

UNITED STATES GOVERNMENT

## Memorandum

TENNESSEE VALLEY AUTHORITY

TO : S. A. White, Manager of Nuclear Power, LP 6N 38A-C

FROM : K. W. Whitt, Assistant Director, Nuclear Manager's Review Group,  
716C EB-C

DATE : August 6, 1986

SUBJECT: NUCLEAR SAFETY REVIEW STAFF (NSRS) CORRECTIVE ACTION REVIEW

On or about February 26, 1986, I discussed with you and Chuck Mason a corrective action review that NSRS had performed and was in the process of documenting in a report. I informed you that the review had been completed in the early summer of 1985 and the report had not yet been prepared to the point that it had been presented to me for review. I told you that NSRS was having a great deal of difficulty in preparing the report, and that the supervisor in charge of the review had informed me that a significant rewrite of the report was necessary at that time (late February). Further, some of the information contained in the report might be outdated and not representative of present conditions.

Based on this information, I recommended to you that work be discontinued on the preparation of the report and that another review be initiated to assess the current conditions of the Corrective Action System. All applicable information contained in the present draft report would be used in the new review. You agreed with the recommendation. However, Chuck Mason requested that the repeat review not be initiated for a few months (three to five months) so that a more realistic picture of the improved corrective action program would be reflected. This sounded logical and was agreed to. The agreement was discussed with the reviewers by the Reviews Branch supervisor and they concurred in the plan. Work was stopped on report preparation in early March.

In early April, I learned that I would be replaced as Director of NSRS. During this same timeframe, I learned that I would no longer have authority to select and perform reviews. I, as well as others in the new NMRG, have attempted to get a review of corrective action initiated. Our efforts have not been successful. I do not know the reasons for the reluctance to do such a review. Further, I am not aware of the source of the reluctance.

The Nuclear Regulatory Commission (NRC) and the TVA Inspector General's Office and others have questioned me about the NSRS Corrective Action Review and why the report was not issued. I have taken and will continue to take responsibility for recommending that the report not be issued. I made the recommendation in good faith,

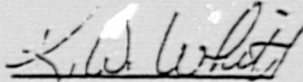


2

S. A. White

NUCLEAR SAFETY REVIEW STAFF (NSRS) CORRECTIVE ACTION REVIEW

believing that I could have another review performed in a timely manner. I fully understand that it is your responsibility to make the decisions regarding the performance of another review or issuing the report of the review performed in 1985. Failure to take either of these actions could, and probably would, be interpreted by NRC as an attempt to withhold information and cover up a safety issue. I am leaving TVA this week and do not wish to further influence your decisions in this matter.

  
K. W. Whitt

KWW:NSM

cc: Horace W. Bennett, W12 099 C-K  
Arthur G. Debbage, ONP, Watts Bar  
Robert Griffin, LP 2N 97B-C  
Joan T. Muecke, 708E EB-C  
R. K. Seiberling, 716C EB-C  
Richard D. Smith, 701A EB-C



UNITED STATES GOVERNMENT

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## Memorandum

TENNESSEE VALLEY AUTHORITY

TO : R. K. Seiberling, Director, Nuclear Manager's Review Group, 716C EB-C

FROM : S. A. White, Manager of Nuclear Power, LP 6N 38A-C

DATE : SEP 05 1986

SUBJECT: NUCLEAR SAFETY REVIEW STAFF (NSRS) CORRECTIVE ACTION REVIEW

This refers to K. W. Whitt's memorandum to me dated August 6 providing the chronology of events regarding the Corrective Action Review performed by the former NSRS. Shortly after my arrival, I met with Mr. Whitt regarding draft report R-85-17-NPS. Mr. Whitt indicated the report had not received adequate attention during the seven months since the actual review was completed and was not ready for issuance. He impressed on me that the quality of the report was poor and that it was incomplete and inaccurate. Mr. Whitt also indicated there were errors in the report, many of the findings would not reflect improvements made in the months since the review had been conducted, and the report required extensive rewrite to be publishable. I accepted Mr. Whitt's recommendation to not issue the report.

The Corrective Action System is an essential and important part of our nuclear recovery program.

I request the Nuclear Manager's Review Group initiate a review of the Corrective Action System. The earlier work by NSRS should be incorporated as appropriate.

The review should be completed by November 14 and the report issued by December 28. Any substantive findings discovered in the course of your work should be brought my attention prior to report issuance.

*S. A. White*

TBJ:CLB

cc: RIMS, MR 4N 72A-C (w/copy of Incoming)  
H. W. Bennett, WL2 D99 C-K  
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DRAFT

11/12/85

TENNESSEE VALLEY AUTHORITY  
NUCLEAR SAFETY REVIEW STAFF  
NSRS REPORT NO. R-85-11-NPS

SUBJECT: MAJOR MANAGEMENT REVIEW OF CORRECTIVE ACTION

DATES  
OF REVIEW: MAY 13 - JULY 10, 1985

TEAM LEADER:

A. G. DEBBAGE

DATE

REVIEWERS:

H. W. BENNETT

DATE

R. J. GRIFFIN

DATE

J. T. MUECKE

DATE

APPROVED BY:

M. S. KIDD

DATE



## TABLE OF CONTENTS

	<u>Page</u>
I. BACKGROUND . . . . .	1
II. SCOPE . . . . .	1
III. MANAGEMENT SUMMARY . . . . .	2
IV. CONCLUSIONS/RECOMMENDATIONS . . . . .	14
V. DETAILS . . . . .	26
A. Program Adequacy . . . . .	26
B. Program Implementation . . . . .	32
C. Selected Program Implementation Functions . . . . .	34
1. Inspection Rejection Notices . . . . .	34
2. Corrective Action Reports/Discrepancy Reports . . . . .	37
3. Nonconformance Reports . . . . .	41
4. Tracking Systems . . . . .	54
5. Trend Analysis . . . . .	59
6. Corrective Action Priority . . . . .	68
7. Quality Bulletin Program-OC . . . . .	70
8. Quality Assurance . . . . .	71
9. Interface Problems . . . . .	84
10. Management Attitudes . . . . .	86
D. Special Problems . . . . .	93
1. Nonconformance Report OE/NUC PR Interface . . . . .	93
2. Nuclear Regulatory Commission/Outside Agency Review . . . . .	95
3. Browns Ferry Regulatory Performance Improvement Program . . . . .	107
4. Drawing Control . . . . .	110
5. Cable Routing, Installation, And Inspection . . . . .	112
6. Interoffice Control Of Nonconformances . . . . .	113
7. Quality Problems . . . . .	116
8. INPO Construction Evaluation of WBN And BLN . . . . .	117
VI. PERSONNEL CONTACTED . . . . .	118
VII. REFERENCES . . . . .	122

## I. BACKGROUND

At the end of 1984 NSRS scheduled a management review of the corrective action process to begin approximately April 1985. In January 1985, Browns Ferry Nuclear Plant (BFN) was still operational and the BFN Regulatory Performance Improvement Program (RPIP) had been in existence for one year. The NRC Systematic Assessment of Licensee Performance (SALP) Board had reviewed TVA activities during the period January 1, 1983, through February 29, 1984, and issued its report June 12, 1984. The overall evaluation stated that TVA still experienced difficulty in preventing problems identified at one site from recurring at one or more of the other sites. Lack of timely corrective action continued to be a problem when interdivisional coordination was required for resolution of issues. BFN was given a low SALP rating. One cause of the problem areas was lack of management attention to the identification of the root cause of problems and inadequate corrective action.

At BFN on August 14, 1984, overpressurization of unit 1 core spray system occurred and resulted in a civil penalty of \$100,000. During the return to service of unit 3 on October 22, 1984, the NRC stated that BFN violated its technical specifications, failed to follow plant procedures, and failed to ensure adequate management control. This was the first serious indication that the BFN RPIP had not reached the level of implementation expected. In January 1985 the Office of Engineering (OE) issued a nonconformance report (NCR) identifying the potential inaccuracy of the Sequoyah Nuclear Plant (SQN) pressure differential transmitters. These transmitters measure the pressure differential between the inside and outside of the steel containment vessels, and the ability of the transmitters to perform accurately in the environment following a design basis accident was questioned. The Failure Evaluation/Engineering Report (FE/ER) for the NCR was issued in March. The NRC was concerned with the time taken to issue and process the NCR. The NCR issued an order modifying SQN and BFN operating licenses while the NSRS corrective action review was in progress.

