

TVA EMPLOYEE CONCERNS
SPECIAL PROGRAM

REPORT NUMBER: 90100

REPORT TYPE: Watts Bar Nuclear Plant Subcategory

REVISION NUMBER: 4

TITLE: Management of Safety As Related to
Industrial Safety

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REASON FOR REVISION:

General Editorial Revision, revised portions of sections 3.0, 4.0, 5.0 and revised section 6.0

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Preface

This subcategory report is one of a series of reports prepared for the Employee Concerns Special Program (ECSP) of the Tennessee Valley Authority (TVA). The ECSP and the organization which carried out the program, the Employee Concerns Task Group (ECTG), were established by TVA's Manager of Nuclear Power to evaluate and report on those Office of Nuclear Power (ONP) employee concerns filed before February 1, 1986. Concerns filed after that date are handled by the ongoing ONP Employee Concerns Program (ECP).

The ECSP addressed over 5800 employee concerns. Each of the concerns was a formal, written description of a circumstance or circumstances that an employee thought was unsafe, unjust, inefficient, or inappropriate. The mission of the Employee Concerns Special Program was to thoroughly investigate all issues presented in the concerns and to report the results of those investigations in a form accessible to ONP employees, the NRC, and the general public. The results of these investigations are communicated by four levels of ECSP reports: element, subcategory, category, and final.

Element reports, the lowest reporting level, will be published only for those concerns directly affecting the restart of Sequoyah Nuclear Plant's reactor unit 2. An element consists of one or more closely related issues. An issue is a potential problem identified by ECTG during the evaluation process as having been raised in one or more concerns. For efficient handling, what appeared to be similar concerns were grouped into elements early in the program, but issue definitions emerged from the evaluation process itself. Consequently, some elements did include only one issue, but often the ECTG evaluation found more than one issue per element.

Subcategory reports summarize the evaluation of a number of elements. However, the subcategory report does more than collect element level evaluations. The subcategory level overview of element findings leads to an integration of information that cannot take place at the element level. This integration of information reveals the extent to which problems overlap more than one element and will therefore require corrective action for underlying causes not fully apparent at the element level.

To make the subcategory reports easier to understand, three items have been placed at the front of each report: a preface, a glossary of the terminology unique to ECSP reports, and a list of acronyms (terms formed from the first letters of a series of words).

Additionally, at the end of each subcategory report the reader will find at least two attachments. The first is a Subcategory Summary Table that includes the following information: the concern number, a brief statement of the concern, and a designation of nuclear safety-related concerns. The second attachment is a listing of the concerns included in each issue evaluated in the subcategory.

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The subcategories are themselves summarized in a series of eight category reports. Each category report reviews the major findings and collective significance of the subcategory reports in one of the following areas:

- management and personnel relations
- industrial safety
- construction
- material control
- operations
- quality assurance/quality control
- welding
- engineering

A separate report on employee concerns dealing with specific contentions of intimidation, harassment, and wrongdoing will be released by the TVA Office of the Inspector General.

Just as the subcategory reports integrate the information collected at the element level, the category reports integrate the information assembled in all the subcategory reports within the category, addressing particularly the underlying causes of those problems that run across more than one subcategory.

A final report will integrate and assess the information collected by all of the lower level reports prepared for the ECSP, including the Inspector General's report.

For more detail on the methods by which ECTG employee concerns were evaluated and reported, consult the Tennessee Valley Authority Employee Concerns Task Group Program Manual. The Manual spells out the program's objectives, scope, organization, and responsibilities. It also specifies the procedures that were followed in the investigation, reporting, and closeout of the issues raised by employee concerns.

ECSP GLOSSARY OF REPORT TERMS*

classification of evaluated issues the evaluation of an issue leads to one of the following determinations:

Class A: Issue cannot be verified as factual

Class B: Issue is factually accurate, but what is described is not a problem (i.e., not a condition requiring corrective action)

Class C: Issue is factual and identifies a problem, but corrective action for the problem was initiated before the evaluation of the issue was undertaken

Class D: Issue is factual and presents a problem for which corrective action has been, or is being, taken as a result of an evaluation

Class E: A problem, requiring corrective action, which was not identified by an employee concern, but was revealed during the ECTG evaluation of an issue raised by an employee concern.

collective significance an analysis which determines the importance and consequences of the findings in a particular ECSP report by putting those findings in the proper perspective.

concern (see "employee concern")

corrective action steps taken to fix specific deficiencies or discrepancies revealed by a negative finding and, when necessary, to correct causes in order to prevent recurrence.

criterion (plural: criteria) a basis for defining a performance, behavior, or quality which ONP imposes on itself (see also "requirement").

element or element report an optional level of ECSP report, below the subcategory level, that deals with one or more issues.

employee concern a formal, written description of a circumstance or circumstances that an employee thinks unsafe, unjust, inefficient or inappropriate; usually documented on a K-form or a form equivalent to the K-form.

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evaluator(s) the individual(s) assigned the responsibility to assess a specific grouping of employee concerns.

findings includes both statements of fact and the judgments made about those facts during the evaluation process; negative findings require corrective action.

issue a potential problem, as interpreted by the ECTG during the evaluation process, raised in one or more concerns.

K-form (see "employee concern")

requirement a standard of performance, behavior, or quality on which an evaluation judgment or decision may be based.

root cause the underlying reason for a problem.

*Terms essential to the program but which require detailed definition have been defined in the ECTG Procedure Manual (e.g., generic, specific, nuclear safety-related, unreviewed safety-significant question).

Acronyms

AI	Administrative Instruction
AISC	American Institute of Steel Construction
ALARA	As Low As Reasonably Achievable
ANS	American Nuclear Society
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BFN	Browns Ferry Nuclear Plant
BLN	Bellefonte Nuclear Plant
CAQ	Condition Adverse to Quality
CAR	Corrective Action Report
CATD	Corrective Action Tracking Document
CCTS	Corporate Commitment Tracking System
CEG-H	Category Evaluation Group Head
CFR	Code of Federal Regulations
CI	Concerned Individual
CMTR	Certified Material Test Report
COC	Certificate of Conformance/Compliance
DCR	Design Change Request
DNC	Division of Nuclear Construction (see also NU CON)

DNE Division of Nuclear Engineering
DNQA Division of Nuclear Quality Assurance
DNT Division of Nuclear Training
DOE Department of Energy
DPO Division Personnel Officer
DR Discrepancy Report or Deviation Report
ECN Engineering Change Notice
ECP Employee Concerns Program
ECP-SR Employee Concerns Program-Site Representative
ECSP Employee Concerns Special Program
ECTG Employee Concerns Task Group
EEOC Equal Employment Opportunity Commission
EQ Environmental Qualification
EMRT Emergency Medical Response Team
EN DES Engineering Design
ERT Employee Response Team or Emergency Response Team
FCR Field Change Request
FSAR Final Safety Analysis Report
FY Fiscal Year
GET General Employee Training
HCI Hazard Control Instruction
HVAC Heating, Ventilating, Air Conditioning
II Installation Instruction
INPO Institute of Nuclear Power Operations
IRN Inspection Rejection Notice

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L/R	Labor Relations Staff
M&AI	Modifications and Additions Instruction
MI	Maintenance Instruction
MSPB	Merit Systems Protection Board
MT	Magnetic Particle Testing
NCR	Nonconforming Condition Report
NDE	Nondestructive Examination
NPP	Nuclear Performance Plan
NPS	Non-plant Specific or Nuclear Procedures System
NQAM	Nuclear Quality Assurance Manual
NRC	Nuclear Regulatory Commission
NSB	Nuclear Services Branch
NSRS	Nuclear Safety Review Staff
NU CON	Division of Nuclear Construction (obsolete abbreviation, see DNC)
NUMARC	Nuclear Utility Management and Resources Committee
OSHA	Occupational Safety and Health Administration (or Act)
ONP	Office of Nuclear Power
OWCP	Office of Workers Compensation Program
PHR	Personal History Record
PT	Liquid Penetrant Testing
QA	Quality Assurance
QAP	Quality Assurance Procedures
QC	Quality Control
QCI	Quality Control Instruction

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QCP	Quality Control Procedure
QTC	Quality Technology Company
RIF	Reduction in Force
RT	Radiographic Testing
SQN	Sequoyah Nuclear Plant
SI	Surveillance Instruction
SOP	Standard Operating Procedure
SRP	Senior Review Panel
SWEC	Stone and Webster Engineering Corporation
TAS	Technical Assistance Staff
T&L	Trades and Labor
TVA	Tennessee Valley Authority
TVTLC	Tennessee Valley Trades and Labor Council
UT	Ultrasonic Testing
VT	Visual Testing
WBECSP	Watts Bar Employee Concern Special Program
WBN	Watts Bar Nuclear Plant
WR	Work Request or Work Rules
WP	Workplans

1.0 INTRODUCTION

This report evaluates those employee concerns that question whether industrial safety is properly managed by TVA's Office of Nuclear Power (ONP). These concerns are addressed under two areas: (1) Management responsibility and (2) The implementation and enforcement of safety rules, procedures, and practices. None of these concerns have Nuclear Safety significance. Because of the general nature of the concerns in this subcategory a contract was made with the DuPont Company to perform this evaluation. Dr. James R. Thomen, DuPont's consultant was selected to perform this evaluation.

