

TVA EMPLOYEE CONCERNS  
SPECIAL PROGRAM

REPORT NUMBER: 10300

REPORT TYPE: Subcategory Report - Construction  
(Final Report)

REVISION NUMBER: 3

TITLE: Coating and Paint

PAGE 1 OF 35

REASON FOR REVISION:

Incorporate SRP comments, corrective action,  
executive summary, and to finalize the report.

Revision 1

Incorporate SRP comments.

Revision 2

Correct procedure.

Revision 3

PREPARATION

PREPARED BY:

*Ernest C. McDaniel*  
SIGNATURE

*7/20/87*  
DATE

REVIEWS

PEER:

*John F. B... / Margaret E. Sliwski*  
SIGNATURE

*7/21/87*  
DATE  
*7/23/87*

TAS:

*James E. Worley II*  
SIGNATURE

*7/23/87*  
DATE

CONCURRENCES

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

CEG-H: *Jack J. Howard* *7/23/87*  
SRP: *Jimmie K. Goffe* *7/24/87*  
SIGNATURE      DATE

APPROVED BY:

*James R. Russell* *7-24-87*  
ECSP MANAGER      DATE

N/A  
MANAGER OF NUCLEAR POWER      DATE  
CONCURRENCE (FINAL REPORT ONLY)

0004T

870B110115 870731  
PDR ADOCK 05000259  
PDR

*RCM  
7/23/87*

### 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.

critierion (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.

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

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

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

K-form (see "employee concern")

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

root cause the underlying reason for a problem.

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

**Acronyms**

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

**TVA EMPLOYEE CONCERNS  
SPECIAL PROGRAM**

**REPORT NUMBER: 10300**

**FRONT MATTER REV: 2**

**PAGE vi OF viii**

---

**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

**TVA EMPLOYEE CONCERNS  
SPECIAL PROGRAM**

**REPORT NUMBER: 10300**

**FRONT MATTER REV: 2**

**PAGE vii OF viii**

---

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



**TVA EMPLOYEE CONCERNS  
SPECIAL PROGRAM**

**REPORT NUMBER: 10300**

**FRONT MATTER REV: 2**

**PAGE viii OF viii**

---

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

Outline of Contents

EXECUTIVE SUMMARY

1.0 CHARACTERIZATION OF ISSUES

- 1.1 Introduction 7
- 1.2 Description of Issues 7
  - 1.2.1 WBN - Improper Mixing, Application, and Surface Preparation
  - 1.2.2 WBN - Excessive Dry Film Thickness
  - 1.2.3 WBN and BLN - Coating Application and Maintenance
  - 1.2.4 WBN - Surface Preparation
  - 1.2.5 WBN - Inappropriate Coating
  - 1.2.6 WBN - Surfacer Deleted
  - 1.2.7 WBN and SQN - Uncoated Welds

2.0 SUMMARY

- 2.1 Summary of Issues 8
- 2.2 Summary of Evaluation Process 9
- 2.3 Summary of Findings 9
  - 2.3.1 Improper Mixing, Application, and Surface Preparation
  - 2.3.2 Excessive Dry Film Thickness
  - 2.3.3 Coating Application and Maintenance
  - 2.3.4 Surface Preparation
  - 2.3.5 Inappropriate Coating
  - 2.3.6 Surfacer Deleted
  - 2.3.7 Uncoated Welds
- 2.4 Summary of Collective Significance 11

---

|  | <u>Page Number</u> |
|--|--------------------|
| <b>2.5 <u>Summary of Causes</u></b>  | <b>12</b>          |
| 2.5.1 Improper Mixing, Application, and Surface Preparation                  |                    |
| 2.5.2 Excessive Dry Film Thickness   |                    |
| 2.5.3 Coating Application and Maintenance                                    |                    |
| 2.5.4 Surface Preparation  |                    |
| 2.5.5 Inappropriate Coating  |                    |
| 2.5.6 Surfacer Deleted   |                    |
| 2.5.7 Uncoated Welds   |                    |
| 1. WBN   |                    |
| 2. SQN   |                    |
| <b>2.6 <u>Summary of Corrective Action</u></b>                               | <b>13</b>          |
| 2.6.1 Improper Mixing, Application, and Surface Preparation                  |                    |
| 2.6.2 Excessive Dry Film Thickness   |                    |
| 2.6.3 Coating Application and Maintenance                                    |                    |
| 1. WBN   |                    |
| 2. BLM   |                    |
| 2.6.4 Surface Preparation  |                    |
| 2.6.5 Inappropriate Coating  |                    |
| 2.6.6 Surfacer Deleted   |                    |
| 2.6.7 Uncoated Welds   |                    |
| 1. WBN   |                    |
| 2. SQN   |                    |
| <b>3.0 <u>EVALUATION PROCESS</u></b>   |                    |
| <b>3.1 <u>General Methods of Evaluation</u></b>                              | <b>14</b>          |
| <b>3.2 <u>Requirements or Criteria Established for Individual Issues</u></b> | <b>15</b>          |
| 3.2.1 Improper Mixing, Application, and Surface Preparation                  |                    |
| 3.2.2 Excessive Dry Film Thickness   |                    |
| 3.2.3 Coating Application and Maintenance                                    |                    |
| 3.2.4 Surface Preparation  |                    |
| 3.2.5 Inappropriate Coating  |                    |
| 3.2.6 Surfacer Deleted   |                    |
| 3.2.7 Uncoated Welds   |                    |