At BFN unit 2 had been shutdown for refueling September 15, 1984. Unit 1 was shutdown March 19, 1985, following problems identified during local leak rate testing. Unit 3 was shutdown March 9, 1985, following discrepancies in instruments measuring the level of cooling water above the core and improper operator actions. This resulted in a civil penalty of \$150,000. At the time of the NSRS review, BFN was completely shutdown. The management review of corrective action began May 13, 1985, and ended July 10, 1985.

## II. SCOPE

This major management review was undertaken to determine the corrective action program adequacy and the effectiveness of its implementation. The review was conducted at the Office of Engineering (OE) and Office of Construction (OC) in Knoxville, the Office of Nuclear Power (NUC PR) in Chattanooga, Browns Ferry Nuclear Plant (BFN), Sequoyah Nuclear Plant (SQN), Watts Bar Nuclear Plant (WBN), Bellefonte



Nuclear Plant (BLN), and OC/OE activities at the plants. The review included examination of longstanding problems identified both within TVA and by NRC or other external organizations.

NSRS interviewed senior managers, supervisors, quality assurance staff, and other personnel involved in the corrective action process, reviewed commitments, procedures, reports, tracking records, and other documents pertaining to the control of corrective action activities.

### III. MANAGEMENT SUMMARY

#### A. Program Adequacy

At the commencement of the corrective action review the quality assurance (QA) program was examined. This consisted of examinations of upper tier documents to determine that they met all requirements and commitments for corrective action controls, then verifying that implementing procedures were adequate. The elements of a corrective action program were adequately addressed in the upper tier documents with two exceptions. There was no approved ID-QAP governing interoffice control of nonconformances, and a Topical Report commitment for monthly reporting of unresolved nonconformance reports to the Quality Manager and Construction Engineer was not included in QC QA procedures. Four areas of program weakness were noted in the OE Engineering Procedures (EPs). These concern how deficiencies identified by review organizations are distributed, no interface document for resolution of corrective actions affecting both OE and NUC PR, trend analysis program responsibilities not defined, and the restrictions on OE funding by NUC PR.

Five recommendations were made to plant implementation procedures. Interface with OE, site OE, Site Director, Plant Manager and others should be clearly defined and compatible with Design services interface controls and OE Procedure OEP-17. Dispersed corrective action instructions should be consolidated wherever possible. One duplicate procedure (SQN) was identified and one contained interface information from a cancelled document (SQN). The informal draft CAR/DR process instituted by section instruction letter PQA-SIL-3.1 had caused non issue and substantial delays in issuing CARs at WBN. NSRS recommends that the informal process be eliminated.

#### B. Program Implementation

The program implementation and its effectiveness was determined by the review of corrective action activities in OE, OC, and NUC PR central offices; OE, OC, and NUC PR at WBN and BLN; and OE and NUC PR at BFN and SQN. The training center was not included in the review. The "Selected Program Implementation Functions" in this report (sections V.C.1 through V.C.9) were developed from this review.

The Inspection Rejection Notices (IRNs) and Quality Bulletins reviewed were specific to OC only. IRNs are generated differently at WBN and BLN with the BLN method being preferred by NSRS. The Quality Bulletin program was found to be effective as a communication tool. The Corrective Action Reports (CARs)/Discrepancy Reports (DRs) were specific to NUC PR only. The use of the number of CARs or DRs issued as a performance indicator was not considered desirable. The use of the age of CARs/DRs as a performance measure is better, but the review showed that this also has limitations. All other program implementation functions were reviewed in OE, OC, and NUC PR. These included NCRs, tracking systems, trend analysis, corrective action priority, quality assurance, interface problems, and management attitudes.

Examination of significant NCRs generated in OE indicated that many had not received prompt corrective action. Major problems with closing NCRs were ineffective interfacing within OE and with NUC PR and the inability to establish realistic commitments concerning the time needed for OE to complete a job. Examples are given showing that even after years of NUC PR/OE interfacing on specific issues, differences of opinion still exist. Examination of the handling of the NCRs in OC indicated that the NCR program appeared to be functioning properly with the exception of possible failures to write NCRs based on inspections as identified by INPO. NCRs were examined at the OE units in BFN, WBN, and SQN. Many of the open NCRs were over three years old, the average age to closure being for BFN-28.2 months, SQN-31 months, and WBN-19.1 months. The Design Services budgets at BFN and SQN were reviewed and they included line items for completion of ECNs, NCR preparations and responses, and new DCRs. With the exception of WBN where a Design Services Manual was being developed, no formal procedures had been established to control the local OE/NUC PR activities. During an audit on NCRs maintained by the Compliance section at BFN, one finding identified inadequate documentation of the current status and closure of approximately 50 NCRs. NSRS observed that BFN responded promptly to the audit findings.

OE and OC utilize TROI to track and monitor the status of NCRs, audit deficiencies, NSRS items requiring closure, NRC identified items, 50.55(e) reports, part 21 reports, Commitment Tracking Records for licensing commitments, and stopwork orders. There was a problem of dates being established for action items on TROI listings which had not been coordinated previously with a responsible party. This resulted in actions coming due before the responsible party received documentation of the problem and corresponding tasks. These problems typically involved interfaces between branches and OE/OC. The interface problem with NUC PR appeared to be at the other extreme of not being able to assign realistic action dates so a future date of 1999 would be used. Three tracking systems were intended to meet the needs of OC, these being TROI, the NCR Log, and the Commitment Tracking Index (CTI). A Commitment Tracking Program (CTP) was established in 1983 and in 1985 OC committed to proceduralize the CTI. This was implemented at BLN but not at WBN as of August 13, 1985.



In NUC PR commitment tracking was maintained in the Nuclear Central Office (NCO) and also at each plant. The movement is toward central commitment control at NCO but that was not in place during the review. BFN was using the NCO tracking system but there were also numerous plant tracking systems in use. The audit which found the problem with NCRs also identified over 24 automated and manual tracking systems for handling identified deficiencies. At SQN the major printout for C/A items was called the Corrective Action Tracking System (CATS). WBN used a CATS Log and also an action item list. BLN had a tracking system for CARs and DRs and employed a monthly corrective action summary report.

Examination of the Trend Analysis program in OE indicates that the effectiveness of the trending program has been negligible. IRN trending in OC appeared to provide useful information at BLN. At WBN the information usefulness was questionable because IRNs were not necessarily written for every appropriate instance. BLN trended NCRs by cause rather than by deficiency, which is more useful and informative than the WBN NCR trending. The Quality Problem Resolution Summary is prepared by DQA for the Monthly Top Management Meeting (MTM) held by NUC PR. Items are trended for each plant, other nuclear support divisions, and DQA. The trends so far did not indicate any improvement in the age of the quality problems being trended.

The priority of performing corrective action is tied to meeting a schedule that does not allow managers to place the appropriate priority to ensure prompt C/A on all identified problems. In general the high priority items get management attention and other items generally get ignored until the schedule turns them into high priority items.

The Quality Assurance review of the OE Quality Management Staff (QMS) included interviews with management, review of QMS audits that included corrective action in the scope, and a review of "QMS Quarterly Assessment of OE Quality" reports. The quarterly assessments agreed with the overall observations made by NSRS during the corrective action review. The audit program had not supported the assessments by conducting aggressive audits of the corrective action program to determine why timeliness and resolution of past deficiencies remain a problem. NSRS believes that these audits should be of a sufficient duration and depth to provide meaningful output to OE management concerning program implementation and effectiveness.

The role of quality assurance in the OC C/A process was evaluated by interviewing personnel inside and outside the quality assurance organizations and by reviewing audit reports and associated responses. NSRS found that responses to audit deviations were generally adequate and timely. But the scope, depth, and adequacy of the audits could be improved.

