

TVA EMPLOYEE CONCERNS
SPECIAL PROGRAM

REPORT NUMBER: 31100

REPORT TYPE: Subcategory

REVISION NUMBER: 1

TITLE: Health Physics

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REASON FOR REVISION:

Reformat to conform with revision 4 of ECTG Program Manual and incorporation of SRP comments and inclusion of final corrective action plans.

PREPARATION

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7/7/87
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MANAGER OF NUCLEAR POWER DATE
CONCURRENCE (FINAL REPORT ONLY)

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

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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 prepared for the ECSP, including the Inspector General's report.

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

ECSP GLOSSARY OF REPORT TERMS*

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

Class A: Issue cannot be verified as factual

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

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

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

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

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

concern (see "employee concern")

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

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

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

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

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

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

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

K-form (see "employee concern")

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

root cause the underlying reason for a problem.

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

Acronyms

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

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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)
NJMARC	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
TVILC	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

Health Physics
Subcategory Report 31100
Executive Summary

I. SUMMARY OF ISSUES

The Health Physics Subcategory contains 72 concerns which raise 42 issues about health physics practices and policies, ALARA concept, training and control of radiation areas and personnel exposure.

Twenty issues were found to be not factually accurate. Six issues were factually accurate but did not require corrective action. Eleven issues were factually accurate, but the problems were being addressed before the Employee Concerns program. Three issues were factual and presented problems for which corrective action either had been or is being taken as a result of the employee concerns program. Two issues did not present a problem in themselves; however, as a result of the Employee Concerns evaluation, a problem was discovered for which corrective action was initiated.

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II. SUMMARY OF FINDINGS

Several conditions were found in violation of design, construction, or operating requirements. Each of these conditions, called specific deficiencies, required corrective action to fix the specific problem. Some also will require additional corrective action to preclude recurrence of similar problems.

1. At WBN, the Final Safety Analysis Report was found to have paragraphs disjointed and sections of text missing. Deficiencies were also noted in the program for modifying the steam generator platforms, Panel O-L-14 relocation, high maintenance instrumentation being located in high radiation areas, installation of permanent barricades, interfacing for accumulator instrumentation, ALARA walkdown findings, and the possibility of using contaminated hoses for connecting to breathing air manifolds.
2. Deficiencies related to the biennial feedback questionnaire were identified for WBN and SQN.

3. Deficiencies were found at SQN in regard to the lack of direction for Radiological Incident Reports to HP supervision or operations management, mishandling of Radiation Work Permits (RWPs) as QA documents, inadequate maintenance of radiological safety-related documents, and the reuse of damaged C-zone clothing.
4. A deficiency in the implementation of the ALARA suggestion program was found at BFN and SQN.
5. A generic deficiency was noted in regard to training requirements for personnel qualified by ANSI N18.1.

III. SUMMARY OF COLLECTIVE SIGNIFICANCE

A collective assessment of the element-level findings led to the identification of two subcategory level findings, one at WBN and one at SQN. These findings were determined to reflect adversely on management effectiveness at these two sites:

- (a) During the initial design of WBN, there was a lack of corporate guidance and design input criteria with respect to ALARA considerations.
- (b) There is a lack of management accountability at SQN with respect to the extent of QA record requirements that should be applied to Radiation Work Permit (RWP) timesheets.

IV. SUMMARY OF ROOT CAUSES

A review and analysis of the symptoms and root causes taken collectively pointed to three significant subcategory level-root causes as follows:

1. Various Health Physics procedures lack sufficiently detailed instruction steps, lack some technical requirements, or are otherwise incomplete.
2. Errors in judgment were made by qualified individuals in regard to procedures or processes.
3. Procedures and processes have inadequately defined prerequisites to ensure satisfactory completion of tasks.

V. SUMMARY OF CORRECTIVE ACTION

The following corrective action responses have been received from line managers at the affected plants for specific deficiencies noted during this evaluation.

1. In regard to text missing in the FSAR, WBN line management had committed to revise the FSAR which will resolve the inaccuracies of the disjointed and missing sections of text.
2. WBN line management responded to the deficiency related to biennial feedback questionnaire by stating that the evaluations of training by supervisors was not deleted, only the feedback form. Instead, a requirement for a Training Evaluation Report was instituted which also limits evaluation to those sites trainees are assigned.
3. SQN line management reported that in regard to the resolution of feedback questionnaires, applicable instructions and procedures have been revised to address the in-plant phase of training or impact to training requirements.
4. With respect to Radiological Incident Reports (RIR) not being directed to the attention of management, SQN has committed to send RIR summaries to the plant manager and HP staff.
5. For problems associated with RWP timesheets, SQN has revised applicable procedures to reflect the current status of classifying timesheets as QA or non-QA, and emphasized the instruction provided to workers in General Employee Training (GET) on the required method for making corrections to QA documents and the use of RWP timesheets.
6. To deal with inadequate implementation of the ALARA suggestion and preplanning program, SQN line management has revised procedures reflecting the limitations, and will make extra efforts to respond to suggestions in a timely manner.
7. SQN line management has revised an instruction to allow ample time for management review and approval before the deadline to correct the problem associated with the timely submittal of annual ALARA reports.

8. In response to the ALARA program not incorporating requirements of Regulatory Guide 8.8, SQN indicated that it is not committed to implementing Regulatory Guide 8.8 but does use it as a reference guide. Additionally, SQN has cited TVA and SQN instructions which support their ALARA planning efforts and the Radiological Control Branch will issue specific guidance regarding the application of ALARA considerations. |
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9. In one instance where in a question was raised as to whether documentation of radiologically safety-related activities is maintained according to American Nuclear Insurers (ANI) requirements, SQN line management responded that the document requirements are really only recommendations of ANI, however, dose-related records are maintained for a lifetime of the plant in accordance with ANI recommended standard practice. |
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10. For problems associated with the reuse of damaged C-zone clothing, SQN line management emphasized that clothing is inspected by laundry personnel and that the responsibility for checking clothing before use is that of the individual users. Also, SQN line management stated that laundry operations are now under direction of the Radiation Control Group which would provide tighter controls. An inspection on November 6, 1986 confirmed that fewer damaged clothing items were left in the laundry undetected. |
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11. BFN line management has reported in their responses to the problems associated with the ALARA suggestion program that they had developed a computerized tracking system to identify the status of each ALARA suggestion.
12. In regard to the deficiency related to the hiring of personnel as fully qualified by ANSI N18.1 and bypassing the basic phase of training and a review/approval by the Office Training Committee, BFN reported that the TVA training program was designed for individuals who will become ANSI qualified and does not apply to individuals hired outside TVA. However, corporate RADCON is preparing standards on the selection, qualification, and training of Radiological Control (RADCON) personnel which should remove any ambiguity in the interpretation of requirements. PMP 0202.12 will also be revised accordingly.

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1.0 CHARACTERIZATION OF ISSUES

1.1 Introduction

The Health Physics Subcategory is comprised of 72 employee concerns that raise 42 issues concerning health physics (HP) practices and policies, As Low As Reasonably Achievable (ALARA) concept, training, and control of radiation areas and personnel exposure.