**4.0 FINDINGS**

|   |           |
|---|-----------|
| <b>4.1 <u>Findings on Issue 1.2.1 - Improper Mixing, Application, and Surface Preparation</u></b> | <b>16</b> |
| 4.1.1 Generic   |           |
| 4.1.2 Site specific   |           |
| <b>4.2 <u>Findings on Issue 1.2.2 - Excessive Dry Film Thickness</u></b>                          | <b>17</b> |
| 4.2.1 Generic   |           |
| 4.2.2 Site specific   |           |
| <b>4.3 <u>Findings on Issue 1.2.3 - Coating Application and Maintenance</u></b>                   | <b>18</b> |
| 4.3.1 Generic   |           |
| 4.3.2 Site specific   |           |
| <b>4.4 <u>Findings on Issue 1.2.4 - Surface Preparation</u></b>                                   | <b>20</b> |
| 4.4.1 Generic   |           |
| 4.4.2 Site specific   |           |
| <b>4.5 <u>Findings on Issue 1.2.5 - Inappropriate Coating</u></b>                                 | <b>20</b> |
| 4.5.1 Generic   |           |
| 4.5.2 Site specific   |           |
| <b>4.6 <u>Findings on Issue 1.2.6 - Surfacer Deleted</u></b>                                      | <b>21</b> |
| 4.6.1 Generic   |           |
| 4.6.2 Site specific   |           |
| <b>4.7 <u>Findings on Issue 1.2.7 - Uncoated Welds</u></b>  | <b>22</b> |
| 4.7.1 Generic   |           |
| 4.7.2 Site specific   |           |
| 1. WBN  |           |
| 2. SQN  |           |

**5.0 COLLECTIVE SIGNIFICANCE**

**5.1 Significance of Each Issue 26**

- 5.1.1 Improper Mixing, Application, and Surface Preparation
- 5.1.2 Excessive Dry Film Thickness
- 5.1.3 Coating Application and Maintenance
- 5.1.4 Surface Preparation
- 5.1.5 Inappropriate Coating
- 5.1.6 Surfacers Deleted
- 5.1.7 Uncoated Welds
  - 1. WBN
  - 2. SQN

**5.2 Collective Significance of the Subcategory 28**

- 5.2.1 Generic
- 5.2.2 Site specific
  - 1. WBN
  - 2. SQN

**6.0 CAUSE**

- 6.1 Improper Mixing, Application, and Surface Preparation 30
- 6.2 Excessive Dry Film Thickness 30
- 6.3 Coating Application and Maintenance 30
- 6.4 Surface Preparation 30
- 6.5 Inappropriate Coating 30
- 6.6. Surfacers Deleted 30
- 6.7 Uncoated Welds 30
  - 1. WBN
  - 2. SQN

**7.0 CORRECTIVE ACTION**

**7.1 Corrective Action Already Taken**

31

- 7.1.1 Improper Mixing, Application, and Surface Preparation.
- 7.1.2 Excessive Dry Film Thickness
- 7.1.3 Coating Application and Maintenance
- 7.1.4 Surface Preparation
- 7.1.5 Inappropriate Coating
- 7.1.6 Surfacer Deleted
- 7.1.7 Uncoated Welds
  - 1. WBN
  - 2. SQN

**7.2 Corrective Action From CATDs**

32

- 7.2.1 Improper Mixing, Application, and Surface Preparation
- 7.2.2 Excessive Dry Film Thickness
- 7.2.3 Coating Application and Maintenance
- 7.2.4 Surface Preparation
- 7.2.5 Inappropriate Coating
- 7.2.6 Surfacer Deleted
- 7.2.7 Uncoated Welds
  - 1. WBN
  - 2. SQN

**8.0 ATTACHMENTS**

**Attachment A - Listing of Employee Concerns Indicating Safety Relationship and Generic Applicability**

**Attachment B - List of Evaluators**

**Attachment C - List of Concerns by Issue**

## EXECUTIVE SUMMARY

### COATINGS AND PAINT

Report Number: 10300

Revision Number: 3

### SUMMARY OF ISSUES

This report addressed seven issues that were derived from twenty-two employee concerns. The seven issues identified were improper mixing, application, and surface preparation; excessive dry film thickness; coating application and maintenance; surface preparation; inappropriate coating; surfacer deleted; and uncoated welds. All seven issues were evaluated at Watts Bar Nuclear Plant (WBN). One issue (Uncoated Welds) was evaluated at Sequoyah Nuclear Plant (SQN). One issue (Coating Application and Maintenance) was found to be generic to Bellefonte Nuclear Plant (BLN) because of the fact that construction work was ongoing at that site.

### MAJOR FINDINGS

Two of the seven issues (Surface Preparation and Inappropriate Coating) were not a problem. No evidence of improper surface preparation was discovered, and coatings were found to have been applied in accordance with specifications. One of the remaining issues (Improper Mixing, Application, and Surface Preparation) was found to be factual in that excessive application of inorganic zinc was verified. However, the coating had been repaired in the unit 2 containment dome as directed by NCR 6144. The remaining issues required corrective action due to the evaluation of the subcategory. With the issue of Dry Film Thickness, cracks and loss of adhesion had been discovered in some areas of the Auxiliary Building. Under the issue of Coating Application and Maintenance, unit 2 at WBN (which was in the construction phase) had sustained considerable damage to concrete floor surfaces. Cracking was found to have occurred due to excessive dry film thickness of Phenoline 305 in the evaluation of the Surfacer Deleted issue. In the investigation of the Uncoated Welds issue, some corrosion of welds was uncovered primarily in areas that had low corrosion rates though it was discovered that welds in the north and south valve rooms (high corrosion areas) had not been coated.

### COLLECTIVE SIGNIFICANCE OF FINDINGS

A pattern noted in the evaluation of the concerns in this subcategory report dealt with a failure of timely inspections early in the coatings program. This along with the craftsmen and foremen's failure to adhere closely to specifications and misinterpretations of DNE documents by site employees contributed to the problems involving improper application and excessive coating dry film thickness.

## EXECUTIVE SUMMARY (Continued)

These problems led to improper applications which were detected, documented, and corrected via NCRs, workplans, and training. These isolated cases, when compared with the total coatings program, were found to have little or no importance to the overall scope and no significant impact on the safe operation of the plant facilities.

