

TVA EMPLOYEE CONCERNS  
SPECIAL PROGRAM

REPORT NUMBER: 91100

REPORT TYPE: Watts Bar Nuclear Plant - Subcategory

REVISION NUMBER: 2

TITLE: Defective/Inadequate Equipment As Related  
To Industrial Safety

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REASON FOR REVISION:

Revised sections 5.0 and 7.0 incorporated minor editorial comments.

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DATE

CONCURRENCE (FINAL REPORT ONLY)

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

## 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.

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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)

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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
WBECS	Watts Bar Employee Concern Special Program
WBN	Watts Bar Nuclear Plant
WR	Work Request or Work Rules
WP	Workplans

1.0 CHARACTERIZATION OF ISSUES

This report discusses six issues each addressing a particular aspect of the subcategory "Defective and/or Inadequate Equipment." None of the issues in this subcategory are nuclear safety-related. The issues raised indicate that employees feel some equipment is defective, cannot be used safely, and could cause injury. These conditions can occur because of inadequate inspection or maintenance of equipment, or improper equipment to perform a job. The six issues are described as follows:

1.1 Forklifts - Two Concerns

Forklifts are not maintained in a safe operating condition and the brakes are always out of adjustment.

1.2 Portable Power Tools - Two Concerns

Portable power tools such as grinders or drills are not maintained in a safe operating condition. Drills do not have side handles and grinders do not have blade or trigger guards.

1.3 Vises - One Concern

Vises in the plant are not maintained in safe working order.

1.4 Yard Ramps - One Concern

Portable yard ramps cannot be transported safely. The concern stated that the ramps needed safety chains to connect the ramp to the forklift that would move it about the site.

1.5 Sandblasting - Four Concerns

Are concerns expressed about sandblasting equipment at Kentucky Dam also a problem at Watts Bar Nuclear Plant (WBN)? The concerns from Kentucky Dam list problems such as worn out equipment and inoperable devices that the operator can use to stop airflow (deadman safety device).

1.6 Equipment Maintenance - Five Concerns

Trucks and heavy equipment used by Construction are not maintained in a safe operating condition. Examples of problems are bad brakes, exhaust leaks, and slipping crane hoist clutches. Supervision orders personnel to operate this equipment and will not have it repaired. A specific problem mentioned was the truck used to transport compressed gas cylinders. The bed is not level and chains are not used to properly secure the cylinders.

**2.0 SUMMARY**

This subcategory deals with concerns of employees that equipment when used might not perform safely and could potentially cause injury. The defective equipment mentioned included forklifts, portable powertools, vises, yard ramps, sandblasting equipment, and vehicle maintenance.

The evaluation process involved reviewing previously completed employee concern reports to provide background information. Then applicable plant instructions, procedures, and correspondence were obtained and reviewed. Field investigation included inspection of equipment, review of maintenance records, and interviews with employees or supervisors.

Investigation findings indicate that forklifts are being satisfactorily maintained; portable powertools are properly inspected and guarded; vises are not unsafe for use; unsafe methods for transporting portable yard ramps have been corrected; sandblasting concerns that were reported at Kentucky Dam are not a problem at WBN, and vehicles are being well maintained. The investigation revealed that plant and construction supervision was not aware that portable yard ramps were being transported in a manner that constituted a hazard. Construction warehouse management is requiring employees to inspect equipment but they are not participating in vehicle safety inspections themselves.

The collective significance of this subcategory is that the issues involving forklifts and yard ramps indicate that management needs to take a more active part in the implementation of the safety program.

The cause of this issue is less than optimum management involvement in daily activities of employees.

The plant and construction organizations are adopting a Plant Safety Audit Program. This program will require documented workplace inspections by all levels of site management. This program will be implemented by January 1, 1987.

**3.0 EVALUATION PROCESS**

Initially, the previously completed employee concerns reports were reviewed and incorporated within this report. Then applicable plant instructions, procedures, and correspondence were obtained and reviewed. Field investigation included inspection of equipment, review of maintenance records, and interviews with employees or supervisors. This method of evaluation was selected to provide pertinent data from several sources in order to perform a thorough and objective evaluation.