1.2 Description of Issues

The issues have been combined into higher-order groups, called elements, to aid in identifying and evaluating related issues. In this section of the report, each element is presented with a brief overview of its issues.

1.2.1 - Element 311.01 - Health Physics Staff Training

Issue 311.01-1 - HP Personnel Lack an Adequate Working Knowledge:

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XX-85-024-001
XX-85-102-009
XX-85-102-012

This issue contains three concerns that HP personnel lack an adequate working knowledge at Watts Bar Nuclear Plant (WBN), Sequoyah Nuclear Plant (SQN), and Browns Ferry Nuclear Plant (BFN). The concerned individual (CI) cited an incident where technicians were not aware of protective clothing requirements.

1.2.2 - Element 311.02 - Radioactive Material Control

Issue 311.02-1 - Improper Dumping of Contaminated Material:

IN-85-049-002
IN-85-049-004
IN-85-720-002
IN-86-287-001
OO-85-005-011
XX-85-005-001

This issue containing five concerns that deal with improper dumping of contaminated material from SQN to WBN and one concern that involves the release of contaminated water to the river at SQN. The concerns stated that contaminated water and dirt were transported to WBN and taken to the intake pumping station, a field, or to the river and dumped. One concern stated that the contaminated material was spread on the ground at WBN by a bulldozer.

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Issue 311.02-2 - Radioactive Spill Into Uncontrolled Drain System:

XX-85-101-003

This issue deals with a radioactive spill into an uncontrolled drain system due to a valve in the Turbine Building being left open at WBN, SQN, and Bellefonte Nuclear Plant (BLN). The concern was over the verification of valve lineups and isolation of system draining flowpaths.

Issue 311.02-3 - Radioactive Material in Uncontrolled Area:

EX-85-091-002
JAM-86-001

This issue contains two concerns, one each for WBN and SQN. At SQN, a CI stated that contaminated materials stored in lockers and cabinets were not properly labeled. At WBN, a piece of metal surveyed by HP was found in the breakroom, it was left in the area without any restrictions, warnings or control for about two weeks.

Issue 311.02-4 - Safeguarding Contaminated Material:

EX-85-091-001

At WBN, a CI was concerned about a barrel marked "contaminated material" being moved by laborers through the machine shop building. The CI believed there should be a better means to protect the personnel handling of such materials from radioactive contamination.

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Issue 311.02-5 - Contaminated Fire Hoses:

BFP-85-001-001

The CI alleged that fire hoses used for the fire at BFN 8-10 years ago were taken offsite for personal use. The CI believed that the hoses may still pose a health hazard.

Issue 311.02-6 - Green Tag Requirement:

MRS-85-003

The CI indicated that the green tag was no longer required at the clean tool room at SQN.

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1.2.3 - Element 311.03 - Exposure Limits and Records

Issue 311.03-1 - Daily Radiation Exposure Limits:

IN-85-301-006
XX-85-008-001

This issue contains two concerns regarding daily exposure limits. The CI questioned whether the daily limits of acceptable radiation exposure are the same at WBN as SQN. The CI alleged that there were numerous overexposures at SQN and could result in an employee being laid off.

Issue 311.03-2 - Changing Exposure Allowances on RWPs:

XX-85-028-001

The CI stated that while at another TVA facility, the individual was exposed to the maximum amount of radiation; however, the RWP was adjusted by HP to reflect an increase in allowable dose.

Issue 311.03-3 - Exposure During Radiographic Operations:

XX-85-048-003

At SQN, a CI indicated that he was exposed to radiation during x-rays of pipe welds and is concerned about the dosage received since TLDs and dosimeters were not worn at this time.

Issue 311.03-4 - Omission of Exposure Data:

BFN-85-017-001

The CI alleged that his name was removed from the HP computerized exposure data base at BFN and then was added later.

Issue 311.03-5 - Workers Not Receiving Similar Doses:

XX-85-002-001

At BFN, the CI expressed concern that employees within a section were not receiving approximately the same exposure dose.

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Issue 311.03-6 - Use of Dosimetry Cards:

IN-85-991-001
IN-86-025-001
WI-85-047-002

Three concerns involve use of dosimetry cards in this issue. The CIs questioned the use of dosimetry cards at WBN and were concerned about losing or damaging the cards. One CI believed WBN should use the existing system that other TVA sites use.

1.2.4 - Element 311.04 - HP Policy, Practices, and Management Control

Issue 311.04-1 - Authority to Enforce HP Procedures:

IN-85-499-003

At WBN, the CI believes that authority is not given to enforce Health Physics procedures for monitoring radiation exposure if they are intentionally violated by employees.

Issue 311.04-2 - Management's Attitude Toward Radiological Control:

SQP-86-009-001
YV-85-025-001
XX-85-026-001
XX-85-009-002
BFN-85-019-002
BFN-85-020-001

This issue contains six concerns; three are for SQN, two for BFN, and one for BLN. The CIs were concerned about plant management's attitude toward radiological protection and safety at SQN, BLN, and BFN. Situations that were raised included an individual passing through airborne contaminated areas without respirators; employees remaining in radiation/contamination areas; employees being radioactively contaminated when the incident was preventable; management directing older workers to reach radiation exposure levels first, and HP receiving inadequate support of management for safety programs.

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Issue 311.04-3 - Policy on Hair Length and Beards:

EX-85-117-003

IN-85-642-002

Two concerns for WBN are contained in this issue. The CIs indicated that some HP technicians have extremely long hair and alleged that an individual was told to shave his beard or be sent home even though the individual was on a visitor's pass and had only three days left before leaving the security area.

Issue 311.04-4 - Radiological Controls, Surveys, Decontamination, and Emergency Procedures:

XX-85-098-002

IN-85-219-001

I-86-238-SQN

JLH-86-003

JMA-85-001

The CIs expressed concerns about (1) the practice of having to search for a frisker when exiting a C-zone which can result in the spread of contamination at SQN, (2) possibility of not securing ABSCE-type breaches upon evacuation of the auxiliary building at SQN, (3) emergency procedures be written encompassing all aspects of possible emergency situations in a C-zone at SQN, (4) adequacy of radiological controls and decontamination procedures at WBN, and (5) inadequate monitoring of radiation areas at SQN.

Issue 311.04-5 - HP Response to Radiation/Contamination Alarms:

XX-85-084-001

XX-85-066-001

At SQN, CIs expressed two concerns that when notified of higher than expected radiation levels, HP did not immediately respond to investigate the problem and alleged that HP would respond to some radiation alarms by unplugging the units.

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Issue 311.04-6 - Lower Containment Entries:

WI-85-038-001
XX-85-015-001
SQP-86-009-002

CIs at both WBN and SQN expressed two concerns which question the practice of entering lower containment while the reactor was operating for non-emergency repairs and believed that the practice should be re-evaluated based on recent studies on neutron exposure.

Additionally, a CI alleged that the transfer of responsibility for HP from Muscle Shoals to SQN compromises established HP policies regarding personnel access during unit operation.

Issue 311.04-7 - Improperly Completed RWP Timesheets:

XX-85-028-X02
XX-85-028-X03

The CIs alleged in two concerns for SQN that a specific RWP timesheet contained falsified signatures and that RWPs were not being completed per procedure requirements.