### CAUSES OF THE MAJOR FINDINGS

These issues were due to a combination of management and employee weaknesses, which ranged from craftsmen and foremen's failure to follow specifications and misinterpretation of DNE documents by site personnel which resulted in deficient coatings.

### CORRECTIVE ACTION OF MAJOR FINDINGS

No further corrective action was specified in the area of improper mixing, application, and surface preparation. The areas in question had already been corrected, and G-55 was revised to remove the dry film thickness limit chart.

The Employee Concerns Task Group (ECTG) recommended that damaged coatings in unit 1 be repaired due to problems with excessive dry film thickness (reference CATD 10300-WBN-01). This program was to be developed and in place before unit 1 start-up.

In the area of coating application and maintenance, ECTG recommended that damaged coatings at WBN in unit 2 areas be repaired (reference CATD 10300-WBN-02). Discrepant coatings had been identified in walkdowns and were scheduled for rework on QCI 1.60 workplans. The same recommendation was made for units 1 and 2 at BLN (reference CATD 10300-BLN-01). BLN was to implement formal surveillance program by June 30, 1987 to verify that protection of coatings was provided in high-risk areas. Identification and repair of coatings were already covered by BNP-QCP-2.4 and BNP-QCP-9.2.

In the area of deleted surfacer, ECTG recommended that failing coatings be replaced along with training for foremen and painters (reference CATD 10300-WBN-03). Training was provided by WBN-QCI-2.13 and SOP-21. These procedures cover Service Level I and II coatings. QC inspections were provided in Level I areas while CQC and CEU performed surveillances of Level II coatings.

At WBN, ECTG recommended that welds in high corrosion areas be cleaned and coated (reference CATD 10300-WBN-04). Work had begun inside containment using workplan E-6351-1. Work in the valve rooms had not begun. At SQN, maintenance requests were to identify rusting welds (reference CATD 10307-SQN-01). The response to the CATD acknowledged that rusted welds had been discovered during the implementation of several Preventive Maintenance packages. The packages were being evaluated by DNE.



COATINGS AND PAINT

Executive Summary Table #1

| ISSUES   | ISR | INS | FINDINGS   | CAUSE  | CORR. ACTION  | SIGNIFICANCE   | COLLECTIVE SIGN.   |
|--|-----|-----|--|--|---|--|--|
| I. Improper Mixing, Application, and Surface Preparation | X   |     | Excessive application of inorganic zinc, carbo-zinc eleven was found. Improper mixing and application over improperly cleaned surfaces was not verified. | The misinterpretation of craftsmen and inspectors of the chart in G-55 (R3) stating an allowable range for dry film thickness resulted in applications in excess of that desired and required. | The areas evaluated in this issue had been corrected as part of the corrective action for NCR 6144. The dry film thickness limit chart was removed from G-55 (R4).  | Excessive thickness of coating could result in cracking and loss of adhesion.  | Excessive thickness was due to the misinterpretation of the dry film thickness chart in G-55.  |
| II. Excessive Dry Film Thickness                         | X   |     | Cracks and loss of adhesion had been found in some areas of the Auxiliary Building.  | The failure of craftsmen and foremen to follow the specifications in the application of Phenoline 305 finish coat.   | All applicators have been retrained to WBN-QCI-2.13. Protective coatings which were determined to be damaged, failing or otherwise out of specification in unit I were to be removed or replaced with existing MRs. A formalized program for coatings maintenance and re- | Excessive thickness of coatings could result in cracking and loss of adhesion. | The excessive thickness indicated a failure to follow specifications by craftsmen and foremen. |

Executive Summary Table #1

| ISSUES                                   | ISR | INS | FINDINGS  | CAUSE  | CORR ACT.  | SIGNIFICANCE  | COLLECTIVE SIGN.           |
|--|-----|-----|---|--|--|---|----------------------------|
| II. Excessive Dry Film Thickness         | X   |     | (continued)   |  | pair was to be developed and in place before unit 1 start-up.  |   |                            |
| III. Coating Application and Maintenance | X   |     | The specified costing system was used following the proper application and inspection procedures. From a maintenance standpoint, unit 2, which was in the construction phase, had sustained considerable damage to concrete floor surfaces and would require repairs. | There was no cause associated with application. Early applications of coatings during the construction phase with little protection being provided to coated surfaces required considerable repair and rework. | Repairs had been made in Unit 1 areas. Coating repairs had been made in unit 2 in accordance with NCR 6144 directions. It was requested that unit 2 protective coatings determined to be damaged, failing, or otherwise out of specification be repaired. It was also requested that a surveillance program and/or policy whereby coatings be protected and required repairs identified and corrected be developed. At MBN, walkdowns had identified discrepant coatings which were noted on MPs. CEU attempted to protect coatings where possible from physical | Since the concern was not factual for Unit 1 and construction procedures were in place for making repairs in Unit 2, this issue was nonsignificant. | No collective significance |

Executive Summary Table #1

| ISSUES                                   | SR | INS | FINDINGS   | CAUSE  | CORR ACT.  | SIGNIFICANCE                   | COLLECTIVE SIGN.            |
|--|----|-----|--|--|--|--------------------------------|-----------------------------|
| III. Coating Application and Maintenance | X  |     | (continued)  |  | damage. A final walkdown was made and damaged coatings were noted with repairs made just prior to transfer. At BLN, a formal surveillance program was to be implemented by June 30, 1987 to verify protection of coatings was provided in high-risk areas. |                                |                             |
| IV. Surface Preparation                  | X  |     | No evidence of improper surface preparations were found in the lower compartment of unit 1, Reactor Building. Intercoat adhesion failure did exist on elevation 713 at the Auxiliary Building elevator landing but did not appear to be a problem.   | No apparent cause was determined for this issue. | None required.   | The issue was non-significant. | No collective significance. |
| V. Inappropriate Coating                 | X  |     | Epoxy coatings were used in the steam generator rooms and inorganic zinc was applied on the hangers without top coating above the dado throughout the containment. In both instances the products were applied in accordance with the specifications and procedures with problems being nonexistent. | No cause was determined for this issue.          | None required.   | The issue was non-significant. | No collective significance. |