Quality Assurance in NUC PR included a review of the function performed by the Division of Quality Assurance (DQA) management in the identification of problem areas and the corrective action process. Corrective action/correction of deficiency audits were examined. A random sample of other reports and correspondence related to the deficiencies identified in these reports were reviewed. During the interviews with DQA management all agreed that more line involvement was needed in improving the corrective action process. Interviews with auditors revealed that only too frequently a problem would be identified to a plant and basically nothing was done to correct the problem. At a later date the NRC would issue a notice of violation to the plant for the same problem.

Interface Problem review included internal interfaces and external interfaces. No problems were identified in OE when corrective action was limited to involvement of one discipline within a project. However, a general perception existed of not being able to resolve corrective action quickly when multiple disciplines were involved.

Personnel interviewed in OC generally indicated no problems in interfacing with other organizations in OC. Communication on a personal level appeared to be good at each of the sites, though very little need for communication between WBN and BLN was recognized.

For the OC/OE interface OC personnel expressed the concern that when NCRs must be handled by the OE branches, they have no effective interface. OC personnel stated that they have had difficulty finding the proper contact and that often the responsible OE branch person was unresponsive and seemed to place little priority on the site NCRs.

The NUC PR/OE interface had been, in theory, improved for operating plants due to locating OE personnel at the plant site. However, the locating of OE people at the sites had not eliminated interface problems. OE still maintained NCRs which required NUC PR to perform corrective action. During the review no procedure existed which addressed the OE/NUC PR interface on NCR corrective action and disposition.

Management attitudes in OE were examined by a historical review of OE corrective action. In general, a lack of timeliness and responsiveness towards corrective action had been acknowledged by OE Management for years. This awareness had led to years of discussions, action plans, task forces, and memorandums and had resulted in a policy of corrective action that was directly related to meeting either OC or NUC PR schedules. A recent example is given in this report of an NSRS review of OE activity completed March 29, 1985 and as of July 30, 1985 the response was still unacceptable. Management attitudes in OC toward C/A were evaluated by interviewing managers and their subordinates and by reviewing various C/A taken. C/A emphasis or priority appeared



to be dependent on the good intentions of individuals rather than being built into the system.

Management attitudes in NUC PR were obtained during interviews. There was general agreement among those contacted that TVA has to do a better job with timely and effective corrective action. The problem was in how to change old thoughts and mindsets. There is an attitude change needed regarding correcting problems. That is, when deficiencies are recognized, the need is to correct them, not to skirt around the issue.

TVA was felt as not having defined itself adequately to the NCR. What was regarded as necessary was a well defined focal point and a clear-cut organizational structure. The recent appointment of Hugh Parris as head of TVA's nuclear business was regarded as a strong step in this direction. The need for "getting your signals straight" had to start at the top. The need for more realistic goals and objectives was expressed. TVA would have to get good at the nuclear business before aiming at being the best.

#### C. Special Problems

A summary of NSRS report R-85-08-OE/NUC PR dealing with the OE/NUC PR interface handling of nonconformance reports is included as an example of failure to take timely, responsive, corrective action. A summary of NSRS report I-85-06-WBN dealing with cable routing, installation, and inspection practices is included to show that the corrective action system in place from 1979 through early 1985 was incapable of correcting difficult problems in a timely manner. The need for a procedure to control the inter-divisional handling of nonconformance reports was first identified early 1981 in an audit report. The history of the effort to produce the procedure has been summarized. As of August 1985 the procedure had still not been issued. The Quality Problem program was initiated by OQA to identify and address long-standing problems. During this NSRS review it was noted that it had been omitted from the transition plan when responsibilities for QA were transferred from OQA to DQA.

A review was conducted on how TVA is seen and responds to outside agency reviews. Included were the NRC, INPO, and the Management Analysis Company (MAC) review of BFN. Instances were found of inadequate responses by TVA to NRC notices of violation. NRC SALP reports were examined and extracts from the SALP report January 1, 1983 to February 29, 1984 are included. It was concluded that positive corrective action to NRC concerns would have provided an improved regulatory environment. INPO evaluations conducted from 1981-BFN, 1982-SQN, 1984-BLN, 1985-WBN, plant responses to INPO identified problems, and plant subsequent actions were examined. It is concluded that management did not ensure that all identified items were corrected, or that problems identified at one plant were reviewed for applicability to other plants. The MAC report was an excellent summation of the situation at BFN around May 1984. When issued, the report received

NUC PR top management review. It is observed that not all of the recommendations made have been implemented.

The BFN Regulatory Performance Improvement Program (RPIP) was reviewed since it is the largest corrective action program undertaken by NUC PR, excluding the BFN fire restoration program. It had been preceded by a 6-point program which had replaced the 8-point program neither of which had been successful. BFN management worked hard on the RPIP and some major accomplishments were made. But the RPIP failed to attain the desired level of regulatory performance. The control of as-built drawings was selected for review since it was first identified as a problem at BFN in 1975 and subsequently in a 1981 audit.

D. Root Causes

Interviews were conducted with Site Directors, Plant Managers, OE, OC, and NUC PR Managers and Supervisors, the Director of QA and his staff, and others involved in the correction action process, to obtain their perspective on the handling of problems experienced by TVA in the nuclear power program. This listing of root causes was largely developed from these interviews. No attempt has been made to place the root causes into any special order of importance.

1. Lack Of Strong Management Controls

a. Failure to Take Ownership of Problems

The review team observed a need to assign responsibility for correcting items identified in the various corrective action processes and to hold people accountable for their results (or lack of results). This was similar to a common thread found at plants which had a reputation within INPO and NRC for controlling outages successfully. They assigned responsibility and authority for each outage item to one person. (See NSRS Report No. R-84-27-SQN/BFN, page 4.) During this review too much layering of responsibility and authority within the TVA nuclear organization was observed which strapped the resources available. Responsibilities for C/A appeared to be diffused to the point that individuals generally dealt only with very small parts of any specific C/A. There appeared to be a need for clean-cut lines of responsibility top to bottom.

b. Lack of Good Performance Indicators

Management was perceived to be sending out the wrong signal on what they wanted in the corrective action processes by tracking and reporting on the number of



open items requiring corrective action and in some cases setting goals in hopes of limiting their number. (For a discussion of the negative aspects of this numbers game or "bean count" as it was widely referred to, see the CAR/DR section V.C.2.) A good performance indicator would be one which provides management with a measure of the success of their C/A program without discouraging people from identifying problems.

c. Office Level Interfaces

Office level interfaces in C/A have been known to be deficient in various ways for many years. Organizational pride and/or territorial jealousy have kept these interfaces from being properly addressed (see sections V.C.9, V.D.1, and V.D.6).

2. Lack of Stability

a. Lack of Stability in Organization Structure

For various reasons the TVA organization assigned to handle the nuclear program was reorganized several times in recent years. At the time of this review major restructuring was taking place barely a year after a major reorganization. The state of flux resulting from these changes was mentioned most often by the managers interviewed as a root cause of TVA's problems. It was felt that TVA lacked self-discipline as an organization and that it needed to establish a program and stay with it.

Reorganizing itself was not the problem but the prolonged, indecisive way in which TVA went about the process created confusion and demoralization. Each reorganization was presented as a concept which then gradually evolved over a long period of time rather than as a well thought-out, detailed package which could serve as a guideline to the new way of doing business.

b. Lack of Stability in Upper Tier Documents

While the review was in progress the entire corporate level of documents was being reviewed for planned major changes. The Nuclear Quality Assurance Manual (NQAM) which documented the overall quality assurance program for TVA's nuclear plants was initially issued on December 31, 1984 by combining and replacing four other sets of manuals: The Office of Power Quality Assurance Manual (OP-QAM), OEDC Quality Assurance Program Requirements Manual for Design, Procurement, and Construction (PRM), Division of Nuclear Power Operational Quality Assurance Manual (OQAM), and Interdivisional Quality

Assurance Procedures Manual (IPM). Then, just months later, efforts were underway to rework or completely dismantle the entire NQAM.

A similar fate was being planned for the Office of Power Area Plan Manuals. The area plan concept developed after an earlier reorganization was an attempt to take the Division Procedures Manual (DPM) and other corporate level documents in areas such as Health Physics, Radiological Emergency Planning and Occupational Safety and group them into nineteen areas of expertise. This area plan concept was also to determine the grouping of central office support, and even budget categories. The area plan concept was never fully implemented nor understood, but now it was considered necessary to transfer control of most of the area plans to the individual sites as a result of the decentralization.

