)

CORRECTIVE ACTION PROCESS EFFECTIVENESS ELEMENTS

As discussed in Section VI (Response to question (a)), in order to make a judgment about the completeness of the process(es) that could affect corrective action, it is necessary to identify such processes and determine the configuration management elements that are necessary for effective corrective action. Unlike configuration management, corrective action is a single process, therefore, (as noted in Section VIII, Response to question (d)) it is only necessary to identify the process effectiveness elements in order to make a judgment about the completeness of the corrective action process.

Table 3 in Section VIII identified the corrective action process elements necessary for an effective corrective action process. Each element in the table is described below. (It is worthwhile to note that reportability, which is specifically addressed in question (d), is discussed as a subset of Element #1, below.)

Element #1 - Problem Identification

Conditions adverse to quality (10CFR50 Appendix B, Criterion 16) must be formally identified and documented for processing within the corrective action program. The threshold for problem identification should be sufficiently low that if an individual is in doubt as to whether to document a condition, it will be documented.

The initial problem identification step triggers other related processes:

- Operability - A degraded or non-conforming condition should receive a prompt determination of operability (i.e., a judgment as to whether the affected structure, system or component can perform its safety function).

- Reportability - A condition adverse to quality should be evaluated to determine if the condition is reportable to the NRC in accordance with various regulations. The primary regulations governing reportability are 10CFR50.72 (1 and 4 hour verbal reports), 10CFR50.73 (Licensee Event Reports) and 10CFR21 (Basic Component Defects). Other regulations (e.g., 10CFR50.46) also contain reporting requirements which must be considered.

As part of the problem identification element, it should be determined if the condition constitutes a significant condition adverse to quality (within the meaning of 10CFR50, Appendix B, Criterion 16). This determination will be used in the next element to decide upon the depth of cause analysis necessary.

An important aspect of the problem identification element is a determination of generic applicability - i.e., is the deficiency unique or could it apply to related components or

processes? If generic, the scope of subsequent corrective action must take this into account.

Element #2 - Cause Determination

Those deficiencies that are determined to be a significant condition adverse to quality receive a formal root cause evaluation. The technique chosen for the evaluation (e.g., barrier analysis, HPES, etc.) is a function of the type of deficiency to be addressed. The root cause evaluation (including problem statement, analysis and root cause(s)) is documented and distributed for management review.

Those deficiencies that are determined to not be a significant condition adverse to quality receive an apparent cause determination. Apparent cause is determined by the assigned individual and documented on the appropriate deficiency document.

Element #3 - Corrective Actions

Corrective actions are developed to address both the immediate deficiency and the root/apparent cause(s). With respect to cause, corrective actions are intended to prevent recurrence of the identified cause(s). Once developed, corrective actions are documented on the associated deficiency document.

Corrective actions should address generic implications (if any) through an expansion of activity beyond the immediate deficiency. Priority of corrective action implementation is addressed through development of an implementation schedule commensurate with the safety significance of the deficiency. Each action is assigned to a responsible individual and/or group, and acknowledged.

Element #4 - Tracking

Corrective actions, once identified and assigned, are tracked to completion. A tracking system exists that can be periodically updated concerning corrective action status, and can identify near-due and past-due corrective actions. Responsible individuals/groups are notified of past-due corrective actions and are expected to take early action to implement the corrective action or provide justification for extending the implementation schedule. Schedule extensions include confirmation that the new schedule remains consistent with the safety significance of the deficiency.

As corrective action implementation proceeds, additional corrective actions may be identified. Such corrective actions should be added to the deficiency document and treated as discussed under Element #3, above.

Element #5 - Closure

Closure of corrective action consists of documentation of completion of corrective action and confirmation that corrective action was implemented and effective. Documentation of completion of corrective action is generally supplied by the assigned individual/group. Confirmation of corrective action implementation is generally conducted by an independent group/individual.

Element #6 - Link to Trending

The corrective action problem statements and cause(s) are periodically entered into a trending process for the purpose of identifying adverse repetitive trends. The trending process, upon identifying a condition adverse to quality, documents the condition in accordance with Element #1, above.

Element #7 - Periodic Effectiveness Review

The corrective action process is periodically reviewed to determine the effectiveness of the process. Process deficiencies are documented and addressed through the corrective action process.

As was done in Appendix A for configuration management processes, the remainder of this Appendix notes the procedure(s) that implement the corrective action process elements and determines if applicable process elements are present in the procedures. Should a process element be missing, we also note the plans to repair that omission.

Corrective Action Process Elements						
#1	#2	#3	#4	#5	#6	#7
Y	Y	Y	Y	Y	Y	Y

Procedure: OP 1000.104 Rev. 13 , (Condition Reporting and Corrective Action)