Upon completion of DuPont's evaluation, a report was prepared which was reviewed by the Industrial Safety category of the Employee Concerns Task Group (ECTG). This report, and the findings developed, was accepted and concurred with and forms the contents of this subcategory report.

The basic management and program responsibilities for safety are found within the TVA Occupational Health and Safety Manual and the Division of Nuclear Power (Now ONP) Industrial Safety Manual. These manuals describe the corporate policy, as set forth in TVA Code VIII, Office of the General Manager, set out basic program requirements, and provide standards and criteria to be applied by line management. They are consistent with the Occupational Health and Safety Act of 1970 and have accepted and fully committed to by TVA's General Manager. The following excerpt from the ONP Industrial Safety Manual is applicable to management responsibility:

TVA recognizes that it must conserve, protect, and properly manage all of its resources, the most important of which is its employees. Accordingly, TVA maintains an occupational health and safety program that considers and emphasizes employee safety in all aspects of its programs and activities. TVA holds strongly to the principle that safety is good business, not only from the point of preventing human pain and suffering but also in improved efficiency and productivity. Safety therefore demands our highest priority and attention.

TVA's Corporate Policy and Program Plan states that management will direct the safety program by setting achievable goals and by planning, organizing, and controlling to achieve these goals. Safety will be managed like any other function: it is analogous with quality, cost, and quality of production. Inherent in this principle and covered under the Responsibilities Section 2.0 of

the Occupational Health and Safety Manual, is the fact that ensuring safety is and must be a line function. As management directs the safety program by setting goals, planning, organizing, and controlling, it assigns responsibility to line managers and grants them authority to accomplish results. Since the line has primary safety responsibility, the Safety Specialist must be staff. As staff, the Safety Specialist has no direct responsibility for safety management. The implementation of TVA's Occupational Health and Safety Program is an integral part of line management's responsibility. Management, which includes all levels down through the first-line supervisor, is responsible for preventing accidents and injuries in the workplace. That responsibility begins with the TVA Board and extends throughout every part of the organization. That responsibility is ultimately focused on the managers of our plants, construction projects, and field activities where the likelihood of accidents and personal injury is greatest. Consistent with that responsibility, managers and supervisors have the authority and are held accountable for taking actions necessary to control hazards and to prevent accidents and injuries to their employees.

The following excerpt from the ONP Industrial Safety Manual is applicable to safety rules, procedures, and practices:

Each employee has a responsibility for working safely. As a condition of employment, every TVA employee must comply with all applicable health and safety requirements and work rules associated with his/her job. Failure to do so will result in prompt disciplinary measures.

2.0 CHARACTERIZATION OF ISSUES

There were eleven discrete employee concerns issues; six of which were under Management of Safety; and five of which were under rules, procedures, and practices. The total number of concerns was 92, with 56 addressing management responsibility, and 36 addressing safety rules, procedures, and practices. (See Attachment A for a listing of concerns.)

2.1 Management Responsibility

The following six issues and summaries of the concerns involved deal with management responsibility.

2.1.1 Issue 90101 - "Management Preaches But Does Not Practice Safety"

Management talks a lot about being interested in safety but does not demonstrate this interest by positive actions in carrying out its safety responsibilities.

Safety equipment is not always properly maintained or available in the right sizes; scaffolds are poorly constructed; rules are not enforced; sound decisions are not always made regarding working conditions.

Nine concerns were expressed regarding this issue.

2.1.2 Issue 90102 - "Management Fails Or Is Slow To Respond To Safety Problems/Suggestions Brought To Its Attention By Employees"

Safety hazards identified by employees are not corrected or take too long to correct. Management looks "down" on employees who raise safety issues. Management does not demonstrate a genuine concern for employee safety, nor do they listen to employees' concerns about safety.

23 concerns were expressed regarding this issue.

2.1.3 Issue 90103 - "Supervisors Fail To Perform Adequate Job Safety Planning"

Management does not perform an adequate job safety planning before beginning the job. Too often, jobs overlap in the same work areas; work areas are not surveyed by job foremen before starting work; employees are not briefed on hazards of the job; and no job safety planning is done.

Ten concerns were expressed regarding this issue.

2.1.4 Issue 90104 - "The Industrial Safety Staff Is Not Responsive To Employees"

The problem has to do with employees feeling that the safety staff is not performing its job responsibilities, is not responsive to safety problems brought to its attention, and is not providing staff coverage to all shifts.

Eight concerns were expressed regarding this issue.

2.1.5 Issue 90105 - "Inadequate Investigation Of Accidents"

The issue is that accidents are not thoroughly investigated and as a result the true cause(s) of the accidents are not determined.

Two concerns were expressed regarding this issue.

2.1.6 Issue 90106 - "Production Has Priority Over Safety"

Employees feel that management places higher priorities on production and schedules above personal safety.

Four concerns were expressed regarding this issue.

2.2 Safety Rules/Procedures/Practices

The following five issues and summaries of the concerns involved allege failure on TVA-ONP's part to provide or enforce specific safety rules, procedures, or practices or allege the inadequacy of the safety program as a whole.

2.2.1 Issue 90107 - "Safety Procedures Are Not Strictly Followed By Employees And Are Not Enforced By Management"

Employees use their own judgment about when and where to follow safety rules. Management enforces only those rules they agree with or they choose when to enforce them.

Seven concerns were expressed regarding this issue.

2.2.2 Issue 90108 - "Certain Safety Rules/Practices Are Inadequate Or Improper For The Purpose Intended"

The basis of these concerns is that work practices do not reflect an adequate recognition of the hazards involved in doing some kinds of work.

15 concerns were expressed regarding this issue.

2.2.3 Issue 90109 - "Employees Were Ordered To Violate Safety Rules/Procedures."

Employees felt that they were ordered to violate or by-pass safety rules/procedures in some situations.

Six concerns were expressed regarding this issue.

2.2.4 Issue 90110 - "Enforcement Of Safety Rules By Line Management Is Inadequate Or Selective"

Work rules are enforced differently for construction personnel and plant personnel.

Six concerns were expressed regarding this issue.

2.2.5 Issue 90111 - "The Safety Program Is Inadequate"

Employees had concerns which question the safety of the plant because of the inadequacy of the program.

Three concerns were expressed regarding this issue.

3.0 SUMMARY

3.1 Summary of the Issues

The issues in this subcategory are that management of the Industrial Safety Program is not adequate or responsive. Employees feel that management does not demonstrate a concern for employee safety or for the prevention of accidents.

Some employees perceive that industrial safety rules, procedures, and practices are inadequate, therefore, they do not follow them. They are also seen as not being fully enforced by management. Additionally, employees stated that they were ordered to violate these rules, procedures, and practices by management and that management places production priorities ahead of personnel safety. Finally, three simply said that the safety program is inadequate.

3.2 Evaluation Process

WBN Employee Concerns Task Group (ECTG) entered into a personal services contract with the DuPont Company in April 1986. The purpose of this contract was to have DuPont, an industry safety leader, independently analyze, evaluate, and advise TVA on employee concerns primarily in the areas of safety management. Dr. James R. Thomen, DuPont consultant, was selected as their evaluator.

He compared accepted safety programs, policies, and procedures to TVA-ONP's Industrial Safety Program to establish a basis for his evaluation.

Formal interviews and field observations were held with 26 key managers, and supervisors from both plant and construction groups. 160 employees, who were actually performing work (crafts, trades and labor, annual, and line supervisors) were randomly observed and interviewed on an informal basis. Numerous (estimated 200) other employees were observed during field tours.

38 evaluation reports, previously investigated by ONP's Industrial Safety Staff, were reviewed and evaluated as a part of this DuPont study.

Mini-evaluations were also conducted at the Sequoyah (SQN) and Browns Ferry (BFN) Nuclear Plants.

The DuPont study of Watts Bar is reported in Safety Management Evaluation, April-May 1986.

Because the issues in this subcategory report all deal with perceptions by employees of TVA-ONP management's performance of its industrial safety functions, the DuPont report provided the evidence by which the validity of concerns is determined.

3.3 Findings As Cited Against Requirements

The Industrial Safety ECTG reviewed DuPont's Report upon completion of the evaluation and concurred with the findings.

These findings for the issues listed below were all cited against the following documents:

The TVA Occupational Health and Safety Manual; The Office of Nuclear Power Industrial Safety Manual; Watts Bar and Sequoyah's Hazard Control Instruction Manuals; Browns Ferry's Standard Practices; and the Construction Safe Practices and Information Handbook.

3.3.1 Management Responsibility

While steady improvement has been noted, line management, at all levels, has not fully understood or accepted that safety is a line management function. Managers have not visibly demonstrated that they are committed to safety. They are not communicating with employees frequently enough on safety matters.

The six issues pertaining to this area and their related findings are:

Issue 90101 - "Management Preaches But Does Not Practice Safety"

This issue was substantiated.

Management believes in safety and is committed to safety, but it has not effectively demonstrated this commitment to the employees. Supervisors and foremen interviewed acknowledged that they do not enforce all safety rules. Employees do not perceive that working safely is a job requirement.