Issue 311.04-8 - Inadequate Knowledge of System Contents:

XX-85-063-001

The CI indicated that SQN operators and HP personnel failed to know and verify the contents of a system before authorizing the line in the Turbine Building to be opened.

Issue 311.04-9 - Adequacy of SQN HP Program (Miscellaneous):

RII-85-A-0064

A CI at SQN questioned the adequacy of the HP program in regard to implementation, lost sources, monitor locations, smears, and air samples.

1.2.5 - Element 311.05 - ALARA

Issue 311.05-1 - Winning ALARA Suggestions Not Implemented:

BFN-85-002-001

The CI alleged that modifications have not been performed to agree with winning ALARA suggestions at BFN.

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Issue 311.05-2 - Hazards Associated With Manway Doors:

IN-85-869-001

XX-85-052-001

CIs at WBN and SQN expressed two concerns over the exposure received and the safety hazards associated with opening and closing the manway doors at the bottom steam generator due to the complicated process necessitated by poor design.

Issue 311.05-3 - Time Required to Repair/Recalibrate Instrumentation:

IN-86-044-001

WBN-0065

At WBN, CIs alleged in two concerns that process monitoring instrumentation which require excessive amounts of time to repair and recalibrate is located in a high radiation area or in the Unit 1 raceway and should be moved to another location.

Issue 311.05-4 - Unrestricted Access to High Radiation Areas:

WBN-0186

WBN-0294

CIs indicated in two concerns that barricades should be installed to prevent unrestricted access to high radiation areas at WBN.

Issue 311.05-5 - Safety Hazards Associated With Access to Valve:

WBN-225

The CI contended that the valves on Safety Injection System (SIS) accumulators at WBN are difficult to access when personnel are dressed out and recommended relocating valves to reduce safety hazard and reduce exposure.

Issue 311.05-6 - ALARA Program:

This issue addressed the ALARA program, in general, and was not a result of a specific concern.

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1.2.6 - Element 311.06 - HP Facilities, Clothing, and Protective Equipment

Issue 311.06-1 - Leave Site Without Monitoring:

HLA-85-001

CI stated that personnel can leave the site without a final check for contamination at SQN.

Issue 311.06-2 - Lack of Portal Monitors at Plant Exits:

MRS-85-002

The CI indicated that no portal monitors exist at plant exits at SQN.

Issue 311.06-3 - Method of Collecting Self-Reading Dosimeters:

IN-85-142-002

XX-85-055-001

CIs at WBN and SQN alleged that self-reading pocket dosimeters collected in metal boxes could be knocked off-scale.

Issue 311.06-4 - Use of Face Masks:

SQN-85-001-001

A CI alleged that during outages, some personnel in an area have been required to wear respirators while others have not.

Issue 311.06-5 - Unavailability of Small-Sized Gloves:

XX-85-036-001

The CI contended that C-zone gloves are not being ordered in small sizes at SQN causing employees to use larger size gloves and resulting in a possible safety hazard.

Issue 311.06-6 - Reuse of Outer Gloves:

XX-85-101-004

The CI alleges that insufficient attention is given in regard to minimizing radiation exposure due to the policy of reusing outer gloves in radiation areas at SQN.

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Issue 311.06-7 - Post Accident Sampling Room:

IN-85-092-001

The CI indicated that the Post Accident Sampling Facility (PASF) at WBN is too small for men to dressout in this area.

Issue 311.06-8 - Unavailability of C-zone Clothing:

I-86-235-SQN

The CI alleged that the proper C-zone clothing for entering the rooms at the Condensate Demineralizer Waste Evaporator Building at SQN was not available.

Issue 311.06-9 - Location of TLD Badge Racks:

IN-86-105-001

The CI was concerned that the TLD badge racks were located under the main steam lines and that in the event of a primary to secondary leak the badges could pick up a significant dose. Additionally, the CI stated that TLD processing would be suspended due to the location of the Dosimetry Issue Building.

Issue 311.06-10 - Unrepaired C-zone Clothing:

MRS-85-004

The CI alleged that C-zone clothing was not being patched by the laundry at SQN.

1.2.7 - Element 311.07 - Radioactive Effluents/Uncontrolled Areas

Issue 311.07-1 - Inadequate Provisions and Documentation to Protect Personnel from Radiation Between Units:

IN-85-114-001

IN-85-463-009

IN-85-499-002

The CIs expressed three concerns that there were inadequate provisions and documentation mechanisms to protect personnel in Unit 2 from airborne radiation and contamination sources from Unit 1 at WBN.

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Issue 311.07-2 - Unrepresentative Air Quality Checks:

WBN-0292

The CI stated that air quality checks should be more representative at WBN.

Issue 311.07-3 - Impact on Environment/Public:

IN-85-126-001

A CI was concerned about the impact of WBN operation on the surrounding area and the public.

Issue 311.07-4 - Uptake of Radioactive Substances Due to Similar Fittings:

WBN-0291

The CI alleged that there was a potential of introducing radioactive substances to other systems due to similar fittings being used for air, water, and contaminated drain connections.

2.0 EVALUATION PROCESS

2.1 General Methodology

The evaluation of this subcategory was conducted according to the Evaluation Plan for the Employee Concerns Task Group and the Evaluation Plan for the Operations Group. The concern case files were reviewed. Source documents were researched and interviews conducted in order to identify the requirements and criteria which applied to the issues raised by the concerns. The issues were evaluated against the identified requirements and criteria to determine findings. A collective significance analysis was conducted; causes were indicated for negative findings; and corrective action for the negative findings were initiated or determined to have already been initiated.

2.2 Specific Methodology

The evaluators reviewed applicable sections from the following baseline requirements documents: Final Safety Analysis Report (FSAR), Technical Specifications, Radiation Protection Plan (RPP), TVA Program Manual, Environmental Impact Statement, TVA Nuclear Quality Assurance Manual (NQAM), Standard Practices and applicable Regulatory Guides.

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To ensure consistency and implementation of the requirements found in these documents, the evaluators reviewed applicable Administrative Instructions (AI's), Section Instruction Letters (SIL's), Radiological Control Instructions (RCI's), Technical Instructions (TI's), Radiation Work Permits (RWP's), and Surveillance Instructions (SI's). In addition, the evaluators reviewed line management reports, Nuclear Safety Review Staff (NSRS) reports, training lesson plans, QA audit reports, INPO and NRC Inspection Reports, applicable memorandums, NRC expurgated files and other reports on concerns previously investigated.

The evaluators conducted informal interviews with cognizant personnel when required either to verify document-based findings or to provide nondocument-based evaluations input. Interviews were conducted with personnel in Radiological Control including individuals cognizant in the ALARA concept, dosimetry, laundry operations, and other radiological field operations; Electrical Maintenance; Instrument Maintenance; Mechanical Maintenance; Training; Emergency Planning; Division of Nuclear Engineering; Welding; Power Stores; Construction; Public Safety; Licensing and Industrial Safety. Inspections of specific areas and equipment were also performed as required by the investigation of some concerns.

3.0 FINDINGS

Generic applicability statements are included only for concerns which are classified as being potentially safety-related or safety-significant as denoted on Attachment A.