Executive Summary Table #1

| ISSUES                | ISR | INS | FINDINGS   | CAUSE  | CORR ACT.   | SIGNIFICANCE   | COLLECTIVE SIGN.                  |
|-----------------------|-----|-----|--|--|---|--|-----------------------------------|
| VI. Surfacers Deleted | X   |     | <p>Finish coat (Phenolic 305) was applied directly to concrete surfaces in the Auxiliary Building under a program developed at WBN with the manufacturer's approval for Service Level III areas. Investigation of the issue determined Carboline 295 surfacer was used, however, cracking was caused by excessive dry film thickness of the Phenoline 305 top coating and the rewetting or improper use of Carboline 295 surfacer. Coating systems such as those which use Carboline 295 do not protect against radiation. They only allow the surface to be more easily decontaminated.</p> | <p>Excessive application of Phenolic 305 finish coat was due to lack of attention by painters and foremen.</p> | <p>It was requested that a review of the coating systems and requirements with foremen and painters assigned to coating work be reviewed. It was also requested that it be ensured that QC inspection before floor coating operations. The response to this was that QCI-2.13 required training (for Service Level I coatings). SOP-21 also required training (Service Level II coatings). QC inspections were performed on all Service Level I coated areas. A CQC or CEU representative performed surveillances of other areas.</p> | <p>The elimination of Carboline 295 surfacer was found to have occurred due to the development of a surfacer free coating system developed by TVA and approved by Carboline. Therefore, the issue was factual in that surfacer was deleted but because it was deleted at the request of TVA with manufacturer approval it was not a problem. Therefore the issue was nonsignificant.</p> | <p>No collective significance</p> |

COATINGS AND PAINT

Executive Summary Table #1

| ISSUES                 | ISR | INS | FINDINGS  | CAUSE   | CORR ACT.   | SIGNIFICANCE  | COLLECTIVE<br>SIGN.        |
|------------------------|-----|-----|---|---|---|---|----------------------------|
| VII. Uncoated<br>Welds | X   |     | Uncoated welds evaluated at MBN had displayed some corrosion. This corrosion was above the dado of decontamination coating and was primarily located in areas that had a low corrosion rate. Welds on supports, hangers, etc., in the north and south valve rooms at MBN should have been coated because of the probability of high corrosion conditions. | The cause of this issue was due to misinterpretations of Note 17 which was added to TVA drawing 46M466-1 upon the recommendation of the Coating Task Force of 1983. | It was requested that welds in high corrosion areas such as the north and south valve rooms and the inner crane wall of unit containment be cleaned and coated. The inner crane wall work was in progress using workplan E-6351-1. The work in the valve rooms had not begun. Note 17 of drawing 46M466-1 had since been deleted with the subject clarified in Note 20. | The issue was non-significant since uncoated and rusty welds were found to exist primarily in low corrosion rated areas and above the decontamination dado level. | No collective significance |

## 1.0 CHARACTERIZATION OF ISSUES

### 1.1 Introduction

There were 22 employee concerns submitted and evaluated concerning coatings and paint. This subcategory report addressed ten of these concerns as six separate issues which were site specific to Watts Bar Nuclear Plant (WBN). One separate issue addressed one concern generic to WBN and Bellefonte Nuclear Plant (BLN).

The remaining 12 concerns were grouped and addressed as one issue. Six of these concerns were WBN site specific. The other six concerns were generic to SQN and only two of these concerns were to be addressed with regards to SQN in this report. The four remaining generic concerns were addressed for SQN in the Welding Project Generic Employee Concern Evaluation Report WP-08-SQN.

### 1.2 Description of Issues

#### 1.2.1 Improper Mixing, Application, and Surface Preparation - IN-85-243-001

This concern dealt with improper mixing and excessive spray application on uncleaned surfaces in the domes of the unit 1 and 2 Reactor Buildings.

#### 1.2.2 Excessive Dry Film Thickness - IN-85-472-010, IN-85-511-001

These concerns involved excessive coating dry film thicknesses in areas of the unit 1 Reactor and Auxiliary Buildings.

#### 1.2.3 Coating Application and Maintenance - IN-86-273-001

This concern addressed recoating applications and maintenance of previously coated containment surfaces in units 1 and 2 and was made generic to BLN as a result of the evaluation at WBN. The portion of the concern pertaining to maintenance at BLN was addressed at the subcategory report level without actual site evaluation. This concern addressed the construction program aspects from initial application up to transfer of the affected areas to operations. Concern XX-85-087-001-SQN covered this issue and was evaluated by Operations for all sites in Subcategory Report 301.07 and was not addressed in this report.

**1.2.4 Surface Preparation - IN-85-472-009, IN-85-511-003**

These concerns addressed improper surface preparation both on previously coated surfaces and uncoated surfaces for concrete and steel substrates in the unit 2 Auxiliary Building and lower portions of unit 1 reactor containment.

**1.2.5 Inappropriate Coating - WI-85-077-001, IN-85-043-001**

These concerns questioned the selection and qualification of coatings in the steam generator room.

**1.2.6 Surfacer Deleted - PH-85-040-003, IN-85-711-001**

These concerns involved the deletion of surfacer from the coating system in the unit 1 reactor containment and Auxiliary Building.

