

# **EMPLOYEE CONCERNS SPECIAL PROGRAM**

**VOLUME 9  
INDUSTRIAL SAFETY CATEGORY**

**SUBCATEGORY REPORT 91000  
UNSAFE CONDITIONS**

## **UPDATED**

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**TVA  
NUCLEAR POWER**

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**TVA EMPLOYEE CONCERNS  
SPECIAL PROGRAM**

**REPORT NUMBER: 91000**

**REPORT TYPE: Watts Bar Nuclear Plant Subcategory**

**REVISION NUMBER: 2**

**TITLE: Unsafe Conditions as Related to  
Industrial Safety**

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**REASON FOR REVISION:**

Revised sections 5.0, 6.0, and 7.0 and incorporation of general editorial comments.

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\*SRP Secretary's signature denotes SRP concurrences are in files.



Preface, Glossary, and List of Acronyms  
for ECTG Subcategory Reports

HISTORY OF REVISION

REV NUMBER	PAGES REVISED	REASON FOR CURRENT REVISION
3	i	To clarify that one or more attachments will help the reader find where a particular concern is evaluated

### **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.

Additionally, at the end of each subcategory report will be a Subcategory Summary Table that includes the concern numbers; identifies other subcategories that share a concern; designates nuclear safety-related, safety significant, or non-safety related concerns; designates generic applicability; and briefly states each concern.

Either the Subcategory Summary Table or another attachment or a combination of the two will enable the reader to find the report section or sections in which the issue raised by the concern is evaluated.



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 done 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 Procedure 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 close-out of the issues raised by the over employee concerns.

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ECSP SUBCATEGORY REPORT GLOSSARY OF TERMS\*

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

Class A: Issue can not 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: Issue itself does not identify a problem, but as a result of the evaluation another problem was discovered for which corrective action was initiated or is needed

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**

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



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

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



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<b>QCP</b>	<b>Quality Control Procedure</b>
<b>QTC</b>	<b>Quality Technology Company</b>
<b>RT</b>	<b>Radiographic Testing</b>
<b>SQN</b>	<b>Sequoyah Nuclear Plant</b>
<b>SI</b>	<b>Surveillance Instruction</b>
<b>SOP</b>	<b>Standard Operating Procedure</b>
<b>SRP</b>	<b>Senior Review Panel</b>
<b>SWEC</b>	<b>Stone and Webster Engineering Corporation</b>
<b>TAS</b>	<b>Technical Assistance Staff</b>
<b>TVA</b>	<b>Tennessee Valley Authority</b>
<b>UT</b>	<b>Ultrasonic Testing</b>
<b>VT</b>	<b>Visual Testing</b>
<b>WBECSP</b>	<b>Watts Bar Employee Concern Special Program</b>
<b>WBN</b>	<b>Watts Bar Nuclear Plant</b>
<b>WR</b>	<b>Work Request or Work Rules</b>
<b>WP</b>	<b>Workplans</b>

**1.0 CHARACTERIZATION OF ISSUES**

This subcategory report consists of 59 concerns and safety suggestions that have been grouped into 15 issues that address unsafe working conditions. These concerns and safety suggestions address those situations that have the potential to injure employees but are not otherwise specifically classified in other subcategories of the Industrial Safety Group. There are no nuclear safety-related concerns in this subcategory.

These concerns and safety suggestions deal with hazardous conditions that develop in day-to-day plant operations or in activities performed in the workplace.

TVA managers, supervisors, and foremen are responsible for reviewing jobs before the work is undertaken to identify those potential hazards associated with the work to be performed. Those potential hazards identified will be either eliminated or controlled in order for the work to be performed safely. The control measures involved are to be communicated to the employees who are to perform the work, and employees should be allowed to participate in this planning process. Supervisors and foremen are also responsible for conducting day-to-day inspections of their workplaces to identify and correct hazards and to integrate safety into their work activities.

The employees are responsible for reporting hazardous conditions to their supervisors and correcting those conditions within their scope of responsibilities. The employees have the following means of reporting hazardous conditions to supervisors or management.

- Day-to-day contact with foremen, supervisors, or managers
- Weekly safety meetings
- Safety staffs
- Health and safety committees
- Form TVA 18090, Hazard Identification Report
- Maintenance requests
- Grievance procedures



**1.1 Housekeeping**

This element consists of ten concerns which address general and specific housekeeping problems. Areas identified were the Auxiliary Building, the Turbine Building of unit 2, the power block, restrooms, and Containment Buildings of units 1 and 2. Materials identified as contributing to poor housekeeping conditions included metal shavings, "dirt, dust, and grime," excess material and tools, boards with nails, scrap metal, hangers, and trash. Some concerns identified neither location nor material.

The issue addressed in this element is poor housekeeping practices in the plant. This issue addresses only industrial safety housekeeping.

**1.2 Material Storage**

The three concerns in this element perceive materials, specifically, bricks and compressed gas bottles, are stored in an unsafe manner that endanger employees at the Watts Bar Nuclear Plant (WBN) Division of Nuclear Construction's (DNC) warehouse facility.

**1.3 Traffic Control**

The three concerns in this element claim that the traffic control system for construction access roads and parking lots is not adequate: lane lines need repainting; there are too many egress points from other parking lots; and lighting is inadequate in the second shift parking lot.

The issue in this element is that employees are exposed to hazardous conditions when using access roads and parking lots.

**1.4 Oxygen and Acetylene Gauges and Headers**

Two concerns claimed improper use of oxygen and acetylene regulators and headers in the plant. They are being interchanged without regard to compatibility of gases, and protective caps are not provided for headers.

The issue is that these conditions are unsafe.

**1.5 Airlock Doors**

The five concerns that comprise this element allege the airlock doors at elevation 713 between the Service Building and the Auxiliary Building are not maintained in a safe operating condition: doors do not have safety switches or they are sometimes inoperable; they move too fast.