3.1 Element 311.01 - Health Physics Staff Training

Issue 311.01-1 - HP Personnel Lack an Adequate Working Knowledge of Personnel

WBN

The concern addressing poorly trained HP technicians at BFN was evaluated for applicability to WBN and was not substantiated. Individuals with previous experience and/or training were evaluated against ANSI-N18.1-1971 qualification requirements by both the Personnel Department and a Health Physics supervisor. It also was found that TVA had established an extensive Technician Training program which had been accredited by INPO whose standards were designed to ensure training requirements cover the job performance requirements. Furthermore, it was determined that instructors for the technician basic training were qualified in their specialty field and were certified in accordance with the Nuclear Training Program Manual (NTPM). Additionally, On-the-Job Training (OJT) instructors had exceeded qualifications set by ANSI standards and had received the OJT evaluator course as required by the NTPM.

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However, during the course of the evaluations for WBN, SQN, and BFN, a programmatic deficiency was identified in one key area. Individuals hired as ANSI-qualified technicians were not evaluated against the training program requirements. The evaluation of credit for bypassing basic training was not submitted to the Office Committee for review and appropriate action, nor was the credit given reviewed. Additionally, individuals hired with previous experience were not evaluated for OJT experience at plants which had achieved power operation. Although these practices did not result in regulatory noncompliance, they did result in procedural noncompliance.

During the evaluation of the effectiveness of the training program at WBN, it was discovered that supervisor feedback questionnaires were not being addressed. CATD 31101-WBN-01 was written to address this issue. In its response, WBN line management stated that no corrective action was required since the method for providing feedback had been changed. (See section 6.1.1)

SQN

A SQN concern and a BFN concern generically applicable to SQN addressing the issue of poorly trained HP personnel working in radiated areas were previously investigated by NSRS and were not substantiated at SQN. This evaluation confirmed the findings of the NSRS report (I-85-734-SQN) by reviewing NRC, INPO accreditation, and Quality Auditing Branch (QAB) audits for the HP training section. No pertinent concerns, violations, or deviations were found. This evaluation concurs with conclusions reached in the NSRS report. Additionally, interviews were conducted to determine if improvements identified by NSRS had been implemented. Resolution of the items were found to have been addressed and resulted in revisions to the POTC basic phase training format. However, a minor deficiency was identified by this evaluation in the area of response to supervisor feedback questionnaires concerning the in-plant training phase and retraining requirements. CATD 31101-SQN-01 was written to address this deficiency.

Another concern dealing with the same basic issue and identifying an incident with respect to a HP technician's lack of knowledge for protective equipment requirements was also not substantiated. In addition to the evaluations performed for the previous concerns, appropriate documentation was reviewed, and interviews were conducted with eight HP technicians to determine their awareness of protective clothing/equipment requirements. It was found that they demonstrated good judgement and an ability to make decisions in accordance with requirements. Furthermore, they were aware of their ability to alter work requirements or stop work, as required.

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BFN

The concern regarding a poorly trained HP staff with respect to working in radiated areas was not substantiated. It was found by this evaluation that INPO had recently completed an accreditation evaluation for the HP technician training program. INPO identified weaknesses in the in-plant performance verification sheets. It was determined by this evaluation that the commitments made by BFN to correct the weaknesses were underway. Also, a review of the requirements of the Training Program Manual and BFN Standard Practices revealed no deficiencies; however, problems were identified in the implementation of these procedures. Personnel hired as fully qualified by ANSI-N18.1 bypass the basic phase of training at the POTC. This training bypass is not reviewed or approved by the Office Training Committee as required. CATD 31101-NPS-01 was sent to Power Operations Training Center to identify this problem. In addition, based on problems identified with the supervisor feedback resolutions in the SQN evaluation, interviews conducted at BFN indicated that the feedback results were not forwarded to the appropriate individual.

Conclusion

The issue at all plants does not identify a problem, but as a result of the employee concerns evaluation, problems were discovered for which corrective action was required. The problem identified at WBN, SQN and BFN involved inadequate resolution of supervisor feedback questionnaires. The other problem identified at BFN was attaining appropriate approvals for previously qualified personnel being exempted from the basic phase of POTC training.

Generic Applicability

This issue was evaluated at SQN, BFN and WBN. An effective evaluation at BLN would not be possible due to the minimum health physics responsibilities now in existence at BLN.

3.2 Element 311.02 - Radioactive Material Control

Issue 311.02-1 - Improper Dumping of Contaminated Material

WBN

Three concerns which addressed the issue of radioactive liquid waste from SQN being dumped at WBN were not substantiated. This evaluation had found that a dumping incident at WBN was conducted; however, the material being dumped was a boric acid solution

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previously used in SQN's preoperational testing six months before initial criticality. It was determined that all dumping that had been done at WBN was in accordance with state and EPA regulations and had involved only nonradioactive materials. As a result, the movement of the soil by bulldozer for use in the Intake Pumping Station did not require any Health Physics restrictions. |
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Two additional concerns also pertaining to dumping material from SQN on the ground at WBN were previously investigated by QTC (IN-87-720-002) and were not substantiated. Their investigation had determined that the concerns were in regard to alum sludge generated at SQN was dumped (ground spread) at WBN. It was concluded that the dumping was performed in accordance with existing state regulations and that the source (alum sludge) was not associated with contaminated systems at SQN.

Soil samples from the affected area were taken and indicated normal background levels. This evaluation fully concurred with the findings of the previous investigation.

SQN

The concern in this issue in regard to dumping radioactively contaminated material from SQN to WBN was not substantiated. It was determined by reviewing radioactive waste shipment procedures and contracts involving transport between the sites that alum sludge and a boric acid solution were transported to WBN from SQN. Neither of these materials were radioactively contaminated. As discussed in the WBN evaluation, all dumping was done in accordance with state and EPA requirements at the time of the reported incident.

The other concern in this issue addressing dumping contaminated water into the river at SQN was substantiated; however, corrective action was taken and it is no longer considered a problem. It was verified by Environmental Operating Reports that during the third and fourth quarters of 1980 and the first two months of 1981, SQN released Phosphorus-32 into the Tennessee River. Technical Specification 3.11.1.2 quarterly limit and 10CFR50 Appendix I for annual dose limit was exceeded. TVA informed NRC of their calculations and stopped these releases from the radwaste system in February 1981, pending confirmation of the source of radioactivity and the initiation of corrective actions. TVA issued two reports describing the investigations and the corrective actions that were taken as a result of the releases. Subsequent calculations and sampling activities after corrective actions were implemented revealed no further problems.

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Conclusion

The concerns that involved contaminated material being sent from SQN and dumped at WBN could not be verified as factual. The incident involving SQN releasing contaminated water to the river in 1980 and 1981 was factual and identified a problem but corrective action was initiated before the employee concerns evaluation of the issue was undertaken.

Generic Applicability

These concerns were evaluated at the site of concern and determined to be a plant specific issue. No other site evaluations are necessary.