Issue 90102 - "Management Fails Or Is Slow To Respond To Safety Problems/Suggestions Brought To Their Attention"

This issue was substantiated.

Although nearly everyone interviewed stated that present management response is improved, they also indicated that some responses are still inadequate.

Employees do not always understand that changes or modifications to the plant require considerable justification and, in most cases, lengthy approvals. This complexity needs to be thoroughly communicated by management. The design of the plant did not always consider employee safety and its natural complexity creates inconvenient and difficult environments. Employees need to understand this so that they plan their work accordingly.

Issue 90103 - "Supervisors Fail To Perform Adequate Job Safety Planning"

This issue was substantiated.

While some job planning is done, it is not always adequate. Management's failure to spend more time out in the plant or work areas has reduced its effectiveness and caused employees to perceive them as not doing their job. Employees and management alike have the responsibility to work and run their jobs safely, but it is management, especially first-line managers, who have the ultimate responsibility.

Individual supervisors make judgments on how much pre-job planning is needed, resulting in a lack of consistency. Often such planning consists of "paperwork" planning rather than actual "constructive work safety" planning.

Issue 90104 - "Safety Staff Not Responsive"

This issue was not substantiated.

The safety staff adequately fulfills its responsibilities to assist management and employees in the implementation of work safety programs, policies, procedures, and training.

Although safety personnel's staff function is clearly spelled out in TVA and ONP documents, safety personnel are still asked to perform line functions while in a staff position.

Issue 90105 - "Inadequate Investigation of Accidents"

This issue was substantiated.

A review of injury investigation reports revealed that investigations were typically shallow, recommendations useless, causes undetermined, and any follow-up negligible. TVA-ONP policy requires that all accidents receive prompt and thorough investigations but emphasis is placed only upon serious injuries and lost-time accidents. Emphasis should be placed on thoroughly investigating all accidents with the goal of preventing their recurrence rather than on properly completing the required report forms.

3.3.2 Safety Rules, Procedures, and Practices

Rules, procedures, and practices were found to be adequate and would be effective if followed, or enforced by line management.

The five issues pertaining to this area and their related findings are:

Issue 90106 - "Employees Feel That Management Places Higher Priorities On Production And Schedules Over That of Personnel Safety"

The issue was partially substantiated.

Opinions voiced during interviews with employees indicated that this had been true, but is not a major concern today. One employee stated that he was afraid that they would revert back to the old ways when the plant gets into outages or other schedule-pressure situations.

While field observations indicated inattention to safety details and lack of management involvement, these problems did not stem from an attitude of production over safety. Nevertheless, management's inadequate support of the safety program and their noticeable absence in the work areas has created a false perception by employees that management is more interested in "getting the job done" than in doing the job in a safe manner.

Issue 90107 - "Safety Procedures Are Not Strictly Followed By Employees And Are Not Enforced By Management"

The issue was substantiated.

While improvements have been made in the last year or two, management is still not adequately following or enforcing rules/procedures/practices. As a result some employees follow only the rules/procedures/practices they want to follow, when they want to follow them. As an example, employees stated that they wore personal protective equipment (hardhats, eyewear, etc.) whenever they felt it was necessary.

Issue 90108 - "Certain Safety Rules And Practices Are Inadequate Or Improper For The Purpose Intended"

This issue was not substantiated.

Current safety rules and procedures were judged to be adequate. Most of the differences in rules and practices were caused by differences in opinion or judgment.

Poor communications between manager and employee sometimes created a higher level of concern than really necessary. Management needs to participate more in establishing and reviewing rules and procedures, in obtaining input from employees, and in informing supervisors and employees of the rules and procedures that apply to their work.

Issue 90109 - "Employees Were Ordered To Violate Safety Rules Or Procedures."

This issue was not substantiated.

Issues raised were derived from poor communications and misunderstandings between supervisors and employees as to what is safe or unsafe performance. Previous investigations did not uncover any situations substantiating this issue. Better pre-job planning and instructions to employees would assist in reducing this perceived lack of communication.

Issue 90110 - "Enforcement Of Safety Rules By Line Management Is Inadequate Or Selective. Work Rules Are Enforced Differently Between Construction Personnel And Plant Personnel"

This issue was partially substantiated.

Only two significant differences were found between plant and construction rules and procedures. Enforcement, while somewhat lacking, was not found to be selective or discriminatory.

Issue 90111 - "The Safety Program Is Inadequate"

This issue was substantiated.

Dr. Thomen's report stated that "TVA's policy and statement of program objectives contained in the TVA Occupational Health and Safety Manual provide a sound foundation for achieving excellence in safety. The basic principles embodied in these statements are fully endorsed." The Office of Nuclear Power's Industrial Safety Manual was also found to be adequate, but in need of updating and revision. The last revision was in 1983.

He did find some inconsistencies between site documents, but these were of a minor significance.

Even though TVA's safety program itself is considered adequate TVA's enforcement of this program is inadequate to ensure that the written program's goals are achieved. This

can be seen in examples such as the enforcement of personal protective equipment, or in the obvious lack of effective communication between management and employees.

The crux of this issue is the implementation and enforcement of the safety program and not the written program, policy, or procedures.

While management believes in safety and is committed to safety, this commitment needs to be effectively demonstrated to the employees. This would include a more active, visible participation by managers at all levels through more enforcement, effective accident investigations, more education, and management accountability.

3.4 Collective Significance of Findings

3.4.1 Management Effectiveness

Management has not been fully effective in its support of the Industrial Safety Program. This lack of support has resulted in an increased probability of accidents, injuries, and lost-time incidents at TVA's nuclear plants. Safety policies, rules, and procedures are poorly understood by management, are not communicated effectively to employees, and are not consistently nor effectively enforced. The implementation and perpetuation of inconsistent site safety procedures and rules has resulted in unnecessary employee confusion and further reduced management's enforcement of these procedures and rules.

Management's failure to support the Industrial Safety Program has resulted in the employee perception that management is not committed to safety, and that managers enforce only those policies and programs (safety or otherwise) that they are required to.

3.4.2 Employee Effectiveness

Employees have also not supported the Industrial Safety Program. This lack of support is evident in their disregard for site procedures such as those governing the wearing of personal protective equipment (hard hats, eye wear, etc.). This disregard by employees increases the potential for accidents, injuries, and lost-time to occur.

3.5 Causes

3.5.1 Generic Causes

No site-specific causes will be presented. The causes determined were found to have generic applicability to ONP since three sites were found with essentially the same deficiencies and needs for improvement.

3.5.1.1 Management Responsibility

The major cause pertaining to this area is the lack of management understanding or acceptance of industrial safety philosophy and principles. Four subcauses can be identified as follows:

- a. Inadequate management involvement
- b. Inadequate enforcement
- c. Management does not fully believe that safety responsibility is a line management function
- d. Ineffective management communication skills

3.5.1.2 Safety Rules, Procedures, and Practices

The major causes under this area were traced back to the basic cause listed under 3.5.1.1 above.

3.6 Corrective Actions Taken

Site management has been very receptive at Watts Bar Nuclear Plant (WBN). Both plant and construction managers have responded to recommendations verbally made by Dr. Thomen of DuPont and have taken steps to start implementing some of them. Those steps are summarized below:

- a. WBN construction and plant safety policies are being reviewed so that a new single site-safety policy will be issued to and thoroughly discussed with all employees.
- b. A site-central safety committee has been formed with the

initial meeting held in July 1986. Five subcommittees were formed, chairmen and members selected, and initial meeting dates scheduled. Each subcommittee is chaired by a principal manager; members represent a cross-section of management from all site organizations. The central committee membership includes the top management of all organizations who report off site as well as those who report to the plant or construction groups.

3.7 Approved Corrective Action Plans

The following is a summary of the various approved corrective actions relating to this subcategory report. Additional specific information concerning these corrective actions can be found in Section 8 of this report.

3.7.1 Watts Bar Site

Corrective action plans were received from both ONP and DNC for Corrective Action Tracking Documents (CATDs) 90100-01 through 90100-8. The approved corrective actions involve the formal acceptance and approval of the DuPont recommendations (see Attachment B to this report).

3.7.2 Sequoyah and Browns Ferry Sites

Corrective action plans were received from BFN (CATDs 90100-9 through 90100-12), and from SQN (CATDs 90100-13 through 90100-16). These corrective action plans also involve the acceptance and approval of the DuPont recommendations.

4.0 EVALUATION PROCESS

4.1 Discussion of Methods and Requirements Used

WBN Employee Concerns Task Group (ECTG) entered into a personal services contract with the DuPont Company in April 1986. The purpose of this contract was to have DuPont independently analyze, evaluate, and advise TVA on employee concerns primarily in the areas of safety management; rules, procedures, practices, program and policies.

Dr. James R. Thomen, DuPont's consultant, was selected to perform this evaluation, in order to provide an experienced DuPont management evaluation of TVA-ONP's safety policies, programs, and

practices. Dr. Thomen has over 32 years with DuPont, 18 years of which were as a plant or site manager.