Specific details for each issue are shown below:

### 3.1 Forklifts

Interviews were conducted with 12 warehouse employees, one foreman, one supervisor, and a mechanic at the maintenance shop. Shop maintenance records for forklifts were reviewed.

The following sections of Title 29, Code of Federal Regulations, apply to the issues evaluated.

#### 1910.178 (p) Operation of the Truck

If at any time a powered-industrial truck is found to be in need of repair, defective, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition.

#### 1910.178 (q) Maintenance of Industrial Trucks

Any power-operated industrial truck not in safe operating condition shall be removed from service. All repairs shall be made by authorized personnel.

### 3.2 Portable Powertools

A review of Occupational Health and Safety standards reveal no inspection requirements. The construction organization requires quarterly inspections, but has no criteria for the inspector. Six observations in plant areas indicated inspections are being performed. Portable powertools available for issue in the toolroom were inspected.

### 3.3 Vises

This element was evaluated by inspections of unit 2 vises which were conducted on April 16 and 23, 1986. Another inspection was conducted on May 27, 1986, on unit 1 vises. These inspections were performed in order to determine the quantity and condition of the vises available for employee use.

Results of the Division of Nuclear Construction (DNC) Health and Safety inspections were reviewed to determine if vises had been identified in the past as being unsafe. The reports reviewed were for the period of February 1984 through March 1986. No applicable standards could be identified relating to this element.

This evaluation process was deemed appropriate based primarily upon the inspection process which involved the observance and manipulation of every available vise. Conclusions were based upon these findings and the evaluator's judgement. The lack of known requirements prevented further evaluation of the issue.

3 4 Portable Yard Ramps

Interviews were conducted with Power Stores and DNC warehouse supervisors, a Power Stores forklift operator, a DNC warehouseman and assistant storekeeper.

Two inspections and two observations were made during this evaluation. Inspections were conducted on each of the three ramps available at WBN. Observations were made to determine if the ramps were being transported correctly.

The original response to this concern was reviewed and pertinent information included in this report. The field notes and a memorandum were also reviewed.

The following criteria were utilized in evaluating this issue:

- A. Manufacturer's recommendation on transporting portable yard ramps (Advanced Handling Systems, Inc.) - the use of a tow bar is recommended.
- B. WBN Hazard Control Instruction HCI-G1, Section III.B., Employee Rights and Responsibilities

Employees are responsible for reporting unsafe or unhealthful working conditions which cannot be personally corrected. Such conditions shall be reported to the employee's supervisor.

- C. WBN HCI-G2, Employee - Supervisor Safety Responsibilities Items 19, 20 and 21

Supervisors shall plan the job with their crew so that it can be done safely before beginning any work assignment. Supervisors shall work with their assigned employees to improve their ability to recognize hazards and take corrective measures. Supervisors shall monitor the work of their employees daily to ensure that they are working safely and observing appropriate safety rules and practices.

- D. DNC Manual of Safe Practices and Information - Supervisor's Responsibilities - pages 1 and 2.

### 3.5 Sandblasting

Previously completed investigation from Kentucky Dam reports were reviewed. Informal interviews were conducted with a painter supervisor and five painters at WBN.

The following criteria were utilized in evaluating this issue:

Occupational Safety and Health (OSHA) Standards, Title 29, Code of Federal Regulations, Part 1910.244(b) - Abrasive Blast Cleaning Nozzles

The blast cleaning nozzles shall be equipped with an operating valve which must be held open manually. A support shall be provided on which the nozzle may be mounted when it is not in use.

The Office of Engineering Design and Construction Manual of Safe Practices and Information (page 26) - Sandblasting Nozzles Shall Be Equipped With A Deadman-type Control Lever

### 3.6 Equipment Maintenance

A maintenance shop supervisor, a construction supervisor, five truck drivers, and five equipment operators were interviewed. The bed of the truck used to transport compressed gas cylinders was inspected to provide information on a concern specifically citing it.