**1.6 Control of Vehicle Speed**

The one concern in this element alleges excessive speed by TVA vehicles on the project.

**1.7 Flammable Liquid Storage**

This element consists of one concern regarding the placement of flammable liquid storage cabinets near the access portal and workplan booth on elevation 708, Turbine Building. The concerned individual (CI) perceived this type of storage in the Turbine Building to be a fire hazard and recommended that the cabinets and material in them be moved "outside for fire prevention."

Flammable liquid storage cabinets are required to safely store and control limited quantities of flammable liquids which are used routinely in the plant. It is not known if the CI is aware of the special fire rating design of these cabinets as opposed to ordinary metal storage cabinets. The concern referred to "red lockers." Therefore, it is believed that the CI was questioning the rationale for storing flammable liquids in the plant and particularly in the location identified.

**1.8 Crane Operation**

This element consists of one concern alleging the crane operator was permitted to swing loads over crew shacks at the entrance to the Turbine Building exposing employees to the potential of falling materials.

**1.9 Exterior Doors**

This element consists of one concern about an exterior door in the Technical Services Office Building (TSOB) which would not stay closed. The CI believes this condition to be a safety hazard. The concern was evaluated on the broader issue that exterior doors at WBN are not maintained in a safe condition.

**1.10 Scrap Metal Drop Chute**

This element consists of one concern alleging inspection and maintenance of the scrap metal drop chute on unit 2 is inadequate. The CI alleges this condition allows debris to ricochet into personnel walkways.

**1.11 Explosive Detectors**

The one concern in this element alleges the metal bracket and control lights on the explosive detectors in the access portal are unsafe because they extend outward from the equipment 18 inches on the back.



1.12 Booby Traps

This element consists of one concern. The CI is aware of a booby trap being set in the plant in 1981 or 1982 to cause physical harm to an employee and is concerned similar conditions may still exist.

1.13 Miscellaneous - Watts Bar Nuclear Plant (WBN)

This element consists of 15 safety suggestions that were reported through the WBN Employee Suggestions Program before February 1, 1986. These relate to various alleged unsafe conditions in the plant. These issues did not fit into other established elements; therefore, they were grouped into a miscellaneous element.

A list of these suggestions is as follows:

- A. WBN-85-001 - Individuals are attaching ear plugs to hard hats with wire. CI believes this is a health hazard.
- B. WBN-85-007 - Air filters in Jerry Collins' office door should be covered with expanded metal. If anyone were to strike the metal portion of the filter, they would receive a severe cut.
- C. WBN-0126 - The doorknob on C56 between the control room and hallway outside of the shift engineer's office is too close to the edge of the door.
- D. WBN-0132 - Install a curb around the neutralization tank (Turbine Building, elevation 685) to contain caustic acid spills.
- E. WBN-0183 - Safety racks for temporary storage of pressurized gas cylinder in transit at gate 126 could eliminate a hazard.
- F. WBN-0185 - Grease fittings on the lower bearing capsule is very close to the motor shaft. Greasing this lower bearing when the motor is running, an employee could get caught in the motor coupling. CI suggests having the fitting extended from coupling so that services are away from the turning shaft. (All Emergency Reactor Cooling Water (ERCW) motors.)
- G. WBN-0187 - All confined space areas should be visually marked at the entrances as "Confined Space Areas - Contact Safety . . . ." also; confined space monitors should have operating instructions laminated on each unit.

- H. WBN-0188 - Bumping hazards are in lower containment at and around platforms to pressure relief tank, at elevation 716 and 724. Suggest padding and identifying (tape) these hazards.
- I. WBN-0212 - Inadequate entrance into Medical Services to transport an injured person on a stretcher to an examination bed.
- J. WBN-0243 - Weld some type of metal or steel hook on the liquid nitrogen Dewar cart to secure bottles from releasing.
- K. WBN-0244 - Need Mechanical Maintenance fitters to remove or relocate piping (1-DRV-889 Drain) at elevation 708, TB-J line, on the steam generator blowdown system. It is a safety hazard at eye level.
- L. WBN-700 - The CI believes the chain at the loading dock will not properly hold the empty cylinders.
- M. WBN-0268 - Service air headers in Reactor Building, unit 1 have caps when not in use. If valve leaks, it needs repair. Problem is there is not a way to bleed this down to remove cap.
- N. WBN-0271 - There is a need for reflectors along the access road to the plant and on the morning exit from the plant to help drivers during fog and heavy rain.
- O. WBN-600 I.S. - The three phase bench grinders in the shops need lights installed on the starter to indicate when they are running.

**1.14 Miscellaneous - Sequoyah Nuclear Plant (SQN)**

This element consists of 14 concerns and safety suggestions relating to various alleged unsafe conditions at SQN. These issues did not fit into any of the established elements; therefore, they were grouped into a miscellaneous element.

A list of these concerns and safety suggestions is as follows:

- A. DLJ-85-001 - A tripping hazard exists due to the lip on the threshold of C-15 door to auxiliary room, unit 1.
- B. DLJ-85-002 - Tripping hazards are frequently created by hanging scaffolds or other supports from steel grate floors using pipe or other items to anchor the cables.
- C. DKJ-85-003 - The stairs accessing the Turbine Building from the outside are very slick when wet.