DuPont used their own policies, program, and procedures as standards by which to evaluate the requirements found in the following source documents:

1. TVA's Occupational Health and Safety Manual
2. TVA's Code VIII, Occupational Health and Safety
3. Office of Nuclear Power's Industrial Safety Manual
4. Watts Bar and Sequoyah Hazard Control Instruction Manuals
5. Watts Bar, Sequoyah, and Browns Ferry Employee Safety Handbooks
6. Construction Policy Manual
7. Construction Manual of Safe Practices and Information
8. Browns Ferry's Standard Practices

DuPont Safety Management Services has written a report of their evaluation which includes an executive summary, recommendations, field observations, and resource materials.

4.2 Justification of Methods and Requirements Used

The requirements used were those applicable to all TVA and nuclear power organizations and those site-specific policies and procedures applicable to WBN, SQN, and BFN.

4.2.1 Interviews

26 key managers, as well as many of their subordinates, were interviewed and taken on plant tours to observe employees at work and to discuss with the employees their safety performance and safety philosophy.

160 employees, actually on the job, were talked with and observed. They covered the full spectrum of plant and construction personnel from craftsmen and line foremen to assistant superintendents.

The industrial safety staffs from plant and construction were interviewed, as well as some of the employee concerns Industrial Safety Group personnel.

- ##### 4.2.2
- The documentation researched in addition to the requirements mentioned in 4.1 above included: accident investigation reports, workplans, audit reports, and accident and injury statistics.

4.2.3 BFN and SQN were visited and mini-evaluations were conducted similar to the evaluation conducted at WBN. Site management was briefed and findings were discussed with them.

4.3 Applicable Standards and Criteria

The following are general corporate and ONP requirements relating to this subcategory:

- a. TVA Code VIII Occupational Health and Safety Page 1, February 22, 1983.

This corporate code contains the following policy statement:

"TVA recognizes that it has an obligation in conduction its activities to take appropriate steps to protect the life and health of employees; to prevent damage to property, materials and equipment; and to avoid work interruptions in accomplishing TVA goals. Accordingly, TVA supports and ensures occupational health and safety in its design, purchasing, construction, maintenance, operating activities, and in carrying out all of its programs."

- b. TVA Occupational Health and Safety Program Plan (OHSM) Dated October 4, 1982.

Section 1 of this program plan states the plan's objective as:

"TVA's occupational health and safety objective is simply stated: it is an integral part of TVA business. Safety is not to be treated as a secondary consideration or relegated to some lower priority, because safety ultimately involves people, TVA's most important asset. Management commitment to this objective begins with the TVA Board and extends into every workplace. It is translated into action on a day-to-day basis by line management and reinforced by the following key principles,

All accidents are preventable.

Management is ultimately responsible and accountable for preventing injuries and illnesses to employees.

All operating exposures that may result in injuries can be controlled.

Safety is a condition of employment.

Workplace hazards are identified and promptly corrected.

Accidents cost money.

Most accidents are the result of actions by people.

Good safety performance is a continuing requirement.

Section 2 of this safety program plan establishes occupational health and safety responsibilities as follows:

"The responsibility for prevention of accidents and injuries in the workplace rests with line management system. This responsibility is focused around the following levels in TVA's management system."

Senior Management

"Senior management includes the Board of Directors, the General Manager, office managers, and division directors. Senior management is responsible for establishing corporate policy, setting agency goals and objectives, providing adequate staffing and financial resources, and insuring that the required program effectiveness is achieved."

Midlevel Management

"This level in the line management system includes plant and project managers, area managers, and field program managers. Each plant, project, or area manager is personally responsible and accountable for the health and safety of every TVA employee working under his or her control at the site. They are responsible for implementing the agency health and safety program as it applies at the local level. The plant, project, or area manager must establish performance goals and objectives applicable to the site; issue and enforce plant site-specific standards and procedures; conduct periodic audits, inspections, and appraisals of program performance; ensure that identified hazards are promptly addressed and controlled; ensure all accidents, injuries, and illnesses are promptly investigated and reported for cause and future prevention; and provide adequate manpower, and material, training, and other resources necessary to maintain acceptable levels of safety performance."

First-line Supervision

"First-line supervisors have the primary responsibility of ensuring that employees in their work units perform their work assignments in a safe manner. They must continually assess and appraise the performance of their employees, and when weaknesses are detected, take prompt steps to correct them. They conduct day-to-day inspections of their workplaces to identify and correct hazards, participate in accident investigations, and periodically analyze the jobs assigned to these workers for potential hazards. They hold periodic safety meetings and conduct necessary training to ensure that employees know how to perform their work in a safe manner. First-line supervisors must also enforce applicable health and safety work rules and procedures in the workplace, and where deviations from safe and accepted practices occur, take prompt and effective actions before accidents occur. First-line supervisors must not only motivate employees to perform their jobs properly and safely but must convince employees that they have an inherent responsibility to do so."

- c. Decision of Nuclear Power [now ONP] Occupational Health and Safety Manual Revision 1, dated September 28, 1983.

This ONP program manual contains the following policy statement:

"The Division of Nuclear Power is responsible for the safe, efficient, and environmentally sound operation and maintenance of TVA nuclear generating plants and appurtenant facilities. The principle purpose of the division is the production of electrical energy from nuclear power. All activities shall be supportive of that end. In fulfilling this purpose, there is no conflict between safety and reliability of operation. The two go hand in hand and are mutually supporting. However, in establishing priorities, safety must not be compromised to increase power production. Industrial and nuclear safety are of the highest priority and shall be prime considerations of all activities.

Each nuclear plant superintendent and staff is responsible for the implementation of the division policy and for compliance with the requirements of this manual."

This manual also contains the following statements concerning management responsibility and accountability:

"The purpose of the NU PR Occupational Health and Safety Program is the prevention of accidents and occupational illnesses and the conversion of resources. An accident or job-related illness interferes with a manager's efforts to meet his responsibilities related to cost, performance, and scheduling. Accordingly, every manager is responsible and will be held accountable for the implementation of the program.

The Director of Nuclear Power (now Manager of Nuclear Power) is responsible for establishing, implementing, and maintaining an occupational health and safety program which is consistent with the standards promulgated under Section 6 of the Occupational Safety and Health Act of 1970 (OSHA Act), TVA Occupational Health and Safety Manual, and other applicable Federal health and safety regulations. The director shall commit adequate staff and resources to provide an effective program. The director is also responsible for ensuring that the health and safety program provides adequate guidance to managers in fulfilling their responsibilities for the protection of NUC PR employees; members of the public; property, equipment, and materials.

Managers, supervisors, and foremen are responsible for the health and safety of their employees to the extent of their authority. They shall protect employees under their jurisdiction from hazards, include health and safety criteria in job planning, enforce proper work methods and safeguard equipment, materials, and property."

4.3.1 Issue 90101 - Applicable Standards and Criteria for
"Management Preaches but Doesn't Practice Safety"

Specific requirements applicable to this issue involve the following:

- A. The Office of Nuclear Power Industrial Safety Manual includes the following excerpt relative to ONP's safety policies:

The Division Director shall be responsible to:

"Ensure the implementation of ONP's Occupational Health and Safety Program, TVA Code VIII Occupational Health and Safety, and other applicable TVA and Federal health and safety requirements which may be issued.

Develop any supplemental instructions, work rules, and procedures which are necessary to implement ONP's Occupational Health and Safety Program.

Adequately convey to all levels within his/her authority the total commitment of management to the elimination, reduction, and control of accidents."

4.3.2 Issue 90102 - Applicable Standards and Criteria for "Management Fails Or Is Slow to Respond to Safety Suggestions and Problems"

Specific requirements applicable to this issue involve the following excerpts:

A. The TVA Occupational Health and Safety Manual includes several parts pertinent to this issue.

TVA's Occupational Health and Safety Program Objective - Page 1, item 1.3, "All operating exposures that may result in injuries can be controlled."

TVA's Occupational Health and Safety Program Objective - Page 1, item 1.5, "When a deficiency or condition is observed that could cause an accident, it is promptly reported and actions are taken to control it."

TVA's Occupational Health and Safety Responsibilities, page 3, item 2.2, "Management . . . ensure that identified hazards are promptly addressed and controlled."

TVA's Occupational Health and Safety Responsibilities, page 3, item 2.3, "When weaknesses are detected, take prompt steps to correct them."

B. The ONP Occupational Health and Safety Manual reiterates some of the TVA requirements and also adds the following requirements:

Item 2.4, Employee Involvement, page 3, Health and Safety Program Elements - "Through active employees

participation in the Health and Safety Program this point-of-operation information can provide the manager with valuable feedback as to the effectiveness of the program and actions needed for improvement."

Item 2.4, Employee Involvement, page 3, Health and Safety Program Elements - "Employee involvement includes - a hazard identification reporting system."

Item 2.0, Management Responsibility and Accountability, page 1, item I - "Plant superintendents shall be responsible to respond to employee reports of unsafe or unhealthful working conditions in accordance with Program Requirements."

Item 4.0, Management Responsibility and Accountability, page 4, item H - "Managers, supervisors, and foremen shall have the following responsibilities: To respond to employee reports of unsafe and/or unhealthful working conditions in accordance with Program Requirements."