**1.2.7 Uncoated Welds - WI-85-013-005, EX-85-059-001, IN-85-149-002, IN-85-192-002, IN-85-243-002, IN-85-273-001, IN-85-451-001, IN-85-511-002, IN-85-833-001, WBN-MM-85-001, IN-85-192-001, and IN-85-511-N05**

These 12 concerns questioned the decision to leave welds and other structural items, particularly above the decontamination dado, uncoated. Concerns EX-85-059-001, IN-85-192-002, IN-85-273-001 and IN-85-451-001 were evaluated and addressed in the Welding Project Generic Employee Concern Evaluation Report WP-08-SQN and were not addressed in this report.

**2.0 SUMMARY**

**2.1 Summary of Issues**

- 2.1.1 Coatings were not mixed in accordance with the procedure and were applied too heavily on uncleaned surfaces in the containment domes of the Reactor Buildings.**
- 2.1.2 Coatings were applied excessively, resulting in dry film thicknesses being out of specification in the unit 1 Reactor and Auxiliary Buildings.**
- 2.1.3 Recoating procedures were not followed for the application of Phenoline 305 on containment surfaces of both units at WBN as well as improper care of coated surfaces.**
- 2.1.4 There was a failure to properly prepare concrete and steel surfaces prior to coating in the unit 2 Auxiliary Building and the lower compartment of the unit 1 reactor containment.**

- 2.1.5 There was improper use of epoxy in the steam generator room and inorganic zinc coating applied to hangers.
- 2.1.6 Carboline 295 surfacer was eliminated causing cracks, loss of adhesion, and sealing against radiation on floors of the unit 1 Auxiliary Building and reactor containment.
- 2.1.7 There was a reduction or elimination of requirements for coating welds, resulting in reduced structural integrity, reduction in ability to decontaminate, and increase of cost because of scheduling.

## 2.2 Summary of Evaluation Process

Applicable specifications, drawings, manufacturer's directions, project procedures, TVA construction specifications, existing Nuclear Safety Review Staff (NSRS) reports, WBN construction investigation reports, files, and other criteria required to evaluate and document conclusions reached for each issue were reviewed. Visual and/or physical inspections were made of each subject area.

## 2.3 Summary of Findings

There were seven issues in this subcategory. All seven were evaluated at WBN while one issue each was evaluated at BLN and SQN.

### 2.3.1 Improper Mixing, Application, and Surface Preparation

This issue was factual and identified a problem, but corrective action for the problem was initiated before the employee concerns evaluation of the issue was undertaken. Excessive application of inorganic zinc, carbo-zinc eleven (CZ 11), was found. However, improper mixing and application over improperly cleaned surfaces could not be verified. The coating had been repaired in the unit 2 containment dome as directed by NCR 6144.

### 2.3.2 Excessive Dry Film Thickness

Cracks and loss of adhesion had been found in some areas of the Auxiliary Building because of excessive application of Phenoline 305 finish coat. This issue was factual and identified a problem, but corrective action for the problem was initiated before the employee concerns evaluation of the issue was undertaken. No large areas that would indicate the coating in the unit 1 Reactor Building were out of specification were found. The repair work performed on the containment dome and elsewhere may have covered the areas of the concerns. This issue could not be verified as factual.



**2.3.3 Coating Application and Maintenance**

This concern was not verified totally in units 1 or 2 with respect to the construction phase. The specified coating system was used following the proper application and inspection procedures. Investigations, including NSRS investigation report I-85-817-WBN, disclosed no problems with concrete coatings. From a maintenance standpoint, unit 2, which was in the construction phase, had sustained considerable damage to concrete floor surfaces and would require repairs. Plant procedure QCI-2.12 was in place for implementing coating repairs where necessary and would not sacrifice the quality of the overall floor coating. Because of the repair work required, the issue was factual and presented a problem for which corrective action had been, or was being, taken as a result of an employee concerns evaluation.

**2.3.4 Surface Preparation**

No evidence of improper surface preparations were found in the lower compartment of unit 1, Reactor Building. Therefore, the issue could not be verified as factual. Intercoat adhesion failure did exist at the elevator landing on elevation 713 of the Auxiliary Building but did not appear to be a pervasive problem. The issue was factually accurate, but what it described was not a problem (i.e., not a condition requiring corrective action by ONP.)

**2.3.5 Inappropriate Coating**

Epoxy coatings were used in the steam generator rooms and inorganic zinc was applied on the hangers without top coating above the dado throughout the containment. In both instances the products were applied in accordance with the specifications and procedures with problems being nonexistent. The issue was factually accurate, but what it described was not a problem (i.e., not a problem requiring corrective action by ONP).

**2.3.6 Surfacer Deleted**

Finish coat (Phenolic 305) was applied directly to concrete surfaces in the Auxiliary Building under a program developed at WBN with the manufacturer's (Carboline) approval for service level II areas (WBN Standard Operating Procedure [SOP]-21, Attachment C, "Application Instructions Floor Coating System CF").

Investigation of the issue determined Carboline 295 surfacer was used; however, cracking was caused by excessive dry film thickness of the Phenoline 305 top coating. Coating systems such as those which used Carboline 295 did not protect against radiation and were never intended to be used as a decontamination coat. The issue could not be verified as factual.

#### 2.3.7 Uncoated Welds

Uncoated welds evaluated at WBN and SQN had displayed some corrosion. This corrosion was above the dado of decontamination coating and was primarily located in areas that had a low corrosion rate.

Welds on supports, hangers, etc., in the north and south valve rooms at WBN, should have been coated because of the probability of high corrosion conditions. The issue was factual and presented a problem for which corrective action had been, or was being, taken as a result of an employee concerns evaluation.

To schedule coating of hangers and supports immediately after their inspection would affect little savings in surface preparation but could increase the cost for painters. Tamper markings were used on bolted connections, not welded connections. The issue was factually accurate, but what it described was not a problem (i.e., not a condition requiring corrective action by ONP).