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- D. DLJ-85-006 - Open plugs in upper containment cause tripping hazards. This issue originated from a crew safety meeting report.
- E. DHT-86-001 - The Public Safety Services (PSS) and Health Physics stations on the refueling floor are located such that loads pass over employees' heads.
- F. JAM-85-003 - No warnings are given that ignitors are being tested. If electrical maintenance is testing hydrogen ignitors, there is a risk of being burned. Request warnings when testing ignitors.
- G. EAC-85-001 - Tie-off cables are not provided above crane bridges for use during crane housekeeping or inspections.
- H. EAC-86-002 - Fittings for high pressure hose are improperly job-fabricated by unqualified personnel and are unsafe.
- I. EAC-85-006 - Vehicles parked along roadway curbs at entrance to No. 1 parking lot, obstructing vision and traffic, are a hazard.
- J. RMM-85-005 - Car parking along the curb of parking lot 1 were blocking the view of cars pulling out.
- K. EAC-85-008 - Some crane operators board and operate cranes while other operators are in the process of walking down and/or checking out the crane.
- L. EAC-85-009 - The concern expressed that heavy equipment operators lifting casts using Lorain hydraulic cranes without setting outriggers is not safe.
- M. I-86-240-SQN - An anonymous individual mailed in a concern to the NSRS requesting a sheet metal platform be built on the side of the centrifuge.
- N. I-86-236-SQN - An anonymous individual mailed in a concern to the NSRS requesting safety screens be installed to cover the caustic valves on the hot water tank at the makeup water treatment plant on elevation 685.

**1.15 Miscellaneous - Browns Ferry Nuclear Plant (BFN)**

There is one concern in this element. The issue is that only slight improvement has been made on a winning safety award suggestion that involves installing lighting, handrails, and improved access road at the BFN Intake Forebay, Gate Structure 3.

The absence of adequate lighting and handrails allegedly creates an unsafe condition for employees working in this area.

## **2.0 SUMMARY**

### **2.1 Summary of the Issue**

This report addresses allegations by employees that unsafe conditions are allowed to exist at WBN, SQN, and BFN. These 59 concerns and safety suggestions relate to conditions that have developed through day-to-day plant operations and work activities.

### **2.2 Summary of the Evaluation Process**

The evaluation process used to evaluate these concerns and safety suggestions involved the following:

- Research and review of applicable regulatory and industry safety standards to determine requirements
- Review of pertinent memorandums and documents
- Review of previously prepared investigation reports on individual concerns
- Conducted interviews with managers, supervisors, foremen, and employees
- Conducted inspections to determine physical conditions mentioned in the concerns

### **2.3 Summary of the Findings**

#### **2.3.1 Housekeeping**

The issue is not substantiated. Findings of this evaluation revealed that the requirements for housekeeping as it relates to industrial safety are being met.

#### **2.3.2 Material Storage**

The issue is partially substantiated. Interviews with employees and a review of the previously prepared investigation report revealed repairs had been made on the compressed gas bottle shed. Repairs were made as a result of this concern.



Interviews with employees revealed the stack of bricks did not present a hazard to employees. Inspection of the area revealed the bricks have been removed.

**2.3.3 Traffic Control**

This issue is partially substantiated. The investigation revealed management has a system for controlling traffic, has provided for staggered work schedules for DNC and ONP WBN employees to minimize traffic congestion, has expedited traffic flow in the mornings and afternoons, and periodically paints road lane lines.

Burned out light bulbs did create an illumination deficiency on the second shift parking lot.

**2.3.4 Oxygen and Acetylene Gauges and Headers**

The part of this issue on protective caps for gas headers is substantiated. DNC management provided caps as a result of this concern.

The part of this issue on interchanging regulators and gauges on compressed gas systems is not substantiated. Inspections revealed fuel gas cylinders and headers have left-hand threads while oxygen and argon cylinders and manifolds have right-hand threads, thus preventing interchanging.

**2.3.5 Airlock Doors**

The issue is substantiated. The investigation of these concerns revealed (1) the doors had vertical safety strips, (2) management took actions to minimize or eliminate hazards and, subsequently, took the doors out of service. However, the investigation also revealed one of the doors was operating too fast at one time and that the doors did not have safety strips along the bottom edge of the doors. These two conditions created unsafe conditions.

**2.3.6 Control of Vehicle Speed**

The issue is not substantiated. Speed limit signs are posted. DNC PSS periodically monitors traffic using a radar gun. Tickets are issued and disciplinary action can be taken for habitual violators. Interviews and personal observation of traffic for over five months indicate vehicle speeding on the project is not a problem.

2.3.7 Flammable Liquid Storage

The issue is not substantiated but a corrective action was taken. The evaluation revealed five flammable liquid storage cabinets in an area where the requirements permitted only three. However, the CI wanted all the cabinets to be moved from this area. Findings revealed that flammable liquid storage cabinets are permitted within limits as specified by requirements of the National Fire Protection Association (NFPA). A review of the original response revealed the authorized limit had been exceeded at the identified location. Corrective action taken in September 1985 consisted of relocating the two cabinets in excess of the limit.

2.3.8 Crane Operation

The issue is not substantiated. The evaluation revealed that before the crane began working, a planning meeting was held and the crane and truck were positioned so loads would not be carried over crew shacks. Interviews with the crane operator and ONP WBN safety staff and personal observation indicate that the crane did not carry loads over crew shacks.

2.3.9 Exterior Doors

The issue is not substantiated. Findings revealed no violation or nonconformance with applicable standards, and the condition of door did not present an unsafe condition.

2.3.10 Scrap Metal Drop Chute

The issue is substantiated. The chute was constructed to meet requirements; however, materials falling into the container at the base of the chute could bounce out into personnel walkways. This condition was corrected before this investigation, but after the concern was submitted, by installation of wooden barriers.

2.3.11 Explosive Detectors

The issue is not substantiated. The brackets and control lights do extend out from the rear of the units, but they do not create an unsafe condition.



**2.3.12 Booby Traps**

The issue is not substantiated. Information obtained does not indicate any other traps being reported or investigated since the 1981 or 1982 incident.

**2.3.13 Miscellaneous - ONP WBN**

The issues that comprise this element were submitted as suggestions through the Employee Suggestions Program. The concerns in this element relate to various unsafe conditions in the plant that would not fit into other established elements.

A review of the quarterly reports prepared by the Safety Supervisor to provide a status of the suggestions, and a discussion of the suggestions with a representative in the safety staff revealed management has taken action to address the suggestions.