Issue 311.02-2 - Radioactive Spill Into Uncontrolled Drain System

WBN

The issue regarding a radioactive spill into the uncontrolled drain system due to a valve in the Turbine Building at SQN being left open was previously investigated by NSRS Report Number I-85-543-SQN and was evaluated for generic applicability to WBN. The concern was not substantiated at WBN. The concern occurred at SQN during the moisture carryover acceptance test using a radioactive sodium source. It was determined in the previous investigation for SQN that the contaminated water entered the SQN yard holding pond due to a valve on a sample sink not being rechecked prior to the sodium injection. This evaluation determined that the procedures governing this activity at WBN were adequate to prevent an occurrence similar to that at SQN.

SQN

The radioactive spill into the uncontrolled drain system at SQN was substantiated as a statement of fact; however, it was no longer considered a problem based on the findings of a previous investigation performed by NSRS (I-85-543-SQN). Their investigation determined that an open sink valve had not been rechecked prior to the initiation of the moisture carryover acceptance test which resulted in radioactively contaminated water entering the turbine sump and being pumped to the holding pond. It was determined by NSRS that reports and proper actions had been taken by SQN. Additionally, the moisture carryover test is a "one-time" procedure and will not be conducted again at SQN. This evaluation concurred with the findings of the NSRS report.

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BLN

The issue with respect to the radioactive spill into the uncontrolled drain system at SQN was evaluated at BLN and was not substantiated. According to interviews and reviews conducted during the evaluation, it was determined that the procedure required for testing the turbine (i.e. moisture carryover test) had not been written due to the delayed condition of the plant. Standard practices at BLN did imply that instructions would provide verification of test prerequisites (i.e., valve lineup).

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Conclusion

This issue was not verified as factual at WBN or BLN. The issue was factual at SQN but corrective action was initiated before the employee concerns evaluation of the issue was undertaken.

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Generic Applicability

This issue was determined to be SQN specific. No evaluation at BFN is necessary.

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Issue 311.02-3 - Radioactive Material in Uncontrolled Areas

WBN

The issue concerning a piece of radioactive material being found in a break area at WBN was not substantiated. Due to the lack of available information (i.e. location), a definitive investigation could not be performed. The HP Program was examined, and the surveillance procedures for shop areas and other clean areas were found to be adequate to prevent this type of occurrence.

SQN

A SQN concern in this issue dealt with contaminated material being stored in unidentified lockers or containers and had previously been investigated by SQN line management. The concern was substantiated at SQN and corrective action was implemented prior to this evaluation. |R1
The previous investigation determined that the HP survey that was initiated did not find any untagged or unlabelled contaminated materials; however, they did find a bagged and tagged hose in an unlabelled storage box. As a result, corrective actions were implemented by line management to ensure all lockers, cabinets, gang-boxes, and other containers were properly labelled as requested by HP. This labeling program was verified and allows HP to perform periodic surveys on all containers in the regulated areas.

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SQN and BFN

During the evaluation of this issue by the Operations Category of the ECTG, there was an incident at SQN and BFN involving loss of fission chamber sources. A special team investigated this incident separately from any ECTG evaluation. The results of this special investigation were not known at the time of this report's writing, and the conclusions of the ECTG with respect to the radioactive material issue do not reflect the findings of the special investigation.

Conclusion

The issue could not be verified as factual at WBN, but was found factual at SQN. Corrective action for the problem however, was initiated before the employee concerns evaluation of the issue was undertaken.

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Generic Applicability

This concern was evaluated at the site of concern and determined to be a plant specific practice corrected prior to the ECTG evaluation.

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Issue 311.02-4 - Safeguarding Contaminated Material

WBN

A barrel marked "contaminated material" being moved by a group of laborers in the machine shop building without any safeguards was a concern previously investigated by WBN line management. The concern was not substantiated. Based on that investigation, it was determined that the drum did not contain radioactive contamination but rather some other form of contamination, such as asbestos or PCBs. Therefore, no HP supervision or HP safeguards were initiated. Interviews conducted in this evaluation also concurred that the "contaminated material" designation is not used at WBN for radioactive material.

Additionally, containers on-site that did contain radioactive material are designated as such and were found not to have been moved at the time or location of the specified incident. This evaluation concurred with the findings of the previous investigation.

Conclusion

The issue could not be verified as factual.

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Issue 311.02-5 - Contaminated Fire Hoses

BFN

The issue involving the removal of contaminated fire hoses from the BFN site was previously investigated by line management and was not substantiated. It was determined by the previous investigation that fire hoses used in a 1975 fire in the cable spreading area were blackened from smoke; however, the hoses were not used in a contaminated area at the time of the incident. This evaluation reviewed HP survey records for contamination release surveys in 1975 and found evidence that the fire hoses were, in fact, not contaminated and were released to be used offsite.

Conclusion

This issue could not be verified as factual.

Issue 311.02-6 - Green Tag Requirements

SQN

The issue regarding the dropping of the green tag requirement at the clean tool room at SQN was substantiated as a statement of fact, however, it was not a problem. Based on a previous investigation by line management, it was determined that the green tags are no longer required due to the implementation of the "power block" concept at SQN. This concept had resulted in the relocation of the clean tool room from the restricted area. Before the "power block" concept, tools had to be surveyed by HP and tagged before they could be returned to the clean tool room. Now, a survey and green tag clearance is required at the point of exit from the regulated area. This evaluation concurred with the previous line investigation at SQN.

Conclusion

This issue was factually accurate, but was not a problem.

3.3 Element 311.03 - Exposure Limits and Records

Issue 311.03-1 - Daily Radiation Exposure Limits

WBN

This issue addressed two concerns dealing with the daily limits of radiation exposure at WBN which was previously investigated by line management. The issue was not substantiated at WBN. Federal regulations do not require daily dose limits. Only quarterly dose

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limits and limits for total lifetime dose are established in Title 10 CFR Part 20. As stated in the line report, these regulations are implemented by TVA through their Radiological Protection Plan (RPP) and Radiological Control Instructions (RCIs). No daily dose requirement was found in these documents. The only reference to a daily limit was made in regard to the need of a RWP if exposure might exceed 50 mrem/day. |R1

Another part of this issue that was evaluated at SQN and determined generically applicable to WBN dealt with cases of overexposure which could result in employees being laid off. Although overexposures were not a problem at WBN or SQN, lay-offs are a possibility at TVA and therefore, would substantiate this part of the concern. As stated in the line report and confirmed by interviews at WBN, it is possible for individuals to be laid off if they exceed or come close to exposure limits. Any worker who exceeded a dose limit for any monitoring period is not permitted to enter a radiologically controlled zone for the remainder of that period. When workers reach their dose limit, efforts are made to place the individual elsewhere. To date, no TVA employee or contractor has been laid off for this reason at WBN.

SQN

The concern in this issue regarding the questioning of daily exposure limits at SQN and overexposure resulting in layoffs was previously investigated by line management. Although part of this issue (possibility of layoffs) was substantiated, it has not been a problem at SQN. As described in the WBN findings, TVA has implemented the Federal Regulation requirements through the RPP and RCIs. No requirements were identified for daily dose limits. The requirements for the use of an RWP when exposure might exceed 50 mrem/day was the only reference to a daily limit. In regard to the overexposures at SQN several years ago, the line investigation reported that there had been no cases of personnel overexposure in excess of regulatory limits at SQN. This was confirmed by interviews with SQN HP in this evaluation.