4.3.3 Issue 90103 - Applicable Standards and Criteria For
"Supervisors Fail To Perform Adequate Job Safety Planning"

Specific requirements applicable to this issue are excerpted as follows:

- A. The TVA Occupational Health and Safety Manual has several areas pertinent to this issue:

Occupational Health and Safety Program Objective - Page 1, Item 1.1, "Every job, no matter how large, can, with proper planning and supervision, be carried out safely without undue risk to employees."

Occupational Health & Safety Responsibilities, Page 3, Item 2.3, "First line supervisors . . . must periodically analyze the jobs assigned to their workers for potential hazards."

Basic Program Elements, Page 5, Item 3.3, "All jobs shall be reviewed before the work is undertaken. Management shall be responsible for ensuring that

these reviews are conducted as appropriate for anticipated hazards and associated risks. For those tasks determined by management to be high-hazard activities, a formal pre-job analysis may be necessary."

B. ONP's Health and Safety Manual requirements include the following excerpts:

Health & Safety Program Elements, Page 1, Item 2.1.2, "Managers, supervisors, and foremen are responsible for . . . including health and safety criteria in job planning."

Section I-2 is a specific section on job safety planning which places the responsibility for performing upon the supervisor. One of the main statements is, "It is the responsibility of each supervisor and employee to analyze each task to be performed in order to control the hazards associated with the tasks."

4.3.4 Issue 90104 - Applicable Standards and Criteria For "The Industrial Safety Staff Is Unresponsive"

Specific requirements applicable to this issue are excerpted as follows:

Nuclear Power Occupational Health and Safety Program Manual, Area Plan 7, lists in program element I-1, managements responsibility and accountability. Section 5.0 of this element describes the responsibility for the Plant and Field Services Safety Sections. These responsibilities are staff support functions and not line management responsibilities.

"Plant and Field Services Safety Sections shall be responsible to:

Identify and inform management of plant conditions and practices which could result in avoidable accidents. To achieve this task, the safety section shall:

Prepare and review accident statistics and investigate accidents to identify problem areas and trends.

Perform hazard analyses of existing and proposed activities and facilities in order to make recommendations for safety improvements.

Perform regular and unscheduled inspections of plant premises and operations to apprise plant management of safety problem areas and propose suggestions for safety improvement.

Develop a plant safety manual to comply with TVA, ONP, and Federal requirements.

Provide advice and information to plant management and employees to reduce hazards, maintain safety awareness, and implement appropriate controls. This information should be distributed both formally and informally and shall include, but not be limited to, specialized education and training for supervisors, emergency personnel, new and permanent employees, contractors, visitors, and those performing hazardous tasks. The safety section shall assist as needed in all such training."

4.3.5 Issue 90105 - Applicable Standards and Criteria For "Inadequate Investigations Of Accidents"

Specific requirements applicable to this issue are excerpted as follows:

The Office of Nuclear Power's Industrial Safety Manual has a complete section on Accident Investigation and Reporting VIII-1. This is a 45 page document, but some key excerpts are:

Work Injury/Illness Reporting

"An accident or job-related illness is evidence that one or more components of the health and safety program require strengthening. When an accident or occupational illness does occur, a prompt and thorough investigation shall be conducted to identify causative factors and to provide necessary recommendations to the manager to prevent recurrence.

Analysis of accident statistics will provide valuable indication of negative trends, identify target areas for special emphasis, and are valuable for comparing the division's performance from year to year. Accurate accident reporting and recordkeeping are needed to provide the statistical base for this type of analysis.

Management ensures that accidents are promptly and properly investigated and pertinent facts relating to each accident are reported. Necessary corrective action is then taken to prevent recurrence of similar accidents."

ACCIDENT INVESTIGATION REPORT (Form 18092)

"Form 18092 is to be initiated by the employee's supervisor/foreman upon receipt or initiation of form 1890. MED SVS [Medical Services] will attach form 18092 with form 1890 and forward it to the employee's supervisor/foreman.

Thorough investigation of accidents is essential to an effective safety program. Each accident must be investigated to determine what, when, how, and why it happened. The most important outcome of any accident investigation is the determination of accident cause factors and the implementation of adequate corrective measures. The Accident Investigation Report is considered administratively confidential when completed.

The second-level supervisor/foreman shall review, evaluate, and approve the investigation and proposed corrective actions to complete the required action on form 18092. The report will then be forwarded to the establishment's safety section/group."

4.3.6 Issue 90106 - Applicable Standards and Criteria for
"Production Has Priority over Safety"

There are no specific requirements applicable to this issue beyond those contained in the corporate and ONP occupational Health and Safety statements.

4.3.7 Issue 90107 - Applicable Standards and Criteria for "Safety Procedures Are Not Followed And Are Not Enforced"

Specific requirements applicable to this issue include the following:

A. TVA OCCUPATIONAL HEALTH AND SAFETY PROGRAM PLAN

Foreword

"As a condition of employment, every TVA employee must comply with all applicable health and safety requirements and work rules associated with his/her job. Failure to do so will result in prompt and appropriate disciplinary measures."

Enforcement

"All employees shall be accountable for performing their health and safety responsibilities in an acceptable manner; and failure to do so may result in corrective or disciplinary action, including terminations.

Line managers shall monitor the health and safety performance of their managers and employees, and supervisors shall routinely appraise the performance of employees in their work units. The results of the ongoing appraisal process shall be integrated into form TVA 13020, Management Appraisal System; form TVA 3031, Employee Service Report; and form TVA 77, Preliminary Personnel Action - T&L. Safety performance will be considered in the selection of personnel for promotions, retention in current positions, and rehire."

B. OFFICE OF NUCLEAR POWER--INDUSTRIAL SAFETY MANUAL

Division Safety Policy

Each ONP employee is responsible for performing his duties and assignments in accordance with the requirements of this manual. . . Violations of rules and procedures shall not be permitted. Appropriate disciplinary action shall be taken against those individuals who violate these rules and procedures."

Management Responsibility and Accountability

Procedure

"The Division Director shall be responsible to:

Ensure the implementation of ONP Occupational Health and Safety Program, TVA Code VIII, Occupational Health and Safety, and other applicable TVA and Federal health and safety requirements which may be issued.

Managers, supervisors, and foremen shall have the following responsibilities:

Each person with supervisory responsibilities is held accountable, to the extent of his/her authority, for furnishing employees a place of employment which is free from recognized hazards for compliance with all applicable OSHA standards and regulations issued by ONP.

Managers, supervisors, and foremen shall utilize disciplinary action to enforce the safety program when employees violate safety rules. This disciplinary procedure shall be conducted in accordance with Division Procedure Manual (DPM) Number N77A7."

- 4.3.8 Issue 90108 - Applicable Standards and Criteria for "Inadequate or Improper Rules and Practice"

There are no specific requirements that address this issue. However, it should be understood that established rules and procedures established by management should be adequate and proper.

- 4.3.9 Issue 90109 - Applicable Standards and Criteria for "Employees Were Ordered To Violate Safety Rules Or Procedures"

See 4.3.7 for applicable standards and criteria.

- 4.3.10 Issue 90110 - Applicable Standards and Criteria for "Enforcement of Rules is Inadequate or Selective"

See 4.3.7 for applicable standards and criteria.

4.3.11 Issue 90111 - Applicable Standards and Criteria for "The Safety Program is Inadequate"

Requirements applicable to this issue involve the total TVA and Office of Nuclear Power Program documents and cannot be feasibly listed here in their entirety. The titles of two documents that are pertinent are: TVA's Occupational Health and Safety Program Manual, and Office of Nuclear Power's Industrial Safety Manual.

5.0 FINDINGS

Three ONP sites (WBN, SQN, and BFN) were evaluated by the DuPont Company. Essentially the same deficiencies and needs for improvement were found at each of these three sites. Therefore, the findings addressed here are being treated as generic, and no site-specific findings will be discussed unless they are of significance. DuPont's field work and reports were used as the basis for these findings, and not ECTG's investigation reports. However, DuPont's field work and report was reviewed by the industrial safety ECTG and the findings were accepted and concurred with.

5.1 Management Responsibility

5.1.1 Issue 90101, "Management Preaches But Does Not Practice Safety"

5.1.1.1 Generic Findings

Although management has committed to safety through written policies, procedures, and rules, this commitment is not evidenced through daily actions. Even the simplest of rules, i.e., the wearing of safety glasses or the use of seat belts in vehicles are not enforced. This lack of enforcement is easily seen by a walk-through of the plant.

Supervisors and foremen interviewed acknowledged that they do not enforce all safety rules, particularly if the employee is not under their supervision.

Employees interviewed indicated that safety meetings are not always well planned. Presentations sometimes are read verbatim with little evidence of support by supervision. Active participation by employees is usually minimal.

Safety is discussed only when specifically brought up at safety meetings, safety inspections, or audits. It is not always an integral part of job planning, scheduling, motivation, enforcement of procedures, or monitoring of work activities by line management.

Most employees know what the rules and procedures are but many times do not work safely because doing so is not seen as a job requirement.