**2.3.14 Miscellaneous - SQN**

The issues that comprise this element were submitted as suggestions through the Employee Suggestions Program or as concerns that were submitted to the Nuclear Safety Review Staff. The concerns relate to various unsafe conditions in the plant that would not fit into other established elements.

The case files were reviewed; several telephone calls were made to the Safety Supervisor and managers at SQN; and an inspection was made to determine the status of one specific concern. Management has taken or proposed corrective action on all but one of the issues. A Corrective Action Tracking Document (CATD) was submitted to SQN on this issue.

**2.3.15 Miscellaneous - BFN**

The issue is substantiated. The investigation revealed the CI submitted the safety suggestion before August 28, 1985, and was concerned that more action has not been taken to implement the suggestion. The investigation further revealed the BFN safety staff investigated the status of the suggestions and provided the CI a reply on October 9, 1985.

A Design Change Request (DCR) D3251, has been written, but the work for providing additional handrails and lighting will not be done until the next outage. A CATD was submitted to BFN on this issue.

**2.4 Summary of Collective Significance**

Management has been effective in resolving unsafe conditions reported through the safety suggestion program at the sites. However, line management has not been totally effective in its support of the safety program. Because of this, unsafe conditions in the workplace are not always recognized and corrected. This results in an increased probability of accidents or injuries caused by such unsafe conditions.

**2.5 Summary of Perceived Causes for the Findings**

The cause of the findings could be either management's failure to understand its responsibility to implement the safety program or its failure to carry out this responsibility.

Some managers relied on the employees to identify unsafe conditions and report them. Then the managers would take action to get the conditions corrected, but they fail to fulfill their responsibility to conduct day-to-day inspections of their workplaces and preplan work activities to identify and correct unsafe conditions. This lack of initiative creates a perception by employees that management is not interested in the safety program.

**2.6 Summary of Corrective Action and Results Achieved**

The unsafe conditions mentioned in the concerns, except for the safety screens to cover caustic valves on the hot water tank at SQN, and the handrails and lighting at the BFN Intake Forebay Structure, Gate Structure No. 3, have been corrected or have had action proposed to make corrections.

**3.0 EVALUATION PROCESS**

The activities conducted in the evaluation of the issues in this subcategory include research and review of applicable standards, reports, memorandums and documents, inspections, and interviews. Each of these activities are discussed below.

**3.1 Interviews**

During the course of this evaluation, interviews were conducted with 16 managers, 41 employees, nine foremen and, on numerous occasions, the safety staffs. Interviews were conducted to determine procedures for reporting unsafe conditions, to determine inspection programs, to gain knowledge of conditions addressed in the concerns, and to learn management's attitude about getting conditions that are reported to them corrected.



**3.2 Inspections**

Inspections were conducted of the areas mentioned in the concerns to determine the physical conditions and evaluate the alleged unsafe conditions.

**3.3 Standards and Documentation Review**

Standards, procedures, and memorandums were researched and reviewed to determine applicable requirements or criteria for the unsafe conditions mentioned in the concerns. Listed below are either regulatory standards or requirements that have been adopted by TVA, ONP WBN, or DNC.

**3.3.1 Housekeeping Requirements**

**3.3.1.1 29 Code of Federal Regulations (CFR) 1910.22(a)(1)**

This standard requires that all places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition.

**3.3.1.2 29 CFR 1926.25 (a, b, and c)**

This standard requires that construction debris shall be kept cleared from work areas, passageways, and stairs during the course of construction. Combustible scrap and debris shall be removed at regular intervals and appropriate waste collection and separation containers provided. Flammable, oily, or hazardous wastes must be disposed of in containers equipped with covers.

**3.3.1.3 ONP WBN Administrative Instruction (AI) - 1.8, Revision 8, "Plant Housekeeping"**

This instruction encompasses activities for control of cleanliness in facilities, cleanliness in material and equipment, fire prevention, fire protection, control of access, protection of equipment, and radioactive material control. The instruction assigns to plant individuals the responsibility for housekeeping checks of plant areas. Additionally, this instruction provides for a housekeeping check list, specifies frequency of inspections, requires training for special housekeeping practices, and specifies documentation.

**3.3.1.4 DNC, Quality Control Instruction (QCI)-1.36,  
Revision 13, April 1, 1986, "Storage and  
Housekeeping"**

This instruction describes storage and housekeeping requirements for work activities, conditions, and environments that can affect the quality of safety-related and nonsafety-related structures, equipment, and components. This reference, though implemented primarily for the protection of hardware, is included as a part of this report due to its impact on housekeeping as it relates to personnel safety.

**3.3.1.5 DNC Manual of Safe Practice and Information,  
"Housekeeping," pages 10 and 11. There is not a  
revision number or date on this manual.**

This manual requires DNC employees to maintain cleanliness and orderliness at all times both inside and outside of buildings. Material is to be stored to prevent falling or spreading and eliminate tripping and stumbling hazards. Clean up after each work assignment is required. Additionally, welding cables, hoses, electrical cords, etc., shall be routed overhead to eliminate tripping hazards. Housekeeping is briefly described as the orderly arrangement of tools, equipment, supplies, storage facilities, and work areas.

**3.3.1.6 Review of Other Pertinent Documents or Reports**

Reviewed of the periodic "Property Loss Prevention Report," generated by M&M Protection Consultants. Units one and two at WBN were inspected and reported on by Mr. T. V. Clark. The inspection was conducted on August 26-28, 1985.

Responses to employee concerns regarding housekeeping that were prepared before the formation of the WBN Employee Concerns Special Program were reviewed and incorporated within this report.

Housekeeping inspections performed according to AI-1.8 were reviewed for the period January 1985 through July 1986. The inspection reports were reviewed for each section having housekeeping responsibilities.



**3.3.2 Material Storage Requirements**

**3.3.2.1 CFR 1926.250 - "General Requirements for Storage"**

**"General" - 1926.250 (a)(1)**

All materials stored in tiers shall be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling or collapse.