The following criteria were utilized in evaluating this issue:

29 CFR 1926.550(a)(5)and(6) - "Cranes and Derricks"

The employer shall designate a competent person who shall inspect all machinery and equipment prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies shall be repaired, or defective parts replaced, before continued use.

A thorough, annual inspection of the hoisting machinery shall be made by a competent person, or a government or private agency recognized by the U.S. Department of Labor. The employer shall maintain a record of the dates and results of inspections for each hoisting machine and piece of equipment.

29 CFR 1926.601(b)(14) - "Motor Vehicles"

All vehicles in use shall be checked at the beginning of each shift to assure that the following parts, equipment and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: service brakes, including trailer

brake connections; parking system (hand brake); emergency stopping system (brake); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices. All defects shall be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

#### 4.0 FINDINGS

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 Generic

Due to the nature of the issues addressed by this subcategory, the findings and conclusions of this report are site-specific to WBN.

##### 4.2 Site-Specific

###### 4.2.1 Forklifts

###### Discussion

Operators inspect the forklifts daily and any deficiencies noted are reported to either the foreman or warehouse supervisor. If the operator believes the unit is unsafe, it is taken out of service and either the foreman or warehouse supervisor contacts the maintenance shop to make the necessary repairs. Mechanics do not perform scheduled inspections or preventive maintenance on the forklifts; however, they do keep records of any repairs that are made.

Employee interviews reveal that they do not feel inhibited from reporting deficiencies on forklifts to management and are not required or requested to operate units they believe are unsafe.

A review of the maintenance records reveal one of the older units (number 386656) received a general overhaul of engine and steering in June 1985, and all units have received repairs several times during the past year.

Two employees interviewed stated steering and brakes on one of the older units is in need of repairs. An interview with the maintenance shop indicates this unit is to be sent to

their shop for repairs. The mechanic also stated that they received three complaints on brakes during the past year and in each case the brakes were repaired.

#### **Conclusion**

The employee concerns in this element are not valid for the following reasons:

- The warehouse management is complying with regulatory requirements by taking units out of service that are reported unsafe and having repair performed by CSB mechanics.
- Employees stated that they are not required to operate units they believe are unsafe, and they are not inhibited from reporting defective conditions that need repairs. Management is responsive in having units repaired when deficiencies are reported.
- A review of records reveal all units have received various types of maintenance on several different dates during the past year.

#### **4.2.2 Portable Powertools**

##### **Discussion**

In a review of site instructions it was determined that quarterly inspections of pneumatic and electric tools are required. Inspections in the plant revealed that the tools are color coded to indicate that quarterly inspections are being performed.

OSHA standards require grinders to be equipped with wheel guards, but they do not require trigger guards. Handles on drills are not mentioned in OSHA standards or consensus standards. Before December 1985, the construction organization did not require wheel guards on small grinders. During December 1985, they revised their procedures and now require guards as described in OSHA standards.

While trigger guards are not required by standards, they can prevent injuries caused by inadvertent operation of a powertool. Grinders that did not have these guards have been purchased in the past, but as of April 1986, no grinders are issued without trigger guards.



Inspection of tools in the toolroom during January 1986 and May 1986, revealed that drills and grinders are in apparent good condition. Grinders are issued only when wheel guards are in place. The one-half inch drills all have side handles. The three-eighths inch, variable speed drills are not normally issued with side handles, but handles are available.

#### **Conclusion**

Grinders were issued without guards for wheels or triggers, but this has now been corrected. The concern that tools are in poor condition and that necessary side handles are not provided for drills was not substantiated. .

#### **4.2.3 Vises**

##### **Discussion**

Vises in unit 2 were inspected on April 16 and 23, 1986. Findings revealed that four of 14 vises inspected were mechanically deficient. However, the deficiencies found do not constitute a safety hazard. Problems with the vises are partially substantiated with reference to the issue description only. Vises are not being maintained.