The other part of this issue which dealt with layoffs had the same findings as described for WBN. Layoffs are an option for TVA if a worker met or exceeded established exposure limits. HP management indicated that this option has not been implemented at SQN.

Conclusion

The issue concerning daily limits of radiation exposure being violated could not be verified as factual. The possibility of employees being laid off upon reaching their dose limits could be factually accurate, however no such case has occurred. |R1

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Issue 311.03-2 - Changing Exposure Allowances on RWPs

SQN

The issue regarding an employee receiving the maximum amount of radiation due to RWP being adjusted to reflect an increment in dose allowances was previously investigated by line management and NSRS Report XX-85-028-001. The issue was not substantiated as stated; however, deficiencies were found in other areas during the evaluation. With regard to the specific concern, the previous investigation had reviewed RWP timesheets and found no evidence of individual's dose exceeding established limits. A RWP timesheet was identified where a change was made to the item stating "Do not exceed _____ mrem per entry or 50% of RAD" (remaining allowable dose). The CI had been made aware that the amount was only a guideline based on the HP's estimate of what is required to accomplish the job. Procedures also allowed this value to be changed as dictated by conditions.

During the course of the previous investigation, NSRS did note discrepancies in handling RWP timesheets. SQN committed to NSRS to revise appropriate HP procedures regarding QA record requirements. These deficiencies have been resolved for the most part, specifically in regard to transcription of RWP timesheets. However, there still remained the lack of a clear definition of QA record requirements for RWP timesheets and the problem of personnel in the field not handling RWPs in accordance with QA record requirements as determined by this evaluation. Employees do receive training in GET on QA record procedures and are instructed that RWP timesheets must be used according to QA record requirements. This evaluation concurred with the findings of the previous investigation. CATD 31103-SQN-01 was initiated to address this issue.

Conclusion

The issue concerning HP adjusting the maximum allowable dose for individuals is not factual, but as a result of the employee concerns evaluation a problem was discovered for which corrective action was initiated.

Generic Applicability

This concern was evaluated at SQN and found to be not valid. A peripheral issue regarding SQN practices on RWPs was identified. No other site evaluations are necessary.

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Issue 311.03-3 - Exposure During Radiographic Operations

SQN

The issue in regard to an individual being exposed to radiation during x-rays of a pipe weld was previously investigated by line management and was not substantiated. Based on information provided by the QTC report, XX-85-048-003, the previous evaluation determined that the individual was not present within the regulated area set up by the radiographers for welding operations. Radiographers are trained in controlling radiographic operations according to the requirements of 10 CFR 34. These boundaries were set in accordance with 10 CFR 20.105 requirements, such that the maximum exposure rate is less than 2 mr/hr at the boundary and no dosimetry will be required outside of the regulated area boundary. This evaluation concurred with the findings of the previous investigation. |
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Conclusion

This issue cannot be verified as factual. |
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Issue 311.03-4 - Omission of Exposure Data

BFN

The issue with respect to an individual's name being removed from the HP computerized exposure data base and was later added was not substantiated. It was determined by this evaluation that two dose tracking systems were used by TVA. The Radiation Exposure Management System (REMS) maintained a permanent record of an individual's quarterly, annual, and lifetime doses. Once a dose was recorded on REMS, the exposure history was never removed. The Health Physics Dose Tracking System (HPDTS) maintained an individual's current exposure history at the site while that individual was working in regulated areas. It was found that if a worker was terminated or had a change of job status, the individual's name would be removed from the HPDTS onsite but not from REMS. The name would reappear on the HPDTS if the individual returned to work in a regulated area at the site. A cross-check performed quarterly on the two systems is used to resolve any discrepancies in exposure histories.

Conclusion

This issue cannot be verified as factual. |
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Issue 311.03-5 - Workers Not Receiving Similar Exposures

BFN

This issue addressed the practice of workers in the same section not receiving approximately the same exposure and was not substantiated. It was found that procedures stated that work assignments in radiologically controlled areas will be distributed to keep doses to individuals relatively uniform where practical. Supervisors are also required to designate work assignments without causing substantial increases in total overall exposure. By reviewing exposure printouts of different craft disciplines it was determined that the overall individual exposures were relatively uniform.

Conclusion

This issue cannot be verified as factual.

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Issue 311.03-6 - Use of Dosimetry Cards

WBN

This issue incorporated three concerns regarding the use of dosimetry cards for tracking dose at WBN and was not substantiated. Two of these concerns were previously investigated by line management. The line report stated that the dose card was a mechanism for the worker and/or supervisor to maintain an awareness of his/her dose, as well as providing a record of the Radiation Work Permits (RWP) used by an individual. If a card was lost or damaged, a new one is obtained from Health Physics. However, the thermoluminescent dosimeter (TLD) badge keeps the official dose record. Additionally, interviews conducted with HP supervisors over the absence of sign in/out sheets (RWP timesheets) at WBN determined that either timesheets or dose cards could be lost or damaged. HP personnel stated that dose cards are easier to track and allowed doses to be more readily available than the timesheets. WBN instructions also provided workers on their responsibilities with respect to dose cards. This evaluation determined that the line report adequately addresses the scope of the concerns as stated, and concurs with the findings and conclusions of the report.

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Conclusion

This issue cannot be verified as factual.

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3.4 Element 311.04 - HP Policy, Practices, and Management Control

Issue 311.04-1 - Authority to Enforce HP Procedures

WBN

The issue raised about proper authority not being given to enforce HP procedures for monitoring radiation exposure was previously investigated by WBN line management and was not substantiated. The previous investigation identified procedures and standards which gave the authority for disciplinary actions and enforcement of radiation control procedures. It also stated that WBN has had violations and disciplinary actions in the two years prior to their investigation in spite of WBN not being operational. This evaluation concurred with those findings based on reviewing applicable documentation and interviewing cognizant personnel. Based on an interview with an ALARA engineer and a review of applicable logbooks a total of 29 Radiological Awareness Reports (RARs) and no Radiological Incident Reports (RIRs) had been written for radiological deficiencies and violations. Disciplinary actions did occur as a result of some of the RARs. Requirements for HP authority to stop work was also confirmed by interviews and a review of the Radiological Control Program.

Conclusion

This issue cannot be verified as factual.

Issue 311.04-2 - Management's Attitude Toward Radiological Control

SQN

This issue was comprised of three concerns at SQN. The first concern dealt with an incident where SQN personnel were contaminated, and stated that the incident, which could have been prevented, reflected poor management's attitude regarding radiological health and safety. It was not substantiated at SQN. No evidence of personnel contamination as a result of poor management attitudes toward radiological safety was found through reviews of documentation for reportable and nonreportable incidents. Personnel Contamination Reports and RIRs were reviewed which documented personnel contamination and any investigative activities that were required. No information detailing the incident specified in the concern was found. This evaluation did not identify any deficiencies in the SQN personnel contamination control program.