The decision for WBN to leave some welds uncoated on hangers and supports above the six-foot dado will not present problems for plant operations from either a structural or a decontamination standpoint. Refer to Section 4.7.2, "Discussion," of this report for clarification. The issue was factually accurate, but what it described was not a problem (i.e., not a condition requiring corrective action by ONP).

#### 2.4 Summary of Collective Significance

Six of the issues addressed in this subcategory report were factual. However, portions of issues 1.2.3 and 1.2.4 could not be verified. Issue 1.2.5 was determined to be not factual. Two of the issues, 1.2.1 and 1.2.2, had been corrected or were in the process of being corrected. The factual issues were due to a combination of management and employee effectiveness inadequacies. No valid issues were due to technical inadequacies. The established DNE and site procedures were adequate to perform the application correctly. The investigations determined that there had been a failure of timely inspections early in the coatings program. This along with the

painter foremen and craftsmen's failure to adhere closely to specifications and application instructions and misinterpretations of General Construction Specification G-55 and TVA drawing 46W466-1 by system engineers and craftsmen led to problems with improper application and excessive dry film thickness. The discrepancies had been detected, documented, and corrected via NCRs, workplans, procedure/drawing revisions and training. The problems were specific to WBN. Collectively, the issues identified by these concerns will have no significant impact on the safe operation of the plant facilities and equipment. A problem was noted with a lack of a surveillance program and/or policy whereby coatings would be protected and required repairs would be identified and corrected due to the fact that management (both ONP and DNC) did not recognize a need for a program. This problem was generic to WBN and BLN. Responsible site Construction and Operations personnel were aware of the requirements for damaged areas, particularly in unit 2, to be repaired and inspected prior to fuel loading for units 1 and 2. Unit 1 repairs were made using MI-270.10 and the maintenance request process. Unit 2 repairs will be made using QCI-2.12 and the construction work release program.

**2.5 Summary of Causes**

**2.5.1 Improper Mixing, Application, and Surface Preparation**

Misinterpretation of allowable dry film thickness requirements in the G-55 Specification by craftsmen and inspectors.

**2.5.2 Excessive Dry Film Thickness**

Failure to follow the specification by craftsmen and foremen.

**2.5.3 Coating Application and Maintenance**

Failure to properly protect and maintain coated surfaces.

**2.5.4 Surface Preparation**

None

**2.5.5 Inappropriate Coating**

None

**2.5.6 Surfacer Deleted**

Excessive application of finish coat Phenoline 305 because of lack of attention by applicator and foreman.

**2.5.7 Uncoated Welds**

1. WBN - The recommendations of the Coating Task Force of 1983 which added Note 17 on Drawing 46W466-1.
2. SQN - The rusting welds were the result of current modification and repairs.

**2.6 Summary of Corrective Action**

**2.6.1 Improper Mixing, Application, and Surface Preparation**

None - The areas had already been corrected and the G-55 Specification was revised to remove the dry film thickness limit chart.

**2.6.2 Excessive Dry Film Thickness**

Remove and replace failing and out of specification coatings. Some workplans had already been written and work was to follow. All applicators had been retrained. CATD 10300-WBN-01 was written. A formalized program for coatings maintenance and repair was to be developed and in place before unit startup. A procedure was to be developed requiring inspection and repairs of any areas identified as deficient during each outage.

**2.6.3 Coating Application and Maintenance**

1. WBN-Repair existing damaged coatings in unit 2 areas. CATD 10300-WBN-02 was written. Walkdowns had identified deficient areas and workplans had been written for repair. The repairs were to be completed just before transfer.
2. BLN-Repair any damage to existing coatings in units 1&2. CATD 10300-BLN-01 was written. A formal surveillance program was to be implemented by June 30, 1987 to verify that protection of coatings was provided in high-risk areas.

**2.6.4 Surface Preparation**

None - Repairing the small areas found was to be performed during the course of turnover and normal maintenance.

**2.6.5 Inappropriate Coating**

None

**2.6.6 Surfacer Deleted**

Remove and replace failing coatings. Review the coating systems and requirements with foremen and painters assigned to do the work. Ensure QC inspection was performed on all floor coating operations. CATD 10300-WBN-03 was written. QCI-2.13 covered training for foremen and painters for Service Level I areas. SOP-21 covered training of personnel for Service Level II areas. QC inspections were performed on all Level I areas. CQC or CEU performed surveillances of coatings outside Service Level I areas.

**2.6.7 Uncoated Welds**

1. WBN-Clean and coat welds in high corrosion areas such as the north and south valve rooms and inner crane wall of unit 1 containment. Corrective action had been recommended by Division of Nuclear Engineering (DNE) personnel in the disposition of MCR W-378-P. CATD 10300-WBN-04 was written. Work was in progress to coat welds inside the crane wall for unit 1 containment using workplan E6351-1. The work in the valve rooms was to commence once this work was complete.
2. SQN-No corrective action required on specifications and drawings. Maintenance Requests (MRs) for coating repairs were being written according to Modification and Repair Procedures. CATD 10307-SQN-01 was written. Rusting conditions were found during the implementation of several Preventive Maintenance packages. DNE was evaluating these packages.

**3.0 EVALUATION PROCESS**

**3.1 General Methods of Evaluation**

The first step taken to evaluate the concerns described in the issues of this report was to conduct visual and physical inspections of each area.

Secondly, pertinent documents, including existing NSRS reports, WBN construction investigation reports, and files relative to the TVA Coatings Program, were reviewed for correctness and order.

This was the most logical approach to take in order to substantiate and determine the accuracy of each of these concerns. Samples of coatings were removed and inspected microscopically for surface preparation, dry film thickness, and other studies.

Actual site evaluations of protective coatings were not performed at BLN. The coating specifications and requirements were found to be in order in the WBN evaluations. Since the same specifications and coating requirements applied to BLN, no site investigation was deemed necessary.