No discrepancies relating to vises are identified by DNC Health and Safety Inspection Reports. Inspections of the vises indicated that, of the four vises identified as mechanically deficient, three had screw-gear problems which prevented the retraction of the vise holding plate. The plate must be retracted by hand when removal of a work piece is desired. A fourth vise was missing the entire screw-gear mechanism and was thus inoperable. Although not "worn out and unsafe" as indicated in the concern statement, the four vises are in need of repair in order to function as intended.

Inspection of WBN unit 1 vises on May 27, 1986, revealed no vises to be deficient or unsafe.

##### **Conclusion**

The concerns are not substantiated.

#### **4.2.4 Portable Yard Ramps**

##### **Discussion**

This concern was originally investigated by this evaluator in September 1985. The findings revealed that an unsafe method of relocating the ramps that does not meet manufacturers recommendations was being employed. Forklift operators would slide the forks of their forklift under one end of the ramp, elevate the forks, and push the ramp to the desired location. This information was obtained through interviews with employees.

There are three portable yard ramps on site, two belonging to the plant and one belonging to construction. The ramps are used primarily by Power Stores and warehouse personnel. Contact was made with the manufacturer's representative, Advanced Handling Systems, Inc. Their recommendation was the use of a tow bar which readily attaches to the ramp and may then be towed by the forklift. This information was provided to construction and plant management so that purchases could be made for each yard ramp.

Interviews with Power Stores management revealed that they were not aware of the need for a tow bar. Power Stores employees also were not aware of the need for a tow bar and used "safety chains" for positive control. Warehouse management was aware of the need for a tow bar and mistakenly thought they were being used by warehouse employees. Interviews revealed that a tow bar was available at one time, but apparently it had been misplaced.

Follow-up investigation of the concern continued during the period of April 15 through 23, 1986. Findings revealed that tow bars had been purchased and were being provided for employees' use. Observations by the evaluator during this time provided verification that the tow bars are being used as intended. Additionally, the proper method of yard ramp relocation had been disseminated to those involved. The primary method of instruction for yard ramp relocation activities was through the weekly crew safety meetings. Additionally, with tow bars now provided, the manufacturer's instructions (which are located on the ramps) can be read and followed. Abatement of the hazard has occurred and has been verified.

#### **Conclusion**

This concern was substantiated based upon the results of an investigation conducted by this evaluator on September 19 through 23, 1985, and by additional interviews and follow-up verification on April 15 through 23, 1986.

#### 4.2.5 Sandblasting

##### Discussion

Interviews with foremen and painters revealed that they do not have any problems with the maintenance and operation of sandblasting equipment. Management is responsive to their requests and encourages their input. Supervisors and employees state equipment is not used if the deadman safety device is inoperative. Sandblasting equipment is inspected daily by employees, weekly by shop foreman, and quarterly by the painter superintendent. Employees safety meetings and employee involvement meetings that are held weekly provide opportunities for employees to discuss safety issues or concerns. No concerns have been raised about sandblasting equipment at WBN.

The concerns in this issue were not substantiated at WBN.

#### 4.2.6 Equipment Maintenance

##### Discussion

The maintenance shop does not have an inspection or preventative maintenance program for trucks. However, a thorough annual inspection of cranes is performed. This includes inspection of booms, cables, rigging, brakes, clutches, hoisting sheaves, bearings, control levers, etc. Records are maintained on each crane that contains the dates, inspection results and repairs performed on the equipment.

Two mechanics are assigned to perform maintenance on construction trucks and equipment. An equipment inspection team from Knoxville periodically visits all construction sites to inspect and perform maintenance on equipment. There is one mechanic on site who performs minor maintenance on cranes.

The offsite maintenance shop supervisor states that mechanics have received training from Caterpillar and Cummins Engine representatives on equipment maintenance and receive continuous on-the-job training and instruction from supervision. He talks regularly with the equipment section general foreman and has not received any complaints about the quality of maintenance performed on trucks and equipment. The equipment section general foreman and seven of ten drivers and operators interviewed stated that mechanics do a good job.