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The second concern which involved plant management's direction that older employees be assigned "hot" (high radiation) work in order for them to reach their radiation exposure levels first was previously investigated by NSRS, Report I-85-513-SQN, and found not substantiated at SQN. Their investigation and review of radiation exposure records found no evidence that older individuals working at SQN had received a disproportionate level of exposure when compared to other workers in their sections or organization. Interviews with a craft foreman employed during the time frame of the concern found there was an unawareness of any "management direction" regarding the assignment of personnel to "hot work" based upon age. This evaluation concurred with the findings of the NSRS report.

The third concern of this issue which alleged inadequate upper management support to the Health Physics Department to enforce an effective radiological safety program and the lack of disciplinary action for personnel who intentionally bypass monitors was not substantiated in an investigation performed by SQN line management. Based on their findings, no actual incidents were identified where employees did not receive disciplinary action for deliberately bypassing radiation monitors. Additionally, interviews conducted with HP personnel and reviews of plant procedures and records did not indicate inadequate upper management support to enforce an effective radiological safety program. It was determined through a documentation review that RIRs were initiated and the incidents were investigated for corrective and disciplinary actions as required. The SQN line management made recommendations to upgrade the RIR program based on their investigation. These included providing feedback to HP technicians on the RIRs and ensuring prompt action by management. CATD 31104-SQN-01 was issued to address this problem. |R1

BFN

Two concerns were evaluated at BFN for this issue. The first concern which stated there was an emphasis for craftsmen to remain in radiation/contamination areas regardless of the hold status was substantiated, however, corrective action had already been implemented by BFN. The problem of individuals staging in radiation areas was identified by HP and brought to the attention of plant management. As a result, the Plant Manager instructed (in writing) that all sections were to halt the practice of allowing individuals to loiter in radiation areas and to maintain ALARA policies.

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Generic Applicability

The issues that were not verified as factual were not required to be evaluated at other sites. The issue found factual at BFN was a specific practice at BFN which is not generic to other sites.

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Issue 311.04-3 - Policy on Hair Length and Beards

WBN

This issue consisted of two concerns at WBN. The first concern dealt with some HP technicians having extremely long hair and was previously investigated by WBN line management. This concern was substantiated since it was a statement of fact, but it was not considered a problem. The previous investigation determined that this concern regarded the appearance of employees (i.e., individual had shoulder-length hair) and was not industrial safety or HP related. TVA has not established "dress code" requirements and site instructions have required that hair be maintained so it cannot interfere with vision or become a hazard in normal or emergency conditions. It was also stated that the responsibility for determining if an employee's hair meets this requirement rests with his supervisor and plant management. This evaluation concurred with the findings of this report.

The second concern which involved a situation where an employee was told to shave his beard or be sent home was previously investigated by line management in conjunction with QTC (IN-85-642-002). That investigation had determined that the concern could not be substantiated without compromising the identity of the individual.

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A survey that was conducted of all Public Safety Supervisors did not find any evidence of the referenced incident. Furthermore, documentation that was reviewed stated that only personnel requiring unescorted picture badge access into plant protected areas was required to be clean shaven. Based on information provided by QTC, it was found that the individual in question was on a visitor's badge; therefore, it was not necessary for him to shave. Visitor badges were issued to personnel with beards who are on short-term work assignments or are pending completion of badging requirements and must be escorted. This evaluation concurred with the line management/QTC report.

Conclusion

The issue about HP technicians having long hair is factually accurate but unless it interferes with vision or becomes a hazard for working conditions it is not a problem.

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Issue 311.04.4 - Radiological Controls, Surveys, Decontamination, and Emergency Procedures

WBN

The WBN concern questioning the adequacy of radiological controls and decontamination procedures was not substantiated. It was determined that the limits and standards to which TVA adheres for establishment of radiological controls during operation and decontamination activities were adequate. 10CFR20 established the general requirements for the protection of personnel against exposure to radioactive material in restricted areas. Controls and limits were also established in TVA's Radiation Protection Plan. Radiological Control Instructions (RCIs) were the implementing procedures and established limits and guidelines governing the radiological control program. Additionally, HP instructions implementing the RCIs provided details in the areas of administration, dosimetry, and technician instruction letters.

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These procedures were reviewed and found to be in compliance with the regulatory requirements for limits on airborne exposures. Since there were no airborne areas at WBN during the evaluation, the implementation of these procedures/ programs were not readily observable; however, controls at posted radiological areas were observed and reviewed for adequacy. Decontamination activities were also not observable since WBN has not begun operation at the time of this evaluation; however, a review of procedures that had been written, drafts of decontamination instructions, and interviews with cognizant personnel indicated that adequate controls were being developed at WBN.

SQN

Four concerns were incorporated into this issue for SQN. The first concern which stated that radiation areas were not monitored often enough, was not substantiated by a previous investigation by NSRS (Report I-85-615-SQN). The frequency of surveys required by Radiological Control Instructions RCI-1 and RCI-14 were found to satisfy the requirements and commitments of TVA. The frequency of radiation surveys in specific areas of the plant and in situations where radiation conditions might change were determined on a case-by-case basis. All applicable requirements were satisfied. This evaluation concurs with the findings of the NSRS.

The second concern which consisted of a request to implement a procedure encompassing all aspects of possible emergency situations in a C-zone, was not substantiated. The evaluation consisted of a review of current HP procedures governing radiological safety in contaminated areas and SQN emergency procedures, policies, and guidelines to determine the adequacy of each to mitigate C-zone emergency situations. No deficiencies were identified upon examining general programmatic areas (i.e., training for emergencies, scope of employee responsibilities, training for access into radiologically controlled areas). Existing radiological protection procedures, emergency procedures, and personnel training programs were determined to adequately address the handling and mitigation of any potential C-zone emergency situation based on interviews with cognizant personnel and review of applicable instructions and reports.

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Another concern which raised questions about the location of friskers in regard to their proximity to contaminated area exits and the probability of spreading contamination while searching for a frisker was a statement of fact, however, it was not a problem. According to procedure, individuals were required to frisk immediately after or as soon as possible upon exiting a C-zone. However, it was determined by field walkdowns that friskers were placed throughout the plant in locations as convenient as possible to existing C-zones with regard to background radiation requirements. Some friskers were moved away from zoned areas due to excessively high background levels and, consequently, could result in contamination being spread to the area where the frisker was located when individuals left those areas. Based on procedural reviews, the movement of friskers and the possibility of spreading contamination were in compliance with regulatory and plant procedural requirements. Interviews with training personnel also revealed that GET classes informed personnel that friskers may not be readily available and discussed the actions that workers were required to do in the event they had to search for a frisker (i.e., contact HP and stay in place). No evidence of programmatic deficiencies were identified in this evaluation.

The fourth concern expressed that, in the event of a radiation or evacuation alarm or an evacuation announcement, the operator in charge of the Auxiliary Building Secondary Containment Enclosure (ABSCE) type breach may leave the area without sealing the breach was not substantiated. It was determined through interviews and review of applicable procedures that operators were instructed on the required procedures and were knowledgeable of their responsibility to seal any ABSCE type breaches before evacuating or leaving the area. Additionally, an Unreviewed Safety Question Determination (USQD) was required by Technical Instruction (TI)-77 to assess the ability for isolating the breach within four minutes of receiving an isolation or high radiation signal.

Conclusion

The issue at both SQN and WBN could not be verified as factual.