It had been shown at Sequoyah that even minor changes in upper tier documents (such as title changes) caused large perturbations in site level document control systems. Large upheavals such as those just described have required a major rework of the plant documents. The result had been a strain on the plant document control system and the review process. (For a further discussion of the upper tier documents, see the Program Adequacy Section, V.A.1.)

### 3. Misconceptions About Quality Assurance (QA)

#### a. Not Understood to be a Line Function

When TVA first established a QA group within the nuclear system, the perception arose that quality assuring and quality control were something that the QA/QC people took care of. The result was craftsmen who came to rely on the inspectors to "inspect in" or "audit in" quality. Even some managers came to rely on QA to tell them if corrective action was complete and accurate rather than establishing their own methods of tracking and verifying. These attitudes were felt to be gradually being erased but there was still a definite need for line management to take aggressive ownership of the corrective action process and to find innovative ways to make it work better.

#### b. Quality Assuring Versus Paperwork

Too often the corrective action process was looked on as getting in the way of productive work. There was a lack of appreciation for or understanding of the need to document all the steps necessary for successful



corrective action such as tracking, root cause analysis, and generic problem identification by other sections or other plants. As mentioned in the section on CARs/DRs (section V.C.2) auditors were told by management at one plant that all emphasis was placed on immediate correction of a problem and that the paperwork process would only hinder their efforts to correct the deficiency.

Similarly, the efforts by internal auditors seemed to be unappreciated and generally ignored until the same problems they had identified over and over were cited by the NRC.

#### 4. Failure to Set Priorities

##### a. Trying To Do Too Much at Once

TVA is considered by NRC and others as good at problem identification but poor at problem solving. Part of this was felt to be an over-commitment to regulating authorities, such as in the area of plant modifications, which led to back-to-back outages and eventually overlapping outages. TVA was acknowledged to have the manpower and other resources, but without strong leadership, these resources were not being properly utilized. There is a need to assign ownership to individual problems, analyze them and decide what is and what isn't going to be done. Once major problems are identified, efforts need to be concentrated on fixing one problem before moving on to the next one. A major result of years of failure to properly scope problems is a large backlog of incompletable problems which skew any attempts to prioritize and manage new ones.

##### b. Lack of Follow-Up

There was evidence that symptoms of problems were being treated without doing adequate root cause diagnosis. This failure in the corrective action process was cited time and again by the NRC as a major TVA problem. One suggestion to overcome this would be for line managers to assign each item to an individual who was required to follow it through to completion.

#### 5. Failure to Eliminate Root Causes

Identifying the real root causes of failures in the corrective action process and taking actions to eliminate the root causes has been an impossible task for OE. Historically, OE has repeated a cycle of acknowledging the problems of the system through memorandums, establishing task forces to provide recommendations, implementing recommendations, and

then identifying similar problems in the corrective action system a few years later.

The following four root causes are taken from the 1982 Action Plan for Quality Improvement. These root causes still existed during the corrective action review in spite of years of work and expended manpower on various task forces to resolve root causes. The quotes are excerpts from the December 31, 1981 report. The references listed provide an example of the same type of root cause identified during the current corrective action review.

a. Positive Attitude and Approach

"The lack of positive attitude and approach in responding to and resolving issues and deficiencies which have been identified by NRC OI&E and by QA and QC organizations has contributed to our low evaluation by NRC . . . . The lack of an OE positive attitude toward resolving problems identified by NSRS is discussed in paragraph V.C.10.b.

b. Authority, Responsibility, and Accountability

"The size and complexity of our organization, and our failure in some areas to clearly define authority, responsibility, and accountability has resulted in inadequate treatment of some issues, buckpassing, and lack of accountability for inadequate action or lack of action."

The root cause was initially written for OEDC. However, this root cause can be expanded to the entire Office of P&E (Nuclear). An example of the lack of accountability for inadequate corrective action was identified in section V.C.3. This section on TROI, emphasized that OE utilizes dates of 1999 for unscheduled NUC PR actions. OE basically does not have responsibility to see that the action is completed in a timely manner.

c. Timeliness

"The timeliness and thoroughness in implementing corrective action and in documenting and reporting the concerns and conditions adverse to quality have often been inadequate."

An example of this inadequacy was identified during NSRS review, R-85-08-OE/NUC PR. This report is briefly summarized in Section V.D.1. The NSRS report concluded that there was a failure of management to correct problems with timeliness and responsiveness involving the NCR-FE/ER process. Section V.C.3 also documents examples of NCR's which have untimely corrective action.



d. Procedures

"Failure to follow procedures and inadequate procedures are the cause of almost one-half of the findings, violations, and nonconformances against OEDC."

This original root cause for OEDC can also be expanded to the Office of Nuclear Power. "Failure to follow procedures" has historically resulted in a continual revising of organizational procedures. There are also cases of inadequate or non-existent procedures defining interfaces between NUC PR/OE/OC to accomplish corrective action. (Refer to V.C.11 and V.D.6 for details.)

An additional root cause identified during the corrective action review:

e. Trend Analysis Program

The OE trend analysis program has been developing for over 10 years. (The present trend system is discussed in V.C.5). Management has not developed and utilized the trend analysis system to provide timely identification of trends and correct root causes to preclude repetition in the future.

6. QA/QC Organizations Inadvertantly Contributing to C/A Problems

QA/QC organizations have set poor examples of attitudes toward quality. Line organizations can be expected to perform no better than the organizations identifying their problems. The following are examples of such problems in the QA/QC organizations.

a. Audits

QA organizations responses and follow-up have often been untimely and they have sometimes accepted inadequate corrective actions. The QA organization in place at the time of this review made audit recommendations and suggestions which did not require responses. This leads the line organizations to believe that only deviations are important enough to require attention (see section V.C.8).

b. Quality Performance Feedback For QC Inspectors

Job performance ratings for QC inspectors are generally not based on the quality of their inspections. This fosters inconsistency in inspectors attitudes toward quality (see section V.C.1).

c. CAR/DR Process

The plant QA organization at WBN circumvented the CAR/DR process by implementing the "draft" CAR/DR (see section V.C.2).

d. Quality Problems

DQA and OQA failed to properly address Quality Problems indentified by OQA beyond the normal audit process (see section V.D.7).

E. Summary of Results

The corrective action process has been found to be inadequate and forty recommendations have been made by NSRS.

F. Conclusions/Recommendation Summary

R-85-11-NPS	P&E	NUC PR	BEN	SON	WBN	OE	OC	WBN-OC
01						X		
02						X		
03							X	
04			X	X	X			
05			X					
06				X				
07				X				
08							X	
09								X
10					X			
11					X			
12	X	X				X		
13			X	X		X		
14		X		X	X			
15						X		
16						X		
17							X	
18						X	X	
19						X		
20								X
21								X
22							X	
23		X					X	
24						X		
25						X		
26							X	
27						X	X	
28						X		
29							X	
30						X		
31	X	X	X	X	X			
32			X					
33		X						



R-85-11-NPS	P&E	NUC PR	BEN	SQN	WBN	OE	OC	WBN-OC
34		X						
35		X	X					
36			X					
37	X	X				X		
38	X	X				X	X	
39	X	X						
40	X	X				X	X	

#### IV. CONCLUSIONS/RECOMMENDATIONS

##### A. Program Adequacy

##### R-85-11-NPS-01, Inadequate Procedures - OE

###### Conclusion

Procedures to distribute information concerning deficiencies identified by various review organizations such as INPO, are inadequate (refer to section V.A.3.a for details).

###### Recommendation

OE should establish program controls to ensure that deficiencies identified by organizations external to OE are adequately distributed and reviewed for corrective action.

##### R-85-11-NPS-02, Trend Analysis Program Responsibility Not Defined - OE

###### Conclusion

Trend analysis program responsibilities not adequately defined for branches and projects (refer to V.A.3.d for details).

###### Recommendation

NSRS recommends that OE establishes in branch and project procedures adequate details and definitions of responsibilities for the trend analysis program.