Operators inspect cranes daily. An operator and an ironworker inspect cranes weekly and prepare a report. Truck drivers make a daily inspection of vehicles and complete a checklist. The mechanics obtain the checklists and make necessary repairs.

All drivers and operators interviewed stated they are not required to drive or operate trucks or equipment they believe are unsafe. Seven of ten drivers or operators interviewed commented that foremen and supervisors support their efforts to maintain safe trucks and equipment. The other three did not comment on management support. Six of ten drivers and operators interviewed stated that they experienced difficulty in getting vehicles repaired after the on-site equipment maintenance shop was closed and an offsite facility was used in September 1984. This could be the cause of some of the concerns being initiated.

Interviews with cognizant employees and managers revealed that the truck used to transport compressed gas cylinders previously had a metal floor and the cylinders would slip out from the chains used to secure them. This condition was reported to the equipment section supervisor and arrangements were made with carpenters to install a wood floor. The wood floor was subsequently installed. Inspection of the truck revealed flooring is in good condition and chains are in place to secure cylinders. Interviews with drivers who use this truck revealed that they are aware of requirements to secure cylinders.

#### Conclusion

The issues in this element are not substantiated for the following reasons:

- A. Vehicles are inspected daily by the driver.
- B. Cranes are inspected daily by the operator, weekly by an operator and ironworker, and annually by a qualified inspector.
- C. All employees interviewed stated that they are not required to operate units they believe are unsafe.
- D. The interviews with employees, foremen, and supervisors did not reveal unsatisfactory maintenance on trucks and equipment.
- E. Inspection and maintenance programs for trucks and cranes are in compliance with requirements.

5.0 COLLECTIVE SIGNIFICANCE

5.1 Management Effectiveness

Management has not been totally effective in their support of the safety program. As an example, even though the method utilized for moving portable yard ramps constituted a safety hazard, management had not identified or corrected the problem. This lack of management attention increased the risk that an employee could be injured while moving such a ramp.

6.0 CAUSES

Although no significant problems were identified as a result of this investigation, line management should have a greater commitment to ensuring the day-to-day safety of their employees.

7.0 CORRECTIVE ACTION

No specific corrective actions are required, and no outstanding corrective actions exist as a result of any prior investigation of the employee concerns addressed by this report.

Inadequate involvement by management in the safety program is addressed by Corrective Action Tracing Documents (CATDs) within the industrial Safety Category as follows:

A. Subcategory Report 90100, Management of Safety.

CATD 90100-1, 5, 9 and 13 establish a Central Safety Committee (CSC) comprised of line management. CATD 90100-2, 6, 10 and 14 establish various line management subcommittees to the CSC. CATD 90100-3, 7, 11 and 15 establish a safety audit program. One of the principle purposes of the CSC will be to communicate and to improve the enforcement of the industrial safety program by all line managers to the employees.

8.0 LIST OF EVALUATORS

D. K. Gray  
L. R. Petty  
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9.0 ATTACHMENTS

Attachment A - Subcategory Summary Table

## ATTACHMENT A

REFERENCE - ECPS131J-ECPS131C  
 FREQUENCY - REQUEST  
 NP - ISSS - KHM

TENNESSEE VALLEY AUTHORITY  
 OFFICE OF NUCLEAR POWER  
 EMPLOYEE CONCERN PROGRAM SYSTEM (ECPS)  
 EMPLOYEE CONCERN INFORMATION BY CATEGORY/SUBCATEGORY  
 SUBCATEGORY: 911 DEFECTIVE/INADEQUATE EQUIPMENT