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Issue 311.04-5 - HP Responses to Radiation/Contamination Alarms

SQN

Two concerns were evaluated at SQN for this issue. The first concern which noted questionable practices by HP, such as unplugging activated radiation alarms, was not substantiated in a previous investigation by NSRS (Report I-85-806-SQN). Their investigation could find no evidence that HP personnel did not properly respond to radiation monitor alarms (portal monitors, hand/foot monitors, or friskers). Interviews had been conducted with individuals who would have readily observed HP practices involved in these events. These individuals could not recall any situations where HP personnel unplugged or turned off a radiation monitor when alarming to true radiation levels. This evaluation reviewed applicable documentation which supported the findings of the NSRS report, and therefore this evaluation concurs with the NSRS.

The other SQN concern in regard to HP personnel not responding to radiation alarms or unknown radiological situations where the radiological safety of plant personnel could be compromised was previously investigated by SQN line management. It was not substantiated. It was determined in the investigation that SQN had not experienced abnormal radiation levels during periods of operation. The only event that did result in unanticipated radiation levels in the Reactor Building was the thimble tube ejection incident in April 1984. It was found that HP had been present at the beginning of the event and maintained control throughout the recovery process. Furthermore, HP supervisors could not recall any instance that would coincide with this concern. This evaluation concurred with the findings of the SQN line report.

Conclusion

The issue could not be verified as factual.

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Issue 311.04-6 - Lower Containment Entries

WBN

This issue incorporated two concerns which raised questions concerning personnel exposure to neutron radiation when entering lower containment while the reactor is at power and was previously investigated by Sequoyah line management. It was not substantiated at WBN. The previous investigation indicated that containment entries were in compliance with 10CFR20 requirements regarding neutron dose assessment. Based on survey data, the investigation also found that the quality factor for neutrons could be increased by a factor of five without exceeding dose limits. Therefore, it was determined that the practice of entering lower containment while at power for non-emergency repair was acceptable from a dose standpoint and did not need to be re-evaluated. This evaluation concurred with the findings of this report and, in addition, performed reviews of applicable procedures and conducted interviews at WBN. Requirements for entering containment at WBN were found to be similar to SQN. It was determined through interviews and review of procedures that the practice of entering containment at power at WBN, like SQN, was not expected to occur frequently and exposure would be maintained within allowable limits. Additionally, this evaluation also identified a Design Change Request that had been issued at SQN and WBN to correct problems with the RCP motors and to eliminate the need for someone to enter lower containment to check the oil level while the reactor was operating.

A review of the NSRS Report I-84-012-SQN which investigated the thimble tube ejection accident at SQN was determined not to be a direct result of entry into containment while the reactor was at power; therefore, this issue was not substantiated at WBN.

SQN

This issue of entering lower containment was reflected in three concerns at SQN. The first concern which involved the transfer of responsibility of HP from Muscle Shoals to Sequoyah resulting in compromises to existing HP policies regarding personnel access during unit operation, was not substantiated at SQN. It was determined by this evaluation that the concern only pertained to containment entries. A review of applicable procedures, including prior revisions, revealed no significant changes in entry limitations or requirements during or after the transfer of authority in question. Interviews conducted with cognizant management personnel also indicated that specific guidelines for Reactor Building entry had not been changed to any great extent during this period.

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The other two concerns questioned the practice of entering lower containment for non-emergency repairs while the reactor was operating based on recent studies of neutron exposures were not substantiated in a previous investigation conducted by SQN line management. As discussed in the WBN evaluation which also identified the SQN line response report as a basis for its findings, all TVA nuclear facilities adhere to the quality factor required by 10CFR20 in determining neutron dose. In regard to the recent studies which recommended an increase in the quality factor for neutron dose assessment, survey data revealed that the use of an even more conservative quality factor would not result in a greater risk than already existing from the effect of gamma radiation. Based on actual data at SQN, neutron doses are typically a factor of ten less than gamma doses. Therefore, the practice of entering lower containment while at power for non-emergency repairs did not need to be re-evaluated from a dose standpoint. The practice of entering containment at power also had no direct bearing on the thimble tube ejection accident at SQN as alleged in these concerns. The incident was reviewed in NSRS Investigation I-84-012-SQN and was not substantiated. This evaluation concurred with the findings of the SQN line management and the NSRS reports.

Conclusion

This issue was not verified as factual at either WBN or SQN.

Issue 311.04-7 - Improperly Completed RWP Timesheets

WBN

The issue concerning the completion of RWP timesheets not being made in accordance with procedure requirements was previously investigated by NSRS for SQN Report I-85-514-SQN and was determined not to be substantiated at WBN. The evaluation for SQN found that the problems with the RWP timesheets centered on the improper correction of quality assurance records in regard to the transcription of information (i.e., signatures) on RWP timesheets. The evaluation for WBN was based on the findings of the SQN investigation. No RWPs were available for review at WBN due to the status of the plant; however, reviews of applicable procedures and interviews with cognizant personnel were conducted to identify similar problems at WBN. Since RWP timesheets were not used at WBN, required changes and corrections to procedures identified for deficiencies at SQN were not applicable to WBN. WBN was, however, conducting training on dose cards to ensure workers were familiar with the QA and other recordkeeping requirements.

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SQL

Two concerns were raised in regard to this issue at SQL. The first concern identified a RWP sign-in sheet that contained falsified signatures. This concern was previously investigated by NSRS Report I-85-514-SQN and was not substantiated. The original sign-in sheet had been transcribed to a new sign-in sheet without traceability to the original. Therefore, the evaluation for verifying falsified signatures was indeterminate. This evaluation concurs with the NSRS findings.

The second concern which dealt with RWPs not being completed per procedure was also previously investigated by NSRS Report I-85-514-SQN. This evaluation concurs with the NSRS investigation which determined this concern to be substantiated; however, corrective actions were implemented based on the NSRS report. The NSRS evaluation found that corrections were being made to RWPs without traceability to the original documentation and recommended a revision to HP-SIL-7 to clearly define the QA record requirements for transcription of information between RWPs. For those timesheets reviewed in the NSRS investigation where problems had been identified, NSRS recommended that supplemental information be provided in regard to the traceability of the original worker sign-in sheets. In regard to changes on RWPs to reflect current airborne radiological information, HP proposed changes to the RWP and timesheets should resolve the problem of individuals making improper entries on timesheets. Sequoyah had responded to the NSRS report recommendations by making the necessary procedural revisions to reflect the current status of determining/classifying RWP timesheets as QA or non-QA and to define the requirements for transcription of information between RWPs. Procedural reviews and interviews by this evaluation confirmed the corrective actions taken by SQL.

In addition, issue 311.03-2 identified QA record deficiencies in SQL RWP timesheets and noted corrective actions that were required to define QA record requirements for RWP timesheets and handling RWPs in the field in accordance with QA record requirements. These findings were also applicable to the findings for this issue. This evaluation concurred with the findings of the NSRS report.

BFN

The SQL concern involving RWPs not being completed per procedural requirements was not validated at BFN. The procedure changes required at SQL based on the NSRS investigation were already incorporated into BFN procedures. A review of the applicable procedures identified the controls for transcribing data from RWP timesheets were in place.