**1926.250 (a)(3)**

Aisles and passageways shall be kept clear to provide for the free and safe movement of material handling equipment or employees. Such areas shall be kept in good repair.

**1926.250 (a)(6)**

Brick stacks shall not be more than 7-feet in height. When a loose brick stack reaches a height of 4-feet, it shall be tapered back 2-inches in every foot of height above the 4-foot level.

**3.3.2.2 29 CFR 1910.176 - "Handling Materials - General"**

**"Secure Storage" - 1910.176(b)**

Storage of materials shall not create a hazard. Bags, containers, bundles, etc., stored in tiers shall be stacked, blocked, interlocked and limited in height so that they are stable and secure against sliding or collapse.

**"Housekeeping" - 1910.176(c)**

Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage. Vegetation control will be exercised when necessary.

**3.3.2.3 29 CFR 1910.22 - "General Requirements"**

**"Housekeeping" - 1910.22(a)(1)**

All places of employment, passageways, storerooms, and service rooms shall be kept clean and in a sanitary condition.

**3.3.2.4 DNC Manual of Safe Practices and Information -  
"Housekeeping"**

Premises both inside and outside of buildings shall be kept clean and orderly at all times.

1. Housekeeping means much more than a "pushbroom" effort. It is the orderly arrangement of tools, equipment, supplies, storage facilities, and work areas.
2. Store materials and supplies in an orderly manner so as to prevent their falling or spreading and to eliminate tripping and stumbling hazards.

**3.3.3 Traffic Control Requirements**

American National Standard Institute (ANSI) Practice for Industrial Lighting, A11.1-1973 and Illuminating Engineering Society Handbook, 1981 application volume requires a minimum of one foot candle of light for self-parking lots.

**3.3.4 Oxygen and Acetylene Requirements**

29 CFR 1926.350(e)(3)

Manifold hose connections, including both ends of the supply hose that lead to the manifold, shall be such that the hose cannot be interchanged between fuel gas and oxygen manifolds and supply header connections. Adapters shall not be used to permit the interchange of hose. Hose connections shall be kept free of grease and oil.

29 CFR 1926.350(e)(4)

When not in use, manifold and header hose connections shall be capped.

29 CFR 1926.350(f)(1)

Fuel gas hose and oxygen hose shall be easily distinguishable from each other. The contrast may be made by different colors or by surface characteristics readily distinguishable by the sense of touch. Oxygen and fuel gas hoses shall not be interchangeable. A single hose having more than one gas passage shall not be used.



**3.3.5 Airlock Doors Requirements**

**No specific requirements.**

**3.3.6 Control of Vehicle Speed Requirements**

**Speed limit signs are posted along access roads and project roads.**

**3.3.7 Flammable Liquids Storage Requirements**

**3.3.7.1 ONP WBN Hazard Control Instruction (HCI)-HM1, "Flammable Liquids Storage, Transfer, and Handling." This instruction permits no more than three flammable liquid storage cabinets to be located in a single storage area. It further states that the supervisor is responsible for ensuring that employees are thoroughly familiar with the appropriate hazard control measures associated with the handling of flammable liquids.**

**3.3.7.2 NFPA, 30, Flammable and Combustible Liquids Code, 4-3.1.**

**This section permits no more than three storage cabinets in a single fire area. Additional cabinets are permitted if separated by at least 100 feet.**

**3.3.8 Crane Operation Requirements**

**29 CFR 1926.180(h)(3)(vi)**

**The operator should avoid carrying loads over people.**

**3.3.8.1 ANSI B30.5a - 1984, Mobile and Locomotive Cranes, Sections 5-3, 1.4 (e)**

**The operator should avoid carrying loads over people.**

**3.3.8.2 DNC Manual of Safe Practices and Informations, page 17**

**Do not swing loads over other workmen if at all possible.**

**3.3.9 Exterior Door Requirements**

**29 CFR 1910.36(b)(1), "Means of Egress, General Requirements, Fundamental Requirements"**

**This standard requires that buildings for human occupancy be provided with exits sufficient to permit the prompt escape of occupants in case of fire or other emergency.**

**NFPA 101, Life Safety Code**

**Section 5-1.2.1, "Means of Egress"**

**Defines a means of egress as a continuous and unobstructed way of exit travel from any point in a building.**

**Section 5-1.7, "Workmanship, Impediments to Egress"**

**Requires doors and all other components of means of egress to be of substantial, reliable construction and built or installed in a workmanlike manner. Means of egress shall be free of obstructions which would prevent its use.**

**3.3.10 Scrap Metal Drop Chute Requirements**

**29 CFR 1926.252(a) - "Disposal of Waste Materials"**

**Whenever materials are dropped more than 20 feet to any point outside the exterior walls of the building, an enclosed chute of wood, or equivalent material, shall be used. For the purpose of this paragraph, an enclosed chute is a slide, closed in on all sides, through which material is moved from a high place to a lower one.**

**3.3.11 Explosive Detector Requirements**

**None**

**3.3.12 Booby trap Requirements**

**None**

**3.3.13 Miscellaneous - ONP WBN Requirements**

**No specific requirements on to these safety suggestions.**

**3.3.14 Miscellaneous - SQN Requirements**

**There are various requirements applicable to issues raised on the safety suggestions and concerns.**



**3.3.15 Miscellaneous - BFN Requirements**

**29 CFR 1910.22(c) - "Covers and Guardrails"**

Covers and/or guardrails should be provided to protect personnel from the hazards of open pits, tanks, vats, ditches, etc.

**4.0 FINDINGS**

The majority of the issues addressed by this subcategory are site-specific in nature. They may, however, have general implications at other ONP sites or Divisions. Therefore, this is being addressed through the development of ONP Standards (which are generic documents for all ONP) and through the development of site procedures (which deal with one site's specific circumstances.)