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 RUN DATE - 01/28/87

CATEGORY: SF INDUSTRIAL SAFETY

CONCERN NUMBER	CAT	SUB CAT	S H R D	PLT LOC	1 REPORT APPL				HISTORICAL REPORT	CONCERN ORIGIN	CONCERN DESCRIPTION	REF. SECTION CAT - SF SUBCAT - 911
					2 SAF RELATED	3 FIND CLASS	BF	BL				
N -85-317-00301 T50208	SF	911	N	WBN	1	N	N	N	Y	IN-85-317-003	QTC	4.2.3
					2	NA	NA	NA	NO			
					3	NA	NA	NA	B			
N -85-574-00101 T50051	SF	911	N	WBN	1	N	N	N	Y	IN-85-574-001	QTC	4.2.2
					2	NA	NA	NA	NO			
					3	NA	NA	NA	C			
N -85-683-00101 T50089	SF	911	N	WBN	1	N	N	N	Y	IN-85-683-001	QTC	4.2.1
					2	NA	NA	NA	NO			
					3	NA	NA	NA	E			

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

REFERENCE - ECPS131J-ECPS131C  
 FREQUENCY - REQUEST  
 NP - ISSS - RHM

TENNESSEE VALLEY AUTHORITY  
 OFFICE OF NUCLEAR POWER  
 EMPLOYEE CONCERN PROGRAM SYSTEM (ECPS)  
 EMPLOYEE CONCERN INFORMATION BY CATEGORY/SUBCATEGORY  
 SUBCATEGORY: 911 DEFECTIVE/INADEQUATE EQUIPMENT

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 RUN DATE - 01/28/87

CATEGORY: SF INDUSTRIAL SAFETY

CONCERN NUMBER	CAT	SUB CAT	S H R D	PLT LOC	1 REPORT APPL				HISTORICAL REPORT	CONCERN ORIGIN	CONCERN DESCRIPTION	REF. SECTION CAT - SF SUBCAT - 911
					2 SAF RELATED	3 FIND CLASS	BF	BL				
N -85-941-00101 T50095	SF	911	N	WBN	1	N	N	N	Y	IN-85-941-001	QTC	4.2.1
					2	NA	NA	NA	NO			
					3	NA	NA	NA	A			
N -85-978-00601 T50270	IM	604	S	WBN	1						QTC	4.2.6
					2							
					3							
	02	SF	911	S	WBN	1	N	N	N	Y		
					2	NA	NA	NA	NO			
					3	NA	NA	NA	A			
N -85-978-01001 T50270	MP	706	S	WBN	1						QTC	4.2.6
					2							
					3							
	02	SF	911	S	WBN	1	N	N	N	Y		
					2	NA	NA	NA	NO			
					3	NA	NA	NA	A			

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

REFERENCE - ECPS131J-ECPS131C  
 FREQUENCY - REQUEST  
 NP - ISSS - RNM

TENNESSEE VALLEY AUTHORITY  
 OFFICE OF NUCLEAR POWER  
 EMPLOYEE CONCERN PROGRAM SYSTEM (ECPS)  
 EMPLOYEE CONCERN INFORMATION BY CATEGORY/SUBCATEGORY  
 SUBCATEGORY: 911 DEFECTIVE/INADEQUATE EQUIPMENT

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CATEGORY: SF INDUSTRIAL SAFETY

CONCERN NUMBER	CAT	SUB CAT	S H R D	PLT LOC	1 REPORT APPL 2 SAF RELATED 3 FIND CLASS	B F	L B	S Q	W B	HISTORICAL REPORT	CONCERN ORIGIN	CONCERN DESCRIPTION	REF. SECTION CAT - SF SUBCAT - 911
N -85-978-01401 T50270	SF	911	N	WBN	1 N N N Y 2 NA NA NA NO 3 NA NA NA A						QTC	MAINTENANCE OF TVA VEHICLES IS OFTEN PERFORMED IN AN INADEQUATE AND INCOMPETENT MANNER, RESULTING IN FURTHER DAMAGE TO EQUIPMENT AND A POTENTIAL SAFETY HAZARD TO EMPLOYEES WHO OPERATE THIS EQUIPMENT. DETAILS KNOWN TO DATE. NO FURTHER INFORMATION MAY BE RELEASED. CONSTRUCTION DEPARTMENT CONCERN.	4.2.6
N -86-006-00101 T50100	SF	911	N	WBN	1 N N N Y 2 NA NA NA NO 3 NA NA NA C						QTC	HAND GRINDERS ARE BEING USED ON THE JOB THAT DO NOT HAVE TRIGGER GUARDS (SAFETY CATCHES) ON THEM. PRIMARILY THE 90 DEGREE AND END GRINDERS. CI HAS NO ADDITIONAL INFORMATION. FOLLOW UP REQUIRED.	4.2.2
N -86-030-00101 T50113	SF	911	N	WBN	1 N N N Y 2 NA NA NA NO 3 NA NA NA C						QTC	THE TRUCK UTILIZED TO TRANSPORT OXYGEN AND ACETYLENE BOTTLES IS UNSATISFACTORY. THE BED IS NOT LEVEL AND CHAINS ARE NOT USED PROPERLY TO SECURE BOTTLES. THE TRUCK IS NORMALLY PARKED IN FRONT OF THE GENERAL CONSTRUCTION. FOLLOW UP REQUIRED.	4.2.6