Two employees interviewed stated that TVA talks safety, but it does not act safely. Although they believe that TVA (management) does not want employees to suffer injuries, they do not believe that management takes the steps necessary to achieve this objective.

Several employees interviewed had either worked at or had relatives or friends who had worked at DuPont in Chattanooga. All said that DuPont not only believed in safety but backed up this belief by actively demonstrating their concern, involvement, and commitment in their day-to-day activities. One supervisor who had worked at DuPont said, "TVA does not enforce safety and managers are not held accountable for their performance." Even with 10 years of DuPont experience and training, this supervisor acknowledged that he was letting safety slide somewhat because he did not want to be different from other supervisors and also because he was not held accountable.

24 field observations were encountered by DuPont which supported the preceding findings.

5.1.1.2 Generic Conclusions

This issue was substantiated.

While the safety record at ONP sites has been steadily improving, injury frequency results are not comparable to those achieved by other organizations. ONP's injury frequency rate is six times higher than Duke Power and about two and a half times higher than the other utility companies in the Southeastern Electric Exchange. Although TVA-ONP safety policies and program provisions are similar to those of DuPont, ONP lost workday injury frequency is approximately 40 times poorer than DuPont's (1985 data). This suggests that while the safety program is adequate, implementation is deficient.

While management fundamentally believes in safety and certainly does not want employees to suffer from any industrial injuries, it does not thoroughly or fully understand, accept, and implement principles upon which an effective safety program and philosophy is based.

5.1.2 Issue 90102, "Management Fails to Respond to Safety Problems or Suggestions"

5.1.2.1 Discussion of Generic Findings

Interviews disclosed that a couple of years ago these concerns were more valid than they are today. Employees reported that action is being taken, results were evident, and fewer concerns were being raised. Management responses to reported conditions are still, in some instances, slower than what might be expected, but improvements are continuing to be made.

A lot of these concerns stem from an unrealistic expectation by employees that their job assignment is a narrowly defined task which should be free of impediments for accomplishment.

Safety suggestion programs have been revised in the past year and are working much better in all areas. Maintenance requests pertaining to safety are also being tracked separately, as well as being prioritized for corrective action.

Good progress has been noted by almost all employees interviewed, but improvement can still be made. Of the six WBN concerns previously evaluated and reviewed during this evaluation, four were valid and two invalid. The major problem found was poor communications between line management and employees.

Three field observations were encountered by DuPont which supported the preceding findings.

5.2.1.2 Generic Conclusions

The issue was substantiated.

Two major issues appear to be behind slow response or nonresponsiveness by management. These are (1) not adequately considering safety a line responsibility and (2) not placing the importance on industrial safety that is necessary to achieve industry standard results and alleviate employee concerns. Lack of upper-management accountability appears to have contributed to this lack of attention.

Management does not appear to spend enough time in the field, observing and talking with employees. Suggestions or unsafe conditions brought up do not receive immediate attention and feedback to the employee.

Management has not adequately demonstrated to employees the importance or necessity of following established policies and procedures.

Supervision needs to recognize that employees may have unrealistic expectations regarding working environments and should, therefore, plan for this when developing work assignments. This will help create a more realistic expectation on the part of employees.

5.1.3 Issue 90103 "Supervisors Fail to Perform Adequate Job Safety Planning"

5.1.3.1 Discussion of Generic Findings

Although job safety planning requirements are very specific in each criteria document, they are not always followed. Employees are excessively depended upon to notify their supervisor of any safety problems encountered. Problems with job planning also stem from the fact that first-line supervision and management, as a whole, does not appear to spend adequate time in the field observing work in progress.

Individual supervisors are making judgments on which jobs they must do job safety planning; as a result, many jobs are not reviewed for planning adequacy. Requirements state that "All jobs shall be reviewed before the work is undertaken." The written job planning requirements are good; however, there will be difficulty in determining the degree and adequacy of job planning unless a formal written job safety analysis is developed.

For example, Maintenance Requests have a section where the responsible supervisor is required to sign off, indicating job safety planning was done. However, this is, in many instances, signed off without any actual job planning being done. This lack of job planning is difficult to document because a "paper trail" of the planning activity is not required.

Of the four WBN concerns previously evaluated and reviewed during this evaluation, all four were valid. The problem was identified as poor job planning.

On a more positive note, supervisory safety training was started in 1985; and many foremen and supervisors have completed this training which includes a module on job safety planning.

43 field observations were encountered by DuPont which supported the preceding findings.

5.1.3.2 Generic Conclusions

This issue was substantiated.

All personnel have a responsibility for achieving adequate job safety planning and should participate in the process. Supervisors should use all available support in this area to ensure that each individual understands the work methods to be used in performing his/her work tasks.

Not all safety planning needs to be done in the field; therefore, employees may not be aware that the planning was done. If a job is routine, has been planned previously, and is worked by a crew already instructed in the job and its inherent hazards, planning can be easily handled by the supervisor without going through the full job planning process. Most minor jobs, such as replacing a light bulb or putting up a sign would require very minimal job planning. High-risk or nonroutine jobs should require a very diligent and sometimes formal written job safety planning process.

The safety training of supervisors, including job safety planning, is a positive step toward alleviating the source of this area of employee concerns. This effort should be increased.

5.1.4 Issue 90104, "Safety Staff Not Responsive"

5.1.4.1 Discussion of Generic Findings

The safety staff is considered to be functioning adequately within its organizational responsibilities. As can be seen from section 3.3.4 of this report, the safety staff functions as a support to management in preventing employee injuries through the establishment of a site safety program.

Although fairly well covered by various documents, the fact that the safety department is a staff function and not a line function is not clearly understood by most employees and some managers.

The safety orientation training (GET 1.1) covers how to report or correct hazards identified by employees. It states that an employee should correct a hazard by him/herself, if possible. If not, he/she should report it to the immediate supervisor for handling. In practice, many employees contact the safety office directly regarding conditions they believe to be unsafe. Because of this the safety staff does at times take on the responsibility of line management by directly correcting or getting corrected hazards brought to their attention.

Reports on the five WBN concerns previously investigated and evaluated by others all concluded that employees are relying excessively on the safety staff to fulfill line management and employee responsibilities. All five were found invalid.

One field observation was encountered by DuPont which supported the preceding findings.

5.1.4.2 Generic Conclusions

This issue was not substantiated.

The safety staff activities were judged to be fully adequate in accomplishing staff responsibilities. The actual issue is that management needs to recognize safety as a line management responsibility, not as the responsibility of the safety staff.

Although the situation is improving, there is still a reluctance by line management to fully accept their responsibility.

5.1.5 Issue 90105 "Inadequate Investigation of Accidents"

5.1.5.1 Discussion of Generic Findings

Analysis of recent injury investigation reports showed that the investigations did little to determine actual cause(s) or the corrective actions needed to prevent similar accidents from recurring.

Emphasis is more on completing the reports within a certain timeframe than on determining the cause(s) and the appropriate corrective action(s). Even though detailed requirements define when, by whom, and how accidents are to be investigated and reported, evaluation and review of investigation reports revealed that these procedures are not followed. Management's apparent lack of involvement is evident from their cursory review and approvals of these inadequate investigations.

Accident investigations frequently do not list any unsafe acts or conditions as causes. This is unrealistic except for Acts of God. Witnesses are listed who had no first-hand knowledge of any accident occurring.

Some accidents are reported late and are accepted by management as having occurred on the job. These late reports frequently have no witnesses, no specific incident, and no contact with the Health Stations. Even though policy requirements state that all accidents will be reported immediately and investigated immediately, action taken by management is frequently ineffective.

The Accident Investigation Form TVA 18120 is designed more for computer applications and recordkeeping than for good investigative reporting. These forms are frequently poorly filled out, incomplete in some cases, and do little to encourage investigators to determine actual causes or effective corrective action.

Most accidents receive little management attention. Lost-time accidents receive more attention than other accidents, but even these are usually accepted as part of doing business. Managers are not held accountable for their safety performance and, therefore, devote little time or effort to investigating accidents adequately.

There were no previous investigation reports found for this issue.

One field observation was encountered by DuPont which supported the preceding findings.

5.1.5.2 Generic Conclusions

This issue was substantiated.

Procedures and policy in place were found to be adequate. Priorities are not given to spending the necessary time and effort to perform effective investigations, especially on first aid, near-miss, and medical treatment injuries. Management does not appreciate or understand that the difference between lost-time and first-aid accidents is merely luck or circumstances. Lost-time accidents do receive more emphasis and attention by upper management and by other concerned individuals and agencies, but such investigations are still frequently inadequate.

5.1.6 Issue 90106 "Production Has Priority Over Safety"

5.1.6.1 Discussion of Generic Findings

Interest in job accomplishment was found to be high among all employees interviewed, but conscious decisions to place priority on production at the expense of safety was not found to be evident.

While field observations noted inadequate attention to safety details, the motivation did not appear to stem from an endemic attitude of production over safety. Isolated judgment calls which placed safety in a subordinate role were observed but did not appear to be deliberate attempts to put production ahead of safety.

At one site, management professed to know about areas of safety program weakness needing correction. However, corrective actions were being deferred until "time was available" after the startup of a major production unit so that all available resources could be used on the startup activity.