##### R-85-11-NPS-03, Commitment Not In Procedures - OC

###### Conclusion

Monthly reporting of unresolved NCRs to the Quality Manager and the Construction Engineer is specifically required by TVA-TR75-1A, section 17.1.16.2 but QAP-15.1, QCI-1.02, and QCP-10.4 do not include this requirement (refer to section V.A.4.a for details).

###### Recommendation

NSRS recommends that the lower tier program documents be revised to implement the topical report commitment.

R-85-NPS-04, Dispersion of Corrective Action Instructions - Generic

Conclusion

The plant implementing instructions for the corrective action process were dispersed throughout the Administrative Instruction and Standard Practice Manuals (refer to section V.A.5 for details).

Recommendation

Consolidate these documents whenever possible as the site gradually takes control of the Area Plans and NQAM material.

R-85-11-NPS-05, Clarification of Interface Procedure - BFN

Conclusion

BFN Standard Practice BF-10.7 does not distinguish between BFN site OE and OE (refer to section V.A.5 for details).

Recommendation

Interfaces with OE site OE, Site Director, Plant Manager, and others should be clearly defined and procedure BF-10.7 revised to reflect this and compatibility with OE procedure OEP-17 and Design Services interface controls verified prior to issue.

R-85-11-NPS-06, Duplication of instructions - SQN

Conclusion

Procedures SQA-26 and SQA-101 both discussed NRC-IE bulletins, circulars, and information notices (refer to section V.A.6.b for details).

Recommendation

Procedure SQA-101 should be cancelled.

R-85-11-NPS-07, Obsolete Material In Procedure - SQN

Conclusion

Procedure SQA-95 contained interface information from documents that were cancelled on January 18, 1985 (refer to section V.A.6.c for details).

Recommendation

Procedure SQA-95 should be revised or cancelled.



B. Program Implementation

Conclusions and recommendations are contained in the following paragraphs C and D.

C. Selected Program Implementation Functions

1. Inspection Rejection Notices

R-85-11-NPS-08, Inspector Job Performance Feedback - OC

Conclusion

There is a general lack of feedback to QC inspectors concerning job performance from their supervisors. Most supervisors apparently did not observe their inspectors in the field (refer to section V.C.1 for details).

Recommendation

An inspectors performance appraisal should be based primarily on the supervisor's field evaluation of the quality of a representative sample of the inspectors work.

R-85-11-NPS-09, Failure to Prepare IRNs - WBN

Conclusion

WBN allows IRNs not be prepared for deficiencies that can be corrected in the inspectors presence. This practice skews the data used for trend analysis (refer to section V.C.1 for details).

Recommendation

The practice of not writing IRNs at WBN if a problem can be corrected in the inspector's presence should be terminated, appropriate procedural changes implemented, and WBN inspectors trained to write IRNs on as-found conditions.

2. Corrective Action Reports/Discrepancy Reports

R-85-11-NPS-10, Incorrect Handling of CARs/DRs - WBN

Conclusion

Handling of CARs/DRs at WBN is outlined in AI-7.3, but PQA uses section instruction letter PQA-SIL-3.1 which established "draft" CARs/DRs. This has caused undue delays in issuing CARs/DRs (refer to section V.C.2 for details).

Recommendation

The informal draft CAR/DR process should be eliminated and PQA-SIL-3.1 modified accordingly.

R-85-11-NPS-11, Conformance to Procedure - WBN

Conclusion

Three CARs that were not issued were considered important by NSRS. The Q-list was reviewed internally by PQA starting in January and a report of their findings issued on August 26, 1985 (Quality Evaluation Report QE-85-09) and an NCR issued (W-269-P). The breakdown in the PORC review process was neither documented nor reviewed (refer to section V.C.2 for details).

Recommendation

AI-7.3, section 5.3 requires that a CAR be issued if the originator cannot be convinced that no problem exists. This should be strictly adhered to by PQA.

The CAR concerning the PORC review process should be issued.

3. Nonconformance Reports

R-85-11-NPS-12, Funding of OE Open Items - P&E

Conclusion

OE is unable to initiate prompt corrective action or perform generic investigations of CAQs unless funding is approved by NUC PR (refer to V.A.3 for details).

Recommendation

Evaluate present interface structure between NUC PR and OE to ensure that controls are in place that allow for prompt corrective action and generic issues evaluation by OE.

R-85-11-NPS-13, Inadequate Design Service Interface Program Controls - Generic

Conclusion

With the exception of WBN, no formal procedures were being developed to clearly define interface controls between Design Services Manager, Site Director, Plant Manager, and Supervisors, and Design Project Manager (refer to section V.C.3.c for details).

Recommendation

Interface controls should be developed to reflect the current onsite/offsite organizations.

R-85-11-NPS-14, Verification of Status of NCRs - NUC PR



### Conclusion

DQA audit at BEN on NCRs had resulted in a deviation No. QBF-A-85-0014-D03 requiring corrective action which should result in satisfactory handling of NCRs at BEN (refer to section V.C.3.c(2) for details).

### Recommendation

It is recommended that a similar review of all past NCRs to determine current status, providing documentation supporting corrective action on all closed NCRs and placement in a commitment tracking system with adequate commitment dates be implemented at the other plants.

## 4. Tracking Systems

### R-85-11-NPS-15, Tracking and Reporting of Open Items (TROI) Schedule Dependent - OE

#### Conclusion

A system/method of establishing priorities for completing open TROI items does not function independent of the CONST or NUC PR schedules (refer to V.C.6 for details).

#### Recommendation

Review significance of old items and establish priorities for completion.

### R-85-11-NPS-16, TROI Action Dates Not Realistic - OE

#### Conclusion

The tracking of open items system (TROI) is being utilized by management to control and document the status of open items. TROI action dates of 1999 are listed when the date of an activity is unknown. The dates usually involve interface with NUC PR (refer to V.C.3 and V.C.4 for details).

#### Recommendation

Establish realistic time frames for completion of activity. Establish interface channels with NUC PR to resolve unknown action dates.

### R-85-11-NPS-17, Commitment Tracking Index - OC

#### Conclusion

The proceduralization of the Commitment Tracking Index should improve its effectiveness (refer to section V.C.4.b for details).

#### Recommendation

Complete the proceduralization of the Commitment Tracking Index currently in progress.

R-85-11-NPS-18, TROI - Generic

#### Conclusion

TROI is used by OE and OC to assign responsibilities for C/A and to track completion of C/A, which are quality program functions. Controls on quality program functions should be part of the quality program (refer to section V.C.4.b for details).

#### Recommendation

Include the controls applied to TROI for assignment of responsibilities and tracking of completion of C/A in the program documents, or assure that these functions are provided within the system by some means other than TROI.

### 5. Trend Analysis

R-85-11-NPS-19, Inadequate Use of Trend Data Base - OE

#### Conclusion

The trend analysis program has a data base with the capability of producing meaningful, useable output to OE management. This information receives minimal attention from OE management (refer to section V.C.5 for details).

Note: In 1981, NSRS concluded that the trend analysis program was not functional (R-81-14-OEDC (BLN)-39) and had not evolved to the point of producing meaningful, useable output.

#### Recommendation

Utilize trend data base for early identification of problems. Hold OE Management accountable for utilizing trend data base effectively.

R-85-11-NPS-20, Quality Trend Analysis Reports - WBN (OC)

#### Conclusion

The WBN quality trend analysis report does not synopsise the effectiveness of past remedial actions as required by QAP-16.5 (refer to section V.C.5.b for details).



#### Recommendation

Future WBN quality trend analysis reports should synopsise the effectiveness of past remedial actions as required by QAP-16.5.

R-85-11-NPS-21, NCR Trending - WBN (OC)

#### Conclusion

Trending of NCRs at WBN does not address root causes, remedial action, or effectiveness of past remedial actions. (refer to section V.C.5.b for details).

#### Recommendation

Change the NCR trending program at WBN to address root causes, remedial actions, and effectiveness of past remedial actions similar to the BLN program.

#### 6. Corrective Action Priority

R-85-11-NPS-22, Corrective Action Priority - OC

#### Conclusion

Involvement of managers in C/A tends to be limited to dealing with the management tools for C/A rather than the C/A itself. This focuses attention on timeliness rather than adequacy of the C/A (refer to section V.C.6.b for details).