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.



REFERENCE - ECPS131J-ECPS131C  
 FREQUENCY - REQUEST  
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TENNESSEE VALLEY AUTHORITY  
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 EMPLOYEE CONCERN INFORMATION BY CATEGORY/SUBCATEGORY  
 SUBCATEGORY: 911 DEFECTIVE/INADEQUATE EQUIPMENT

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 RUN DATE - 01/28/87

CATEGORY: SF INDUSTRIAL SAFETY

CONCERN NUMBER	CAT	SUB CAT	S H R PLT D LOC	1 REPORT APPL				HISTORICAL REPORT	CONCERN ORIGIN	CONCERN DESCRIPTION	REF. SECTION CAT - SF SUBCAT - 911
				2 SAF RELATED	3 FIND CLASS	BF	BL				
N -86-063-00101 T50113	SF	911	N WBN	1 N	N N	N Y		IN-86-063-001	QTC	THE PORTABLE RAMPS USED TO UNLOAD TRUCKS, NEED SAFETY CHAINS CONNECTING THE RAMP TO THE FORKLIFT DURING RELOCATION OF THE RAMP. THIS CHAIN WOULD PROVIDE POSITIVE CONTROL OF THE RAMPS BY THE FORKLIFT. CI HAS NO ADDITIONAL FOLLOW UP REQUIRED.	4.2.4
O -85-001-00201 T50075	SF	911	N WBN	1 N	N N	N Y		00-85-001-002	QTC	SAFETY PROBLEMS WITH WORN OUT (ROTTED, GASKETS BLOWN, HOSES RIPPED) EQUIPMENT (AIR COMPRESSORS, SWINGING STAGES, SAND BLAST HOSES, AIRLINES) ARE ROUTINELY BROUGHT UP FOR DISCUSSION DURING MONDAY MORNING SAFETY MEETINGS. HIS MEN THAT THEY MUST "MAKE DO" WITH THE EQUIPMENT THEY HAVE ON HAND BECAUSE OF COST. (KENTUCKY DAM HYDRO PLANT) EXAMPLE: ONE EMPLOYEE (NAME KNOWN) GOT HURT WHILE SAND BLASTING, HIS SIDE WAS HURT & BLEEDING. TIME FRAME SEPT.1984.	4.2.5
O -85-001-00601 T50075	SF	911	N WBN	1 N	N N	N Y		00-85-001-006	QTC	SANDBLASTING HOSES OPERATING AT 150 PSI ARE BADLY WORN, SOME LEAK AND SOME HAVE EXPLODED CAUSING PERSONNEL INJURIES. INJURED PERSONS WERE GIVEN MEDICAL ATTENTION BUT NO ACTION WAS TAKEN TO CORRECT THE PROBLEM. (KENTUCKY DAM HYDRO PLANT) EXAMPLE: ONE EMPLOYEE (NAME KNOWN) GOT HURT WHILE SAND BLASTING, HIS SIDE WAS HURT & BLEEDING. TIME FRAME SEPT.1984.	4.2.5