The findings and conclusions of this subcategory report are not in conflict with any findings and conclusions generated as a result of previous investigations of the employee concerns addressed by this report.

**4.1 Housekeeping**

**4.1.1 Site Specific - WBN**

**Discussion**

Inspections of both DNC and ONP WBN areas revealed a high level of compliance with applicable standards. Although some instances were noted where housekeeping was less than adequate, the overall view is that these are limited areas and are considered to be isolated instances when compared with the plant condition in general. Also, the few areas where some minor housekeeping discrepancies were observed were areas involving construction and contractor work activities. The discrepancies primarily involved welding leads on the floor in unit one, Containment Building and in the Turbine Building at a single work site. These instances are exceptions to the generally good housekeeping practices being employed in the plant.

Inspections revealed that passageways and aisles are clear of material; combustible material is not allowed to accumulate; routing of hoses and electrical cords overhead is being practiced; scaffolding materials are being well managed; and floors are being maintained. Further evidence of this finding is provided in the comments included in the referenced property loss report of M&N Protection Consultants, that housekeeping was good throughout the plant.

A review of inspection reports prepared by ONP WBN and DNC health and safety committees, WBN quarterly inspection teams, and DNC safety staff weekly activity reports indicates 97 housekeeping deficiencies were noted for the period February 1984 to March 1986. This number is not excessive given the size of this project and the type of work involved during this time frame.

A review of the monthly housekeeping inspection reports indicated that housekeeping items are being identified, documented and corrective action taken. ONP WBN Section Supervisors are responsible for monthly inspections of their assigned areas per WBN AI-1.8, "Plant Housekeeping." Compliance with this requirement is considered to be at a high level, judging from the number of reports submitted each month and the number of items identified. Items identified are being corrected by initiation of Maintenance Requests (MR).

Housekeeping, being an ongoing daily process, is no doubt a problem at specific times. The concerns were submitted over a year ago and housekeeping conditions could have been less than adequate at times. However, the procedures implemented for dealing with these problems are effective in meeting the plants industrial safety needs and in meeting requirements.

#### Conclusion

This issue regarding the perception that poor housekeeping practices exist at WBN is not substantiated. Inspections and observations conducted during this evaluation provided evidence that housekeeping procedures are being followed.

### **4.2 Findings - Material Storage**

#### **4.2.1 Site Specific - WBN**

##### Discussion

The DNC warehouse facility covers several acres of land and consists of metal buildings, plastic clad storage sheds, storage sheds for compressed gas bottles and an open yard storage.

There are 15 warehouse employees on the day shift and nine on the night shift.



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The warehouse clerks conduct a weekly inspection of the warehouses and document results. A monthly housekeeping inspection is conducted by a representative from the Materials Quality Control Unit and either the warehouse supervisor or warehouse quality assurance supervisor.

Interviews with two managers and five employees revealed weekly employee involvement meetings and weekly safety meetings are held. Employees are given an opportunity to bring any concern or safety issue to management's attention in these meetings and on a daily basis. A review of the employee involvement meeting minutes for the period of January 29, 1986, to June 2, 1986, revealed considerable discussion from employees on occupational safety issues, i.e., hardhats, safety glasses, seat belts, fork lifts, and conditions in the buildings and yard areas.

Interviews with employees revealed (1) employees are comfortable in reporting conditions needing attention either to their foreman or to the warehouse supervisor; (2) warehouse management is receptive to getting reported conditions corrected, but "sometimes it takes too long"; (3) employees are not required to work in conditions they believe are unsafe; and (4) management is more interested in employee concerns now than they were a year or two ago.

The bricks mentioned in Concern IN-85-118-003 were stacked at the backside of yard 2 in an area with very little, if any, work activity. The condition of the stack of bricks was brought up in a safety meeting before becoming an employee concern. Some of the bricks were restacked and management thought this resolved the problem. Once the employee concern dated August 8, 1985, was issued, management roped off the area since the bricks were not to be used but were to be sold in the October 17, 1985, auction. Inspection of the area revealed the bricks have been removed.

Interviews with four warehousemen that were aware of the stack of bricks revealed: (1) the bricks were two pallets high and estimates of height ranged from 3 to 8-feet; (2) no one was required to work near the bricks; and (3) bricks did not present a threat to anyone.

The shed mentioned in Concern IN-85-001-001 is used to store compressed gas bottles. Two sheds are constructed of heavy timber flooring and supports with skeleton-iron-clad siding. An observation of the sheds did not reveal any deteriorated structural members or sagging floors. Interviews with employees revealed the sheds have been repaired at different times in the past. The previous investigation of this concern indicates repairs had been needed and had been made at the time of that investigation. The repairs were made as a result of the employee concern.

Shed "E" mentioned in Concern IN-85-118-002 is used for miscellaneous storage and is of skeleton-plastic-clad construction. The previous investigation report stated that an inspection conducted August 6, 1985, revealed no safety hazards, but "apparently some work had been done in this area." The report also stated DNC was in the process of moving materials out of the sheds into warehouse buildings. A large portion of shed E has been torn down since the previous investigation was conducted; therefore, physical condition could not be determined during this evaluation.

A review of inspection reports prepared by ONP WBN and DNC Health and Safety Committees, ONP WBN Quarterly Inspection Team, and DNC Safety Staff Weekly Activity Reports, revealed three material storage deficiencies were noted on the reports for the period February 1984 to March 1986. The specific locations were not determined when the information was gathered.

#### Conclusion

The conclusion is that materials at the DNC warehouse facility are stored in a safe manner. This determination is based on the following findings:

1. Only three storage deficiencies were noted through inspection activities for a two year period.
2. Two meetings are held weekly that provide employees an opportunity to bring unsafe conditions to management's attention.
3. Employee interviews indicate management is receptive to getting conditions corrected.