#### Recommendation

Steps should be taken to involve managers more in specific C/A in order to increase awareness of C/A quality and consequently shift the perceived management priority toward quality in C/A.

#### 7. Quality Bulletin Program - OC

R-85-11-NPS-23, Quality Bulletins - Generic

#### Conclusion

OC and NUC PR both have documents called Quality Bulletins which are numbered in the same manner and serve a similar purpose. This results in confusion (refer to section V.C.7 for details).

#### Recommendation

OC and NUC PR should collaborate to change the name and/or numbering scheme of one of the Quality Bulletin programs.

8. Quality Assurance

R-85-11-NPS-24, Increase Audit Depth - OE

Conclusion

QMS has failed to recognize and document significant deficiencies in the corrective action process (e.g. NCR FE/ER process).

Recommendation

Increase the depth of audits and concentrate on problem areas (refer to V.C.8 for details).

R-85-11-NPS-25, Audit Process Not Used - OE

Conclusion

Significant problems identified by QMS in the OE quarterly assessment report have not been pursued or investigated utilizing the audit process. In fact, the assessment and audit reports are inconsistent in the general appraisal of the corrective action process (refer to V.C.8 for details).

Recommendation

Significant problems identified by QMS in the OE quarterly assessment report to be pursued or investigated utilizing the audit process.

R-85-11-NPS-26, Audit Deviations - OC

Conclusion

Audit deviations are written only for instances of departure from specific written requirements. Other problems may be addressed in the audit report or suggestions which require no response, and seldom are addressed by the audited organizations (refer to section V.C.8.b for details).

Recommendation

All problems identified in audits should be written as deviations so they must be addressed.

9. Interface Problems

R-85-11-NPS-27, Interface-Problems - OE/OC

Conclusion



OC site personnel have problems identifying the responsible OE individual for NCRs that must be handled by the OE branches rather than the Design Project Organization (DPO). When the responsible branch individuals are known, they are generally not as responsive as the DPO personnel (refer to section V.C.9.b for details).

#### Recommendation

OE should coordinate with OC to establish a mechanism to identify responsible branch individuals for specific OC NCRs to the WBN and BLN CEOs and to ensure these individuals are responsive to CEO personnel on site NCRs.

### 10. Management Attitudes

#### R-85-11-NPS-28, Quality Policy Not Fully Implemented - OE

##### Conclusion

The quality policy issued by the OE Manager on August 21, 1984, has not been reflected in OE activities concerning prompt identification, documentation, and correction of adverse conditions (refer to V.C.10 for details).

##### Recommendation

Hold management accountable for adhering to quality policy.

#### R-85-11-NPS-29, Corrective Action Responsibility - OC

##### Conclusion

Deficiencies in the "corporate attitude" toward C/A that result in failure to take timely C/A are due, at least in part, to diffused responsibility for specific C/A (refer to section V.C.10.b for details).

##### Recommendation

Responsibility for coordinating the resolution of a specific problem, including specific C/A and action to prevent recurrence, be assigned to an individual. These individuals should have the authority to contact any person in P&E about specific problems.

### 11. Root Causes

#### R-85-11-NPS-30, Failure to Correct 1982 OEDC Action Plan Root Causes - OE

##### Conclusion

Root causes which were identified in the 1982 OEDC Action Plan for Quality Improvement were not corrected with the Action Plan and still exist within OE (refer to III.D.e for details).

#### Recommendation

Management must address root causes and establish an adequate program to eliminate root causes.

### D. Special Problems

#### 2. NRC/Outside Agency Review

##### R-85-11-NPS-31, Inadequate Responses to NRC Notice of Violation - Generic

#### Conclusion

NSRS review of responses by TVA to NRC notice of violations shows that we continue to send inadequate responses (refer to section V.D.2.a for details).

#### Recommendation

Instructions should be given to all personnel involved in the preparation of responses to the NRC. This could take the form of required reading or formal instructions. The instructions should include the impact on top management and on TVAs credibility when inadequate responses are made.

##### R-85-11-NPS-32, Increased NRC Inspections - BFN

#### Conclusion

As a result of the NRC Executive Director for Operations communications with the TVA Board of Directors, it is highly unlikely that Region II will reduce inspection levels and almost certain that inspection will be intensified at BFN (refer to section V.D.2.a for details).

#### Recommendation

Management must ensure that supervisors stress the necessity of prompt corrective action and demonstrate it in practice, for credibility with the NRC to be restored.

##### R-85-11-NPS-33, Corrective Action to INPO Reviews - NUC PR

#### Conclusion

From a review of INPO evaluations and related TVA actions, corrective action has not always been effective (refer to sections V.D.2.b and V.D.8 for details).



#### Recommendation

When problems are identified by INPO positive steps should be taken to correct these problems in a timely manner.

R-85-11-NPS-34, INPO Evaluation Reviews - NUC PR

#### Conclusion

The findings in an INPO evaluation of one nuclear plant could well be applicable to the other plants (refer to sections V.D.2.b and V.D.8 for details).

#### Recommendation

INPO evaluations performed at one plant and TVA responses should be reviewed for applicability to the other plants.

R-85-11-NPS-35, Management Analysis Company (MAC) Report Recommendations - NUC PR

#### Conclusion

The MAS report was an excellent summary of the situation at BFN. They made several recommendations some of which have not been implemented (refer to section V.D.2.c for details).

#### Recommendations

The report received top management review when issued in June 1984. NSRS recommends that those recommendations not implemented be re-evaluated to determine improvement potential in any present or proposed future organization changes.

### 3. Browns Ferry Regulatory Performance Improvement Program

R-85-11-NPS-36, Engineering Morale - BFN

#### Conclusion

Conditions contributing to low morale and identified in NSRS report R-84-20-BFN do not appear to have been fully addressed (refer to NSRS report R-84-20-BFN for details).

#### Recommendation

The concerns expressed in NSRS report R-84-20-BFN should be reviewed by upper management and resolutions, favorable or otherwise, should be conveyed to engineering and other affected personnel.

### 4. Drawing Control

R-85-11-NPS-37, Maintenance and Distribution of Drawings - P&E

Conclusion

The current methods used to maintain drawing originals and distribute copies appears to be awkward and inefficient (refer to section V.D.4 for details).

Recommendation

The drawing task force should evaluate a valley-wide computer system for drawing control to determine its potential usefulness and cost effectiveness for improving accuracy and efficiency.

6. Interoffice Control Of Nonconformances

R-85-11-NPS-38, Interoffice Control of Nonconformances - P&E

Conclusion

There is a need for an interoffice procedure to control the handling of NCRs as evidenced by the SQN containment pressure instrument problem and other examples (refer to section V.D.6 for details).

Recommendation

Issue immediately the ID-QAP governing interoffice control of nonconformances which was being held by DQA at the time of this review.

7. Quality Problems

R-85-11-NPS-39, Failure to Evaluate the Applicability of Quality Problems P&E

Conclusion

The OQA quality problem program was omitted from the transition plan without documentation of the reasons when responsibility for QA moved from OQA to DQA in 1984 (refer to section V.D.7 for details).

Recommendation

P&E should review the OQA quality problem files for problems that are not being pursued and other useful information. The decisions concerning whether a quality problem should be pursued or not should be documented.



R-85-11-PS-40, Staff to Resolve Quality Problems - P&E

Conclusion

Aggressive identification and resolution of quality problems is essential for a successful nuclear power program. There is no organization currently charged with this responsibility (refer to section V.D.7 for details).

Recommendation

NSRS recommends that P&E consider the establishment of a staff whose only responsibilities are identification and coordination of resolution of quality problems. The staff should have the authority to address quality problems across organizational boundaries and resources to ensure satisfactory completion.

V. DETAILS

A. Program Adequacy

1. Upper-Tier Program Adequacy

The Topical Report represents the TVA quality assurance (QA) program for design, construction, and operation of TVA nuclear plants. The Nuclear Quality Assurance Manual (NQAM) documents the overall quality assurance program for TVA's nuclear power plants. A review of the Topical Report and the NQAM was performed to determine if the quality assurance program relating to corrective actions met all the requirements and commitments. The references used for the review included:

- Title 10, Code of Federal Regulations (10 CFR)
- Final Safety Analysis Report (FSAR)
- Technical Specifications (TS)
- NRC Regulatory Guides (RG)
- Industry Codes and Standards (ANSI N45.2, ANSI N.18.7-1976, ASME Section III, NA 4006)
- Area Plans 1200 R03, 1200 R05, 0601.01, 0601.01, 0602.1, 0604.01, and 0605.01.