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

REFERENCE - ECPS131J-ECPS131C  
 FREQUENCY - REQUEST  
 ONP - ISSS - RWM

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 SUBCATEGORY: 911 DEFECTIVE/INADEQUATE EQUIPMENT

PAGE - 5  
 RUN TIME - 16:50:14  
 RUN DATE - 01/28/87

CATEGORY: SF INDUSTRIAL SAFETY

CONCERN NUMBER	CAT	SUB CAT	S H R D	PLT LOC	1 REPORT APPL				HISTORICAL REPORT	CONCERN ORIGIN	CONCERN DESCRIPTION	REF. SECTION CAT - SF SUBCAT - 911	
					2 SAF RELATED	3 FIND CLASS	BF	BL					SQ
00-85-001-00701 T50075	SF	911	N	WBN	1	N	N	N	Y	00-85-001-007	QTC	DEADMAN SAFETY DEVICES TO STOP FLOW OF MATERIAL THROUGH SANDBLASTING HOSES IN THE EVENT OF EQUIPMENT FAILURE ARE IN-OPERATIVE. NO CORRECTIVE ACTION WAS TAKEN. (KENTUCKY DAM HYDRO PLANT) NAME OF SUPERVISOR AND INJURENCE SEPT 1984.	4.2.5
					2	NA	NA	NA	NO				
					3	NA	NA	NA	A				
00-85-001-00801 T50079	SF	911	N	WBN	1	N	N	N	Y	00-85-001-008	QTC	PAINT SPEWS OUT FROM WORN PAINT LINES THAT ARE UNDER 80-100 PSI PRESSURE CAUSING PERSONNEL HAZARD. HOSE FITTINGS ARE ALSO FAULTY. (KENTUCKY DAM HYDRO PLANT) NAME OF SUPERVISOR KNOWN; TIME OF OCCURANCE IS CONTINUOUS,	4.2.5
					2	NA	NA	NA	NO				
					3	NA	NA	NA	A				
QP-85-004-00701 T50259	IH	604	S	SQN	1						QTC	AN EMPLOYEE WAS DIRECTED BY SUPERVISION TO OPERATE A PIECE OF HEAVY EQUIPMENT, AFTER THE EMPLOYEE HAD REPORTED THE EQUIPMENT AS DEFECTIVE. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. NO FURTHER INFORMATION DEPARTMENT CONCERN. CI HAS NO FURTHER INFORMATION. NO FOLLOW-UP REQUIRED.	4.2.6
	02	SF	911	S	2	NA	NA	NA	NO				
					3	NA	NA	NA	A				

15 CONCERNS FOR CATEGORY SF SUBCATEGORY 911

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.



ECSP CORRECTIVE  
Action Tracking Document  
(CATD)

INITIATION

1. Immediate Corrective Action Required:  Yes  No
2. Stop Work Recommended:  Yes  No
3. CATD No. 91100-2
4. INITIATION DATE 8-11-86
5. RESPONSIBLE ORGANIZATION: ONP-WB
6. PROBLEM DESCRIPTION:  QR  NQR Although none of the issues in this subcategory were substantiated, collectively the issues raised indicate the Industrial Safety Program could be improved if management/supervision participate in field reviews of equipment condition. Also safe performance can be improved with frequent observation of equipment in use.

- ATTACHMENTS
7. PREPARED BY: NAME Tom Rogers TR DATE: 8-11-86
  8. CONCURRENCE: CEG-H Lo. Ellis DATE: 11/12/86
  9. APPROVAL: ECTG PROGRAM MGR. Dist. Stewart LS DATE: 2/2/87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: See attached.  
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\_\_\_\_\_
11. PROPOSED BY: DIRECTOR/MGR: McMinn  ATTACHMENTS  
DATE: \_\_\_\_\_
12. CONCURRENCE: CEG-H: \_\_\_\_\_ DATE: \_\_\_\_\_  
SRP: \_\_\_\_\_ DATE: \_\_\_\_\_  
ECTG PROGRAM MGR: \_\_\_\_\_ DATE: \_\_\_\_\_

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

\_\_\_\_\_  
SIGNATURE TITLE DATE