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4. Employee interviews indicate they are not required to work in conditions they believe are unsafe.
5. Observation of the outside storage area and bottle shed reveal materials are being stored in compliance with requirements.

**4.3 Findings - Traffic Control**

**4.3.1 Site Specific - WBN**

**4.3.1.1 Second Shift Parking Lot**

**Discussion**

The previous investigation report on concern IN-85-684-002 indicated light readings in the second shift parking lot ranged from 0.15 to .2-foot candles. Since this is significantly below the 1-foot candle requirement in ANSI A11.1, the report concluded the second shift parking lot lighting should be improved. Therefore, the burned out light bulbs were replaced.

Only a few employees are presently on the second shift; therefore, this parking lot is currently used for overflow and visitor parking during the day.

Personnel walkways in the second shift parking lot and in the main construction parking lot are designated by railroad rails approximately 7 feet apart and protrude above ground level 4 to 5 inches to inhibit vehicles from crossing walkways. Employees that parked in the second shift parking lot crossed the main construction parking lot road enroute to and from the brass alley at shift change. Yellow signs caution vehicle drivers of pedestrian crossings, and DNC management provided the employees using this lot a bus to transport them between the parking lot and the brass alley to minimize traffic exposure.

**Conclusions**

This portion of the element is partially substantiated in that lighting was below ANSI standards. However, replacement of burned out bulbs has improved illumination in the lot.

The personnel walkway concern is not substantiated because walkways are marked by rails and signs, and a bus was provided for transportation when the second shift was fully staffed.

#### **4.3.1.2 Painting Traffic Lane Lines**

##### **Discussion**

The main access road traffic lane lines were painted in June 1985 and the lane lines on the road to the Construction Service Branch (CSB) maintenance garage were painted in November 1985. The concern IN-85-743-002 is dated July 19, 1985. The ONP WBN employees' parking lot, located adjacent to the main DNC parking lot, had its lines painted in March or April 1986. A cognizant general foreman stated there is not a specific schedule for painting lane lines; painting is done when requested either by ONP WBN or DNC management. The DNC parking lots are limestone rock and painting lines is not feasible.

##### **Conclusion**

This portion of the element is not substantiated. Main access road lines were painted before the concern was submitted, and all lines are painted periodically. Inspection revealed lines are readily visible.

#### **4.3.1.3 Third Shift Parking Lot**

##### **Discussion**

The road from ONP WBN employees parking lot to the CSB maintenance garage road is approximately 21-feet wide and makes a 90-degree right hand turn about half way between the parking lot and the junction with the CSB maintenance garage road. At the time the concern was issued, traffic entered the CSB maintenance garage road from the ONP WBN employees parking lot, DNC parking lot, and third shift parking lot. Traffic in this area at shift change would be congested due to the amount of cars leaving the project, but this does not mean this condition would be dangerous because of the safety measures listed in the following paragraph.



Speed limit signs are posted on all access roads and DNC PSS monitors traffic speed using a radar gun on a random basis. PSS officers direct traffic at each DNC shift change, observe for traffic bottlenecks that cause unusual problems, and check roads and parking lots during daily routine patrols. Any unusual conditions noted are reported to their supervisor.

The third shift has now been discontinued and traffic patterns have now been changed to require both DNC and ONP WBN employees parking in these lots to enter and exit through the access road by the DNC gate 2.

Shift changes for ONP WBN and DNC employees are staggered 30 minutes apart; however, both were on the same schedule for about two weeks during the summer of 1985, and this caused some additional traffic congestion. Normally, because of the half hour stagger, employees reporting to work park in the appropriate lot before the employees getting off leave the parking lot; therefore, traffic is primarily one way, either coming in or going out. Between 6 a.m. and 8 a.m. when employees are coming to work, there are two lanes for in-bound traffic and one lane for outbound and vice versa the remainder of the day. Traffic lane restriction signs are posted along the roadway.

#### Conclusion

This portion of the element is not substantiated for the following findings:

1. Speed limit signs are posted and DNC PSS uses a radar gun to periodically monitor vehicle speeds.
2. ONP WBN and DNC employees' work schedules are staggered 30 minutes apart to minimize traffic congestion at shift changes.
3. DNC PSS monitors and directs traffic between 6:15 a.m. and 7:00 a.m., and 3:15 p.m. and 3:45 p.m. when traffic is the heaviest.

4. The three lane road to the project uses two lanes for in-bound traffic between 6:00 a.m. and 8:00 a.m. and two lanes for outbound traffic the remainder of the day.

#### 4.4 Findings - Oxygen and Acetylene Gauges and Headers

##### 4.4.1 Site-Specific - WBN

###### Discussion

Plant inspections verified that fuel gas cylinders and headers have left hand threads while oxygen and argon cylinders and manifolds have right hand threads. This effectively prevents them from being interchanged.

Oxygen and argon cylinders have the same type of threads, but both are clearly marked as to their contents. Regulators for both oxygen and argon are rated at 3500 psi. A welding supply vendor and a TVA welding engineer concur that interchanging the regulators for these gases would not present a hazard.

###### Conclusion

This concern is not substantiated.

###### Discussion

As a result of the second employee concern in this element, construction management was informed during September 1985 that gas headers in the plant were not equipped with protective caps. By October 3, 1985, the caps were installed. An inspection during April 1986 verified the caps were still in place.

###### Conclusion

This concern is substantiated; corrective action has been taken.

#### 4.5 Findings - Airlock Doors

##### 4.5.1 Site Specific - WBN

###### Discussion

The airlock system at elevation 713 between the Service Building and Auxiliary Building consists of two sets of side-hinged, air operated, double doors. The doors are controlled by an interlock system that incorporates both



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card reader and manual opening, and manual and automatic closing activities. Each door is equipped with a vertical safety strip along the leading edge on the inside and outside of the door. This safety strip (switch) is interconnected with the door air operators. If the strip strikes something, the door automatically stops. This safety strip operates in a similar manner as the leading edge on a public elevator door.