### **3.2 Requirements or Criteria Established for Individual Issues**

#### **3.2.1 Improper Mixing, Application, and Surface Preparation**

Criteria used for evaluating this issue were the notes on TVA drawings 46W464-1 and 46W466-1 to 9, TVA General Construction Specification G-55, Construction Specification N3A932, QCP 2.12 "Protective Coating Inspection," QC and QA records for areas stated and NSRS Report I-85-817-WBN. |R3

#### **3.2.2 Excessive Dry Film Thickness**

Criteria used for evaluating this issue were the notes on TVA drawings 46W464-1 and 46W466-1 to 9, TVA General Construction Specification G-55, and Construction Specification N3A932. Samples of coated surfaces were removed from various locations pertaining to concern IN-85-511-001. These samples were attached to Element Report 10302, "Excessive Dry Film Thickness." |R3

#### **3.2.3 Coating Application and Maintenance**

Criteria used for evaluating this issue were the notes on TVA drawings 46W464-1 and 46W466-1 to 9, TVA General Construction Specification G-55, Construction Specification N3A932, QCP 2.12 "Protective Coating Inspection", QC Quality Training Program Manual Section III, QC and QA records for areas stated, NSRS Report I-85-817-WBN, NSRS Report I-85-812-SQN and BNP-QCP-2.4. |R3

#### **3.2.4 Surface Preparation**

Criteria used in regards to this issue were the notes on TVA drawings 46W464-1 and 46W466-1 to 9, TVA General Construction Specification G-55, Construction Specification N3A932, ANSI-N 101.4-1972, and US NRC Regulatory Guides 1.54 dated June 1973 and 1.33, Revision 2. |R3

3.2.5 Inappropriate Coating

Criteria used in regards to this issue were the notes on TVA drawings 46W464-1 and 46W466-1 to 9, TVA General Construction Specification G-55, Construction Specification N3A932, TVA drawings 47E235-42 to 47 - Temperatures, ANSI-N 101.4-1972, and US NRC Regulatory Guides 1.54 dated June 1973 and 1.33, Revision 2. |R3

3.2.6 Surfacer Deleted

Criteria used in response to this issue were the notes on TVA drawings 46W464-1 and 46W466-1 to 9, TVA General Construction Specification G-55, Construction Specification N3A932 and QC and QA records for stated areas. |R3

3.2.7 Uncoated Welds

Criteria used in regards to this issue were the notes on TVA drawings 46W464-1 and 46W466-1 to 9, General Construction Specification G-55, QC Quality Training Program Manual Section III, and QC and QA records for areas stated. |R3

4.0 FINDINGS

4.1 Findings on Issue 1.2.1 - Improper Mixing, Application, and Surface Preparation

4.1.1 Generic - No generic applicability for this issue.

4.1.2 Site specific

Discussion

Investigations of the domes in both unit 1 and 2 Reactor Buildings revealed an acceptable coating consisting of inorganic zinc and epoxy Phenolic top coat had been applied. Some areas in the unit 1 dome where adhesion testing was performed needed repair and touchup. The scope of the work on unit 1 in this area was defined in memorandums to the Architectural Branch Files dated September 17, 1985 (B61 850917 003 and B61 850917 004).

The QA records covering surface preparation and application showed considerable repair of coatings was performed on the unit 1 dome in 1984.

The QA records covering unit 2 revealed the inorganic zinc coatings had been repaired during the last two months of 1985 as required in NCR 6144, Revision 0.

The memorandums and NCR 6144 confirmed the NSRS Report I-85-817-WBN finding on dry film thickness on the unit 2 dome. Because of the nature of the coatings and the fact that repair had been accomplished, it was impossible to confirm or deny the allegations of improper mixing and application over dry dirty surfaces.

A chart was included in G-55, Revision 3, to determine the allowable range of dry film thickness from a single specified thickness. This chart was misapplied to a stated range in the specification and, consequently, allowed applications well in excess of those required.

#### Conclusion

The investigation of this issue showed that excessive application of inorganic zinc (CZ 11) did occur. Improper mixing and unclean (dusty) surfaces could not be verified as factual. The coatings had been repaired as directed in NCR 6144. Therefore, the issue was factual and identified a problem, but corrective action for the problem was initiated before the employee concerns evaluation of the issue was undertaken.

#### 4.2 Findings on Issue 1.2.2 - Excessive Dry Film Thickness

4.2.1 Generic - No generic applicability for this issue.

4.2.2 Site specific

#### Discussion

Cracking and loss of adhesion was confirmed at all four areas designated in concern IN-85-511-001. The samples removed from these areas of the Auxiliary Building all demonstrated 40 or more mills dry film thickness. Bubbles or voids were observed in some of the samples, indicating thinning and/or conventional spray application.

A general inspection of the coatings in the unit 1 Reactor Building did not confirm the allegation that "the coatings are out of specification" as stated in IN-85-472-010.

Samples of coatings removed indicate both coating system WBNP-N-934-I and WBNP-N-946-II could have been used. WBNP-N-934-I would allow thinning, conventional spray application, and a dry film thickness of 12 mills for the finish coat. WBNP-N-946-II was to be used with Watts Bar SOP- 21. This system restricted thinning, required airless spray application, and allowed up to 30 mills dry film thickness.



The Architectural Branch Files contained two memorandums related to the unit 1 Auxiliary Building floor coatings (B61 850913 002 and B61 860207 002). Memorandum B61 859013 002 attributed the failures to poor concrete or surface preparation, moisture, improper use of Carboline 295 surfacer, and excessive application of Phenoline 305 epoxy phenolic finish. Memorandum B61 860207 002 stated Phenoline 305 epoxy phenolic finish was found with dry film thickness in excess of 90 mills which developed forces strong enough to shear the coating system from the concrete surface.

The files made no direct reference to concern IN-85-472-010. It was probable that there were small areas that were either in excess or were less than specified required film thickness. It was also possible this concern made reference to the issue discussed in 4.1.2 above. The investigation could not show this concern to be factual.