Although employees reported no instances of direct instruction to perform unsafe acts or violate safety rules, they did report that supervision had on many occasions condoned unsafe job practices in the interest of "getting on with the work." Such experiences were most likely to occur during outages.

Of the four WBN issues previously evaluated by others, three of the reports were found invalid and one valid. The valid finding showed that the supervisor in question received disciplinary action for not fulfilling his safety responsibility.

No field observations were encountered by DuPont addressing this issue.

5.1.6.2 Generic Conclusions

This issue was partially substantiated.

Employees have the perception that management places priority on production over safety because management talks more about production than about safety. "Safe production" is not a part of most manager's vocabulary. Their lack of understanding and acceptance of their safety responsibilities or the need to integrate these into their daily activities adds credence to employee perceptions. The absence of frequent management visits to work areas adds to this employee perception.

5.2 Safety Rules, Procedures, and Practice

5.2.1 Issue 90107 "Safety Procedures Are Not Strictly Followed By Employees And Are Not Enforced By Management"

5.2.1.1 Generic Findings

While improvements have been made in the last year or two, management is still not adequately following procedures or enforcing safety rules, regulations, and practices.

Eye protection and hardhat requirements were noticeable in not being enforced. During tours through the plant, it is common to find numerous

employees, including management, who violate these requirements. Employees interviewed stated that they make independent judgments on when and where to wear personal protective equipment.

Safety requirements do not receive adequate attention and thus they are not enforced adequately. Correction of employee rule violations is particularly poor if the employee is not under the direct supervision of the supervisor who observed the violation.

Differences in plant and construction rules at WBN site has also added some confusion and caused employees at this location to question the reasonableness of some of the rules.

Management appears to lack skill in field observation and in the handling of safety violations by employees. Some managers stated that they did not enforce safety because other managers did not, and they did not want to be different.

Of the two WBN concerns previously investigated and reviewed as a part of this evaluation, one concern was found valid and the other one invalid. The valid concern conclusion was that the cause was due to employees poor attitude, a lack of training, and a lack of enforcement by line management.

69 observations were encountered by DuPont which supported the preceding findings.

5.2.1.2 Generic Conclusions

The issue was substantiated.

All policies, procedures, and requirements reviewed were found to be adequate. However, they are not being implemented.

5.2.2 Issue 90108 "Rules and Practices Are Inadequate Or Improper"

5.2.2.1 Discussion of Generic Findings

Present rules, practices, and procedures were found to be adequate in most cases. However, they are in need of review by site and line management to

reexamine the degree of protection afforded employees, their enforceability, reasonableness, and need. The safety staffs should be used as technical advisors or sources of information in such reviews.

Five out of the six WBN previous investigations and their reports showed an invalid finding. The one valid finding was due to a new construction area which did not have adequate rules and signs posted.

49 field observations were encountered by DuPont which supported the preceding findings.

5.2.2.2 Generic Conclusions

The issue was not substantiated.

Existing safety rules and procedures were determined to be adequate. Proper implementation of these rules and procedures would provide adequate employee protection.

5.2.3 Issue 90109 "Employees Were Ordered To Violate Safety Rules Or Procedures"

5.2.3.1 Discussion of Generic Findings

Field observations or interviews disclosed no findings on supervisors who ordered employees to violate safety rules.

One employee did relate one instance where he was given an assignment that he thought was unsafe, but the problem was resolved.

Reports on the two previously investigated concerns determined that no unsafe conditions existed except in the mind of the employees. Better communications by line managers would probably have eliminated the issue.

Two field observations were encountered by DuPont which supported the preceding findings.

5.2.3.2 Generic Conclusions

The issue was not substantiated.

Better pre-job planning and instructions to employees before starting the job would assist in alleviating many of these issues.

5.2.4 Issue 90110 "Selective or Inadequate Enforcement of Rules"

5.2.4.1 Discussion of Generic Findings

Of the three sites evaluated, this issue is peculiar to WBN. The issue arises from the presence of two distinct organizations working on the same site, both with separate management structures and safety rules. These organizations (Plant and Construction), frequently have employees doing work in the same area. These employees have experienced some inconsistency in work rules and their enforcement. These inconsistencies have led to an employee perception that management has been selective in rule enforcement.

Although employees perceived that numerous inconsistencies in work rules existed, a review of these rules revealed only two of significance. The two differences are:

- (1) Plant allows tennis shoes if they are constructed of leather or leather-like material. Construction requires heavy leather work shoes.
- (2) Construction requires side shields on safety glasses; the plant does not. (This issue has been resolved by Construction's dropping the side-shield requirement.)

Although mentioned in an employee concern, no memorandum exempting annual personnel from the need to wear safety glasses, nor any knowledge of such a memorandum, was found during this evaluation.

Only one WBN concern, which was previously investigated (IN-85-397-002), was reviewed pertinent to this issue. It was not found to be conclusive in its findings.

Two field observations were made by DuPont which supported the preceding findings.

5.2.4.2 Conclusions - WBN

This element was partially substantiated.

Management has not formulated an overall site plan for developing, approving, and implementing site rules through a central safety committee. This committee should be composed of all top level managers from all organizations onsite. This committee should review and approve any proposed rule revisions or new rules.

5.2.5 Issue 90111 - "The Safety Program is Inadequate"

5.2.5.1 Discussion of Generic Findings

Dr. Thomen's evaluation and review stated that "TVA's policy and statement of program objectives contained in the TVA Occupational Health and Safety Manual provide a sound foundation for achieving excellence in safety. The basic principles embodied in these statements are fully endorsed." The Office of Nuclear Power's, Industrial Safety Manual was also found adequate.

Dr. Thomen did find some inconsistencies that need to be resolved between site documents, but these were of a minor significance.

The real issue is with the implementation and achievement of compliance to TVA-ONP safety policies and not with the written program, policy, or procedures.

While management believes in safety and is committed to safety, they have not effectively demonstrated this commitment to the employees.

Management has not been consistent in enforcing safety violations and unsafe acts. This is partly due to their not being involved in the development and decision making process for the safety program. Because of this, they do not have a "proprietary interest" in the program. Personal judgments have also entered into some of the decisions by managers and employees on whether or not to follow the program and procedures.

Dr. Thomen also noted that the skill level and knowledge standards required of craft persons to qualify for hiring have not been established at TVA by objective testing except for welding. Waiting until they are on the job to weed out personnel who are deficient in basic skills and knowledge is a serious handicap to a sound safety program. Establishing a pool of TVA applicants who have been TVA-qualified would constitute a significant upgrade.

Of the two WBN concerns previously investigated and evaluated only one was found valid. This valid finding concluded that, while in the past, the problem centered around employees lack of confidence in the resolving of safety concerns and not in an inadequate program.

15 field observations were encountered by DuPont which supported the preceding findings.

5.2.5.2 Generic Conclusions

This issue was substantiated.

Violations of rules and procedures are not adequately recognized or corrected by supervision. Numerous field observations noted rule violations, primarily in the area of eye protection and footwear. The real issue is in the implementation and enforcement of the safety program and not in the written program, policy, or procedures.

Many excellent safety programs and activities are in place. A new overall strategy and organizational structure for the management of safety will assist

in achieving improved results and will make management efforts in the safety area more apparent to employees.

While management believes in safety and is committed to safety, they need to effectively demonstrate this commitment to the employees. This demonstration should include a more active, visible participation by managers at all levels through more enforcement, effective accident investigations, more education, and management accountability. Safety responsibility must be assumed by line management and integrated into their day-to-day activities.

6.0 COLLECTIVE SIGNIFICANCE

The collective significance of the findings and conclusion of this evaluation is drawn from the Dupont Management Services Evaluation Report and Study and are applicable to all sites.

6.1 Management Effectiveness

Management has not been fully effective in its support of the Industrial Safety Program. This lack of support has resulted in an increased probability of accidents, injuries, and lost-time incidents at TVA's nuclear plants. This lack of support can be seen in ONP's lost-time injury rates. Even though improvement has been made in the last few years, statistics for TVA fiscal year 1985 show that ONP employees were more than twice as likely to suffer a job related lost-time injury as were employees of neighboring utilities within the Southeastern Electric Exchange. When compared to the best-performing utility within this group (Duke Power), ONP's lost time statistics are almost six time higher. This poor safety performance costs TVA, both in terms of lost productivity and its adverse effect on scheduling, and in terms of its associated economic impact.

Management (including supervisors and foremen) are not being held accountable and responsible for the safety of their employees. This has resulted in the following conditions:

- Some safety policies, procedures, and rules are either not being enforced, or the enforcement is not consistent among line managers. Nevertheless the basic written program of safety procedures and instructions is in compliance with higher-tier requirements and corporate policies, and provides adequate protection to employees.
- Safety policies, procedures, and rules are not being effectively communicated to employees, thereby causing unnecessary confusion and varied interpretations and implementations.
- Adequate pre-job safety planning is not being done, thereby increasing employee risk..
- Accident and injury investigations and cause determinations are not being done in a thorough manner.
- Employees have the false impression that TVA management is not concerned with employee safety.
- Site safety procedures and rules between different groups and/or organizations are not consistent.