The previous investigation report on concern IN-85-546-001 indicates "neither the safety staff nor Construction Medical Services had any records of injuries directly associated with elevation 713 airlock."

The previous investigation report on concern IN-85-615-002 indicates "an inspection of the airlock door (elevation 713, portal to elevator) was conducted on August 21, 1985.

The door does have a limit switch. The limit switch is inside the gray vinyl material which runs down the inside and outside edges of the door." The cognizant mechanical engineers interviewed stated the safety strips were on the doors when they were placed in operation in July 1985.

The previous investigation report on concern EX-85-048-009 indicates "the investigation included repeated use of the safety pad, talks with the cognizant engineer about the subject, and talks with members of the plant and construction safety staffs. None of the above individuals knew of any failure or witnessed any failures of the safety pad." This investigation did not develop any information that safety strips had failed to operate.

The previous investigation report on concern IN-86-246-014 indicates "the doors were most recently adjusted on or about August 21, 1985." The report states that "one of the doors was too fast and was adjusted back to the proper speed." One of the cognizant mechanical engineers interviewed stated one of the doors was operating a little too fast at one time, so adjustments were made to slow it down.

The doors did not have a safety strip along the bottom edge when they were put into operation. If someone is struck by one of the doors and the vertical safety strip is not contacted, the door would not stop, and the person could be pushed into the door threshold or knocked down, causing an injury.

After employees reported the potential hazard to the WBN safety staff, a representative of the safety staff met with the manager in charge to discuss ways to improve safe operations. The following precautions were taken to improve safe operations:

- A PSS officer was stationed at the door to show employees how to operate the doors.
- The swing radius of doors was painted on floor.
- A memorandum on how to operate the doors was sent to employees.
- A safety strip was installed along the bottom edge of the doors.
- An alarm was installed that operates when doors are in motion.

Because of operational unreliability, the manager in charge decided to take the doors out of service in March 1986 and keep them open. The manufacturer, in conjunction with Division of Nuclear Engineering, is now redesigning these doors.

#### Conclusion

Even though the investigations of these concerns revealed (1) the doors had vertical safety strips; (2) management took actions to minimize or eliminate the hazards and subsequently took the doors out of service, this element is substantiated. The investigations revealed one of the doors was operating too fast at one time, and the doors did not have safety strips along the bottom edge. These two conditions created unsafe conditions.

#### **4.6 Findings - Control of Vehicle Speed**

##### **4.6.1 Site Specific - WBN**

#### Discussion

Speed limit signs have been posted on all access and project roads. DNC PSS patrols all access roads and parking lots daily and periodically monitors traffic using a radar gun. First-time speeding violators are issued a warning ticket and second-time violators, within a six-month period, receive a ticket. A copy of the ticket is sent to the employee's supervisor with instructions for the supervisor to discuss the ticket with the employee.



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PSS officers are permitted to exceed the posted speed limit only if they have been dispatched for an emergency. The PSS managers stated they have not received any complaints of officers speeding while on duty on the project.

DNC managers interviewed were aware of the policy on traffic violations and the sequence for progressive discipline as stated in DNC Conduct Guidelines for Salary Policy Employees and in Asa C. Kelley's memorandum dated April 5, 1984, "Working Rules for Trades and Labor Employees," contained in the DNC Policy Manual.

Interviews with two DNC managers who would be notified of tickets for the employees in their area revealed that their employees have not received a speeding ticket in over a year.

**Conclusion**

This element is not substantiated for the following reasons:

Management has developed and implemented measures to control violations of traffic rules on the project. These controls will not prevent speeding on the project, but do establish an effective mechanism to deal with those who habitually violate the requirements.

Interviews and personal observation of vehicles on the project and access roads by this evaluator for over five months indicates speeding is not a problem and that DNC PSS does monitor vehicle speed.

**4.7 Findings - Flammable Liquid Storage**

**4.7.1 Site Specific - WBN**

**Discussion**

Investigation of this concern was initially conducted on September 26, 1985. Five flammable liquid storage cabinets (two above the specified limit) were found at the coordinates T-3, J-Line, elevation 708, Turbine Building. Two cabinets were subsequently relocated in order to comply with the requirements.

NFPA-30 and HCI-HMI permit no more than three flammable liquid storage cabinets in a single location. However, the CI recommends that these cabinets "be moved outside for fire prevention." The use and placement of these cabinets is not prohibited in the plant by the standards except in quantity as mentioned and for critical areas. Critical areas contain safety-related wiring or equipment necessary for safe shutdown and all other areas so designated by the plant manager.

During the course of this evaluation, the Turbine Building, as well as the Container and Auxiliary Buildings, were inspected to determine the level of compliance with the standards. Although other flammable liquid storage cabinets were noted in various locations of the Turbine Building, none were in excess of the established limits. Requests for flammable liquid storage cabinets and their locations must be approved by the Fire Protection Engineer.

Informal interviews with craft foremen were conducted in order to ascertain their familiarity with the requirements of HCI-HMI. The results of the interviews revealed a lack of knowledge about the three cabinet limit by all personnel interviewed. Some knew there was a limit of cabinets in a single location but did not know the limit.

An informal interview with the Fire Protection Engineer provided information which indicated that employees have, on occasion, relocated flammable liquid storage cabinets to other locations which have not been approved. Instances of this nature are identified during routine walk-through inspections conducted by members of the fire and safety staff, or by quarterly inspection teams.

Inspections conducted by health and safety committees and quarterly inspection teams revealed 11 deficiencies for flammable liquids storage during a period of February 1984 to March 1986. However, none of the deficiencies cited were specifically related to the number of flammable liquid storage cabinets in a particular locale.

### Conclusion

This element is not substantiated because the use of the storage cabinets is not by itself a fire hazard. However, the rule limiting the number of cabinets needs to be better understood by personnel. A CATD was sent to ONP WBN describing this problem.