With the exception of approved interface procedures for nonconformance controls between NUC PR, OE, and OC, it appeared that the elements of a corrective action program were adequately addressed in the Topical Report, Area Plans, and the NQAM. DQA was preparing a procedure 1D-QAP-16.1 for interface nonconformance controls but it had not been issued (refer to section V.D.6, Interoffice Control of Nonconformances).

The NSRS was concerned, however, with the plans for the major upper tier documents, namely the NQAM and the Area

Plan Manuals. Because of the decentralization of control brought about by the Site Director concept, the Nuclear Central Office (NCO) control of these documents was to be mostly eliminated and each site was to establish its own documentation. The NSRS concern was based on what was anticipated may result from this diffusion of control documents. Even under the old NCO control the Westinghouse "sister" plants of Sequoyah and Watts Bar had developed very different sets of plant documents. The decentralization, it was felt, would only accentuate this situation. The site documents would become very personality dependent resulting in changes every time the key position of Site Director was changed. An example of this personality dependency influencing the conduct of business occurred at each site while they were still under the influence of the NCO. When the site directors were appointed at three plants, they each took a different approach to the control of their plant standard practices. At Watts Bar, there was no change from the one set of WBN Standard Practices and all of them continued to be signed by the Plant Manager. At Sequoyah, there was still one set of Sequoyah Standard Practices with some signed by the Site Director and the balance by the Plant Manager. At Browns Ferry, the Site Director chose to establish an entire new level of documents - the Site Director's Standard Practices. This was felt by NSRS to be indicative of the tailoring that may take place each time a Site Director is changed and would result in continuing the perturbations of the plant documentation which was felt to be a root cause of TVA's corrective action problems (refer to section III.D.2, Root Causes).

## 2. Program Review

For the conduct of program reviews in OE, OC, and NUC PR, all procedures were reviewed with a detailed checklist to verify that the program required or provided for:

- a. Identification of problems by the line organization, QA audits and inspections, NRC Letter, external audits and reviews, and other sources such as OE and NUC PR.
- b. Evaluation of problems for significance, nuclear safety, generic implications, and adverse trends.
- c. Authority to initiate specific, long-term and generic corrective actions, identifications of individuals responsible for initiating corrective action, segregation of nonconforming items, and control of processing of nonconforming items pending disposition.
- d. Prompt notification to TVA management and other plants and reporting to the NRC.



- e. Maintenance of records of deficiencies and deficiency evaluations and documentation of corrective actions.
- f. Tracking of corrective actions to completion, requirement of interim reports, and follow-up QA audits.
- g. Immediate notification of Higher management for urgent problems, periodic summary, and trend analysis reports, incorporation of experience into design and training, and for OC, reporting unresolved NCR's to the Quality Manager and Construction Engineer monthly.

### 3. Office Of Engineering (OE) Program Adequacy

The corrective action program was reviewed for adequacy using 10CFR50 Appendix B criteria, TVA Topical Report, and ANSI N45.2 as the basis for review. The EN DES EP system was in effect during the corrective action review. The new OEPs went into effect on June 28, 1985. The majority of review effort involved the EN DES EP system. The review of the OE corrective action program identified the following program weaknesses:

- a. Inadequate procedures to distribute information concerning deficiencies identified by various review organizations, e.g., INPO.

The review of the EPs identified one procedure which could be used in making a generic evaluation of a CAQ (condition adverse to quality). The procedure (EP 1.52) was directed more towards an NCR and was not intended for use as an evaluation for conditions identified by review groups at one plant that could be applicable to another. It is acknowledged though that OE has been reorganized to reflect a concept of discipline staffing. The concept was to provide consistency within a given discipline between various projects. Meetings are held on a regular basis between project engineers and branch chief. These meetings provide a forum for discussing similar problems between projects. This sharing of information is beneficial but should be addressed by a branch procedure. The branch chief should have a system in place which could evaluate and distribute pertinent information (such as INPO reports, NRC reports, QMS and DQA audit reports) to various projects and also monitor resulting actions.

Note: An example of inability to evaluate and distribute information for various projects was described in section V.C.8.a. This example cited a recurring problem with NCRs which was identified at multiple sites by the Quality Management Staff.

- b. Inability of OE to initiate prompt, timely corrective action on OL plants until funding is approved by NUC PR.

OE does not have authority to initiate specific, long-term and generic corrective actions for operating plants. This decision remains with NUC PR who have historically chosen to ignore some nonconforming conditions identified by OE. Examples of OE identified conditions which have not been addressed by NUC PR are discussed in section V.C.4.

- c. No interface documents describing resolution of corrective action on conditions adverse to quality which affect both OE and NUC PR.

The lack of interface documents was initially identified and documented within TVA in an audit report (JA8000-13) issued January 9, 1981. This condition has been allowed by management to exist for over four years and remains a continuous reminder that divisional splits inhibit productive work within TVA (refer to section V.C.6 for details). OE, OC, and NUC PR have been unable to resolve differences in a draft procedure which involves delineating the authority and responsibility of these groups when prescribing nonconformance activities. The procedure has still not been issued.

- d. Inadequate definition of program responsibilities for branches/projects in trend analysis process.

The trend analysis program has existed in some form within TVA for over ten years. The responsibilities of those involved on the program are still in transition however. The EP 1.51 provided some guidance in how to distribute and respond to trend information but was not being adhered to. The new OEP-17 briefly addresses a trend program but proper emphasis and detail must be included in branch and project manuals. (These were not available during the review and were due to be issued September 30, 1985.) Refer to section V.C.5 for details of trend analysis program.

#### 4. Office Of Construction (OC) Program Adequacy

OC office level and site procedures for WBN and BLN were reviewed to verify that corrective action program requirements applicable to OC activities in 10CFR50, Appendix B; NRC N45.2; Quality Assurance Manual for ASME Section III Nuclear Power Plant Components (NCM); and the Topical Report were included. Various OC Quality Assurance Program Policies (QAPP), Quality Assurance Procedures (QAP), Quality Engineering Staff Procedures (QESP), WBN Quality Control Instructions (QCI), and BLN Quality Control Procedures (QCP)



were reviewed for appropriate program requirements. OE Engineering Procedure EN DES-EP 1.26 was also reviewed for OE handling of OC NCRs.

The program was found to adequately address the upper-tier document requirements with the following exception.

Monthly reporting of unresolved NCRs to the Quality Manager (QM) and the Construction Engineer (CE) is specifically required by the QA Topical Report TVA-TR75-1A, section 11.1.16.2. TROI provides this information to the QM and CE, but QAP-15.1 revision 11, WBN QCI-1.02 revision 14, and BNP-QCP-10.4 revision 12, do not include this requirement. NSRS recommends that the lower-tier program documents be revised to implement the Topical Report commitment.

5. Browns Ferry Nuclear Plant (BFN) Program Adequacy

A review of plant administrative procedures and instructions was performed to determine if the applicable requirements of the Topical Report, NQAM, ANSI N18.7, 10CFR50 Appendix B, and Technical Specifications were adequately addressed in site implementing procedures.

This review entailed the examination of the following documents: Site Director Standard Procedure (SDSP) - 3.1 (replacing Standard Practice BF-10.3), and Standard Practices BF-1.1, -3.8, -10.7, -15.17, -15.23, -19.32, and -21.17.

Interdivisional controls had been a problem in TVA and good interface procedures between NUC PR-BFN and OE, particularly in the handling of NCRs/SCRs was essential. Handling of NCRs and interface with OE was detailed in BFN Standard Practice BF-10.7, "Handling of Nonconformance Reports (NCR's)." Interfacing occurs with OE, Design Services Manager (DSM), Site Director, Plant Manager, Compliance Supervisor, and for inadequate information back to OE. The procedure did not clarify whether it is BFN site OE when actions are usually requested by the DSM--and stated in section 4.4 of BF-10.7--or Manager of Engineering, or the chief nuclear engineer in OE, or a branch manager. NSRS recommends that interfaces with OE and within NUC PR be clearly defined and the procedure BF-10.7 revised to reflect this. It should be verified that OE procedure OEP-17, "Corrective Action," and Design Services interface controls are compatible with a revised BF-10.7 prior to issue.