6.2 Employee Effectiveness

Employees have also been less than effective in their support of TVA and ONP's Industrial Safety Program. Even though employees are aware of site safety rules and procedures, these safety rules and procedures are either ignored or only partially complied with.

6.3 Technical Adequacy

Plant safety equipment is, with minor exceptions, in good condition and serves to adequately protect employees.

7.0 CAUSES

Three ONP sites (WBN, SQN, BFN) were evaluated by DuPont and essentially the same deficiencies and needs for improvement were found at each of these sites. Therefore, the causes addressed here are being treated as generic and no site-specific causes will be discussed unless they are of significance.

Based upon more than 150 observations, the findings and conclusions, for each of the issues, developed during this evaluation pointed toward basic safety management deficiencies. The causes of these deficiencies are defined below.

- A. Lack of understanding and acceptance by management of industrial safety philosophy, policy, and principles.

The basic strategy for safety excellence is to manage safety through the line organization. The commitment, leadership, and drive of senior management personnel significantly impact the success of the safety effort.

- B. Inadequate management involvement

Effective safety management requires continual identification, review, determination of appropriate action, follow-up, correction, modification, analysis, and auditing. These activities increase managements skills essential for day-to-day management of safety.

- C. Inadequate enforcement of rules, practices, and procedures.

Industrial Safety rules, practices, and procedures are established for a definite reason - to prevent injury to employees. Management's lack of enforcement is silently telling employees that management does not believe in the established rules and regulations and that it is all right to violate them. This creates confusion, false perceptions, and results in selective enforcement by managers who make independent judgments on which rules, practices, or procedures they will follow. A rule is a rule - follow it or change it.

- D. Safety is not accepted as a line responsibility

TVA and ONP policies and procedures agree that safety responsibility is a line management function. However, exactly what this means has not been fully communicated or understood. Education is needed at all levels to clear up misunderstandings, interpretations, and perceptions of these policies and procedures and what is expected by top management.

8.0 CORRECTIVE ACTIONS

Although each site is initiating and reviewing corrective actions separately, an ONP task force has been organized to review DuPont's recommendations and develop a proposed ONP course of action. This will provide for some consistency between the sites. The DuPont recommendations are summarized in Attachment B to this report.

8.1 Corrective Actions Already Taken

8.1.1 Watts Bar Site

- A. WBN plant and construction safety policies are being reviewed with the expectation that a new single policy statement will be issued and thoroughly communicated to all employees, as well as all offsite personnel working at WBN.

- B. A Site Central Safety Committee has been formed at WBN. The first monthly meeting was held in July 1986. Five subcommittees were formed under the central committee headed up by principal site managers. These committees are: (1) Program and Activities, (2) Injury and Incident Investigation, (3) Rules and Procedures, (4) Process Hazard Review, and (5) Worker's Compensation. Subcommittee members were selected so as to include a cross-section of personnel from various site organizations at all levels of management.

Nonsupervisory personnel are also expected to participate in these subcommittees.

- C. The five subcommittees met August 6, 1986, with the DuPont consultant, and discussed their functions and activities.

8.2 Corrective Action Discussion

8.3.1 Generic

ONP will be reviewing and evaluating the findings and conclusions of this subcategory report for any significant implications to ONP's Industrial Safety Program. Since three out of four ONP sites were found to have the same deficiencies and needs for improvement, it is anticipated that generic corrective action plans will be developed to improve the overall ONP Industrial Safety Program.

8.3.2 Watts Bar Site (excluding DNC)

8.3.2.1 ONP

A. CATD 90100-1

Problem Description

There is a lack of understanding and acceptance of industrial safety philosophy, policy, and principles.

Corrective Action

The newly formed Central Safety Committee (CSC) intends to adopt a single site safety policy consistent with this recommendation. This policy will be formulated by the Safety Rules and Procedures subcommittee and is expected to be issued and communicated to site employees by March 1, 1987.

Safety Goals and Objectives are currently established for all management employees reporting to the Site Director and progress is reviewed semiannually. Management appraisal system goals and objectives will be reviewed and revised to require improved performance goals for Fiscal Year (FY) 1987. This revision will be completed by January 1, 1987.

B. CATD 90100-2

Problem Description

There is inadequate management involvement in the Industrial Safety Program.

Corrective Action

WBN management has been involved in an overall effort to improve the safety of its employees. Part of this effort has resulted in the formation of a management level Central Safety Committee which held its first meeting on July 16, 1986.

Five management-level subcommittees have also been established:

1. Injury and Incident Investigation
2. Safety Rules and Procedures
3. Program Activities
4. Process Hazards Review
5. Workers Compensation

These subcommittees report to the Central Safety Committee and their makeup and organization has been established along the guidelines provided by DuPont. The Central Safety Committee and the five recommended subcommittees are expected to be functional and operating under written charters by March 1, 1987.

The full implementation of the Central Safety Committee and its subcommittees should implement all referenced recommendations in this problem description.

C. CATD 90100-3

Problem Description

There is inadequate enforcement of industrial safety rules, procedures, and practices.

Corrective Action

WBN Central Safety Committee composed of management from all major site organizations will adopt a single site safety policy by March 1, 1987. (See Corrective Action Plan, Problem Description 90100-1.)

An additional primary function of the Central Safety Committee will be the establishment of a mechanism for workplace safety audits and safety procedure enforcement by all levels of line management. This will be accomplished by the

fully implemented safety audit program. This program will augment existing inspection activities and will be initiated by January 1, 1987.

Recommendation Number 10 from the DuPont "Safety Management Evaluation Report" deals with improvement of the current policy for selecting first-line supervisors. This recommendation will be placed on the agenda of the Central Safety Committee by June 1987.

D. CATD 90100-4

Problem Description

Industrial safety is not accepted as a line responsibility.

Corrective Action

Current and proposed job (position) descriptions for the ONP safety supervisor effectively define this position as a staff function with regards to the plant safety program. Although the position description is presently under review, no change to the staff requirements is anticipated.

Existing plant procedures and documents clearly state that line supervision has the primary responsibility for employee safety. Examples of this responsibility assignment can be found in the ONP WBN, "Supervisors Handbook," and the plant "Hazard Control Instruction Manual." To assist further in the proper placement of safety as a line responsibility the Central Safety Committee has established an Injury and Incident investigation subcommittee chaired by the plant manager. This subcommittee is chartered to ensure effective line management involvement in accident/incident investigations and identify corrective action where indicated. This investigation subcommittee has already met and will function under a written charter by January 1, 1987.

The site has established a Workers Compensation subcommittee. The subcommittee is chaired by the site project manager and is comprised of site management representatives from both Division of Nuclear Construction (DNC) and ONP as well as TVA's Medical Services. A written charter for the subcommittee will be in place by January 1, 1987.

8.3.2.2 DNC

A. CATD 90100-5

Problem Description

There is a lack of understanding and acceptance of industrial safety philosophy, policy, and principles.

Corrective Action

A. Safety Policy

Working through the Central Safety Committee (Safety Rules and Procedures Subcommittee) establish and adopt a single site safety policy.

The new site safety policy will be established by March 1, 1987.

B. Safety Goals and Objectives

Maintain (improve as necessary) the multidiscipline, structured safety and health manager performance goals/objectives now in place for DNC. FY 1986 plan attached (C24 850930 003).

A review of the present goals and objectives and any necessary improvements will be completed by January 1, 1987.

B. CATD 90100-6

Problem Description

There is inadequate management involvement in the Industrial Safety Program.

Corrective Action

A. Central Safety Committee

Establish and execute a site-wide, management level Central Safety Committee to coordinate and guide the safety effort.

This was initiated on July 16, 1986, and will be fully functional by March 1, 1987.

B. Subcommittees

Establish and execute subcommittee functions in areas of the site safety program requiring improvement. These subcommittees will develop recommended corrective action programs and submit to the site Central Safety Committee for consideration and implementation.

Five subcommittees: Injury/Incident Investigation, Safety Rules/Procedures, Program Activities, Process Hazards Review, Workers Compensation were initiated on August 1, 1986, and will be fully functional by March 1, 1987.

C. Safety Organization

Each manager (member) of the Central Safety Committee will set up a safety organization covering his or her area or discipline.

This will be completed by March 1, 1987.

D. Safety Inspections

1. Maintain present system of inspections as required by 29 CFR 1960 (monthly by Health and Safety Committee and yearly by offsite DNC team).
2. Augment item 1 by using the Central Safety Committee for the establishment of a mechanism for workplace safety audits and safety procedure enforcement by all levels of line management.

This will be implemented by
January 1, 1987.

C. CATD 90100-7

Problem Description

There is inadequate enforcement of industrial safety rules, procedures, and practices.

Corrective Action

A. Safety Policy

Working through the Central Safety Committee (Safety Rules and Procedures Subcommittee) establish and adopt a single site safety policy.

Action Date: March 1, 1987

B. Safety Inspections

1. Maintain present system of inspections as required by 29 CFR 1960 (monthly by Health and Safety Committee and yearly by offsite DNC team).
2. Augment item 1 by using the Central Safety Committee for the establishment of a mechanism for workplace safety audits and safety procedure enforcement by all levels of line management.