6. Sequoyah Nuclear Plant (SQN) Program Adequacy

A review of plant administrative procedures and instructions was performed to determine if the applicable requirements of the Topical Report, NQAM, ANSI N18.7, 10CFR50 Appendix B, and Technical Specifications were adequately addressed in site implementing procedures.

This review entailed the examination of the following documents: AI-12, -13, -18, -23; SQN-84, -94, -95, -97, -101, -118, -124, and -135. Overall, it appeared to the NSRS that the program for corrective action was adequately addressed in the SQN procedures.

The NSRS did have three observations:

- a. The plant implementing instructions for the corrective action process were dispersed throughout the AI and Standard Practice Manuals.

The NSRS recommends that these documents be consolidated wherever possible as the site gradually receives control of the Area Plan and NQAM material.

- b. There was at least one example of overlap in the documents reviewed. SQA-26 and SQA-101 both discussed NRC-IE Bulletins, Circulars, and Information Notices. The NSRS recommends that SQA-101 be cancelled.

- c. There was one example of obsolete material in the documents reviewed. SQA-95 contained interface information from documents that were cancelled on January 18, 1985. The NSRS recommends that SQA-95 be revised or cancelled.

#### 7. Watts Bar Nuclear Plant (WBN) Program Adequacy

A review of plant administrative procedures and instructions was performed to determine if the applicable requirements of the Topical Report, NQAM, ANSI N18.7, 10CFR50 Appendix B, and Technical Specifications were adequately addressed in site implementing procedures.

This review entailed the examination of the following documents: AI-1.3, -2.8.1, -2.8.3, -2.8.4, -2.8.9, -2.8.11, -2.19, -4.4, -7.3, -8.5, -8.8, WB-1.8, -2.1.10, -6.3.13, -11.5, -11.6, -11.8 and PQA-SIL-3.1.

With one exception, it appeared that the requirements of the upper-tier documents were adequately addressed in the plant documents.

The Corrective Action Reports (CAR's) and Discrepancy Reports (DR's) which are plant mechanisms for initiating timely identification and corrective action to conditions adverse to quality are properly scoped in AI-7.3, "Adverse Conditions and Corrective Actions." However, the Plant Quality Assurance Staff's Instruction Letter, PQA-SIL-3.1 "Corrective Action Procedures CAR/DR," undermined the CAR/DR processes by establishing a separate draft CAR/DR process which preceded the formal systems as described in AI-7.3 (refer to section V.C.2 of this report). NSRS recommends that the informal draft CAR/DR processes be eliminated.



The NSRS did have the following observation.

The plant instructions which implemented the Corrective Action Program were dispersed throughout the AI and Standard Practice Manuals. The NSRS recommends that these documents be consolidated wherever possible as the site gradually takes control of the Area Plans and NQAM material.

8. Bellevue Nuclear Plant (BLN) Program Adequacy

A review of plant administrative procedures and instructions was performed to determine if the applicable requirements of the Topical Report, NQAM, ANSI N18.7, 10CFR50 Appendix B, and Technical Specifications were adequately addressed in site implementing procedures.

This review entailed the examination of the following documents: BLA 4.3, 5.13, 5.2, 9.3, 11.4, 11.28, 16.1, 16.3, 16.5, and QASIL 4.3. It appeared to the NSRS that the program for corrective action was adequately addressed in the BLN procedures.

B. Program Implementation

1. Office of Engineering Program Implementation

The scope of the program implementation portion of the review was limited to corrective action activities within CEB, MEB, TAS (trending), QMS, WBN, and BLN. Specific problems relating to the corrective action process have recently been identified within EEB, QEB, NEB and are documented in NSRS reports I-85-06-WBN, R-85-07-NPS, and R-85-08-OE/NUC PR. Due to the extensive nature of these reports, additional NSRS effort addressing the corrective action process in these branches was not included in this review.

The method used to verify program implementation included extensive document review and selected interviews. The documents reviewed included QMS audit reports/responses, QMS CAQ reports, NSRS reports/responses, TAS trend reports/responses, NRC violations, OE interim reports on 50.55(e) items, INPO reports, NCR's, TROI printouts, and memorandums generated by OE management pertaining to corrective action.

Interviews were conducted to verify the emphasis placed by management on corrective action and to identify problems which delay the corrective action process.

The following general problems were identified in program implementation:

- a. Failure of branches and projects to utilize trend information to preclude or minimize future errors.

- b. Failure to respond or correct audit deviations in a timely manner.
- c. Failure to take prompt corrective action on identified NCR's.

Specific details and examples are provided in paragraphs V.C.5.a, V.C.8.a, and V.C.3.a.

## 2. Office of Construction Program Implementation

Implementation of the portions of the OC Quality Assurance Program dealing with C/A (discussed in section V.A) were evaluated by personnel interviews and reviews of numerous documents such as nonconformance reports (NCR's), Quality Trend Analysis Reports (QTARs) Quality Bulletins (QBs), and audit reports. The program was found to be adequately implemented except for the following problems discussed in paragraphs V.C.1, V.C.3.b, V.C.5.b, V.C.8.b, and V.C.9.b.

- a. Allowing failed inspections to be corrected without writing IRNs.
- b. Failure to write NCRs.
- c. Inadequate trend reports for NCRs and failure to synopsise past remedial actions on NCRs.
- d. Depth of audits should be improved.
- e. Personnel in OE branches responsible for OC NCRs not identified to OC.

## 3. Office of Nuclear Power Program Implementation

The program implementation and its effectiveness was determined by the review of corrective action activities at NUC PR-Chattanooga, BFN, SQN, WBN, and BLN. The method used included selected interviews and an extensive document review.

Interviews were conducted with site directors, plant managers, supervisors, and others involved in the corrective action process to obtain their perspective on the handling of problems experienced at the nuclear plants. The review of a large number of documents included Section Instruction Letters, NRC policy statements, inspection reports and responses, DQA audit reports, deviation reports and responses, BFN Regulatory Performance Improvement Program and BFN history, INPO evaluation report and responses, NUC PR task force reports, Management Analysis Company report, Nonconforming Condition Reports (NCR), Discrepancy Reports (DR),



Corrective Action Reports (CAR), NSRS reports and responses, memorandums related to corrective action, and tracking systems used.

The following problems were identified in the program implementation:

- a. Interfaces not clearly defined between OE and NUC PR
- b. Inadequate responses to NRC notices of violation
- c. INPO evaluations not reviewed for general applicability
- d. Quality problem program omitted from QA transition plan
- e. Incorrect handling of CAR's/DR's.

Specific examples are given in paragraphs V.A.5, V.D.2.a, V.D.2.b(2), V.D.7, and V.C.2.

#### C. Selected Program Implementation Functions

##### 1. Inspection Rejection Notices

The Inspection Rejection Notice (IRN) was not part of the OC corrective action system as defined by the OC program documents. It was, however, used to identify needed correction identified by rejected OC inspections and to provide trending information, and as such fell within the scope of this review. In order to evaluate the IRN system, program and implementing procedures were reviewed and personnel in Knoxville, WBN, and BLN were interviewed.

The following definitions appeared in WBN QCI-1.02-1, Inspection Rejection Notice."

"Inspection Rejection Notice (IRN)--A communication tool used by inspection personnel to inform craft and engineering of an unacceptable condition of work in progress. An IRN form is used to document and indicate disposition of these conditions."

"Work in Progress--The status of any work activity prior to inspector acceptance."

The following definitions appeared in BNP-QCP-10.43, "Inspection Rejection Notice."

"Inspection Rejection Notice (IRN)--A communication tool used by inspection personnel to inform craft and/or engineering of a failed inspection. An IRN form . . . is used to document these conditions."

"Failed Inspection--Those inspections performed prior to acceptance of the item which identify conditions that are not within the scope of reference 3.1."