#### Conclusion

Floor coatings had cracking and adhesion loss in the Auxiliary Building. This failure resulted primarily from the excessive application of Phenoline 305 finish coat. This issue was factual and identified a problem, but corrective action for the problem was initiated before the employee concerns evaluation of the issue was undertaken.

No large areas could be found in the unit 1 Reactor Building that would indicate the coatings were out of specification. The repair work which had been performed on the dome and elsewhere may have eliminated these concerns. The issue could not be verified as factual.

#### 4.3 Findings on Issue 1.2.3 - Coating Application and Maintenance

4.3.1 Generic - This issue had generic applicability to SQN and BLN. As stated in the Description of Issues, paragraph 1.2.3 of this report, Concern XX-85-087-001-SQN will be addressed and reported by Operations in Subcategory 301.07 and will not be addressed in this report.

4.3.2 Site specific

#### Discussion

Concrete coatings system consisting of Carboline 295 surfacer and Phenoline 305 finish were used in both units 1 and 2. Investigation of these surfaces revealed a small amount of mechanical damage in unit 1 and a considerable amount of damage in unit 2. The repaired and recoated areas in unit 1

4.3.2 Site Specific (continued)

were in good condition with only three repairs showing adhesion problems. The adhesion problem appeared to be confined to applications that had been completed and beyond the parameters of the prepared surfaces.

Concern IN-86-273-001 was investigated and reported by NSRS report I-85-817-WBN, finding 3. "The general inspection of unit 1 containment indicated that the coatings on concrete were adhering well, and no significant areas of damage were observed. In the professional judgment of the coatings specialists, failure to follow specifications and procedures when recoating Phenoline 305 would be expected to result in delamination between coats of 305. This type of failure was not observed, except in some small areas around the periphery of a repaired area, where repair coatings may have been applied slightly beyond the limits of the area prepared by abrading or wiping with solvent."

The NSRS report was extended to include the inorganic zinc and Phenoline 305 coating system. This investigation confirmed and supported the ECTG findings as noted in paragraph one of this discussion.

The site procedures for recoating Phenoline 305 were compared to the requirements of G-55, N3A932, and the manufacturer's directions. No discrepancies were noted.

WBN QCP-2.12, Attachment C, "Surface Preparation and Application Records," were obtained from the QC files for representative areas where repairs had been made and deviations from procedures or specifications were not reported in these records.

Conclusion

This concern could not be totally validated. The specified coatings systems were used following the proper application and inspection procedures. Neither this investigation nor the NSRS investigation disclosed a problem with concrete coatings application and repairs. However, Construction needs to address the issue of protecting the initial coating applications, repairing existing damaged coatings, and making provisions for repairing any subsequent damage which may occur. Therefore, the issue was factual and presented a problem for which corrective action had been, or was being, taken as a result of an employee concerns evaluation.

**4.4 Findings on Issue 1.2.4 - Surface Preparation**

**4.4.1 Generic - No generic applicability for this issue.**

**4.4.2 Site specific**

**Discussion**

Concern IN-85-472-009 indicated coating problems in the lower compartment of the unit 1 Reactor Building. Investigation of areas both inside and outside the crane wall showed a minor amount of mechanical damage and some welds not coated. However, no areas that would indicate coating problems because of improper surface preparation existed. A few small areas of delamination of Phenoline 305 because of excessive or improperly cured CZ 11 were present.

The elevator landing at elevation 713 in the Auxiliary Building had a small area (less than 1 square foot) of intercoat adhesion present as indicated in concern IN-85-511-003.

Microscopic examination of delaminated (intercoat) coatings was made. This sample showed insufficient abrasion or insufficient solvent softening. There was no indication of dirt or contaminants causing this problem.

**Conclusion**

Investigation of the coated surfaces in the lower compartment of the unit 1 Reactor Building did not uncover improper surface preparation caused failures. Therefore, the issue could not be verified as factual. Intercoat adhesion was found to be confined to a small area at the 713 landing of the Auxiliary Building elevator. The issue was factually accurate, but what it described was not a problem (i.e., not a condition requiring corrective action by ONP).

**4.5 Findings on Issue 1.2.5 - Inappropriate Coating**

**4.5.1 Generic - No generic applicability for this issue.**

**4.5.2 Site specific**

**Discussion**

Coatings with an epoxy binder were investigated in the steam generator rooms of both units and were found to be present as stated in concern WI-85-077-001. The epoxy coating was approximately six feet above the top platform and from the floor to the 726-foot elevation.

---

Zinc coating existed on most hangers above the six-foot dado in the Reactor and Auxiliary Buildings.

TVA Drawings 47E235-42 to 47 show a normal operating peak temperature of 170°F in the steam generator rooms. The coating system had been qualified to a Loss of Coolant Accident (LOCA) of 280°F. TVA Drawing series 46W466-1 through -9 did not require top coating above the six foot dado except in specific areas. TVA General Construction Specification G-29 allowed inorganic zinc on carbon steel surfaces contacting stainless steel. |R3

#### Conclusion

These concerns were correct from the standpoint that epoxy coatings had been applied in the steam generator rooms and inorganic zinc existed on hangers without top coating. However, in both instances the products had been applied in accordance with the specifications, and no problems were found to exist. The issue was factually accurate, but what it described was not a problem (i.e., not a problem requiring corrective action by ONP).

#### 4.6 Findings on Issue 1.2.6 - Surfacer Deleted

- 4.6.1 Generic - This issue was determined to have no generic applicability because upper tier documents were adequate.
- 4.6.2 Site specific

#### Discussion

Inspections of the floor areas and a review of the QCP-2.12, Attachment C, records for the floors in unit 1 containment did not show any deletion of the 295 surfacer. Based on these investigations, concern PH-85-040-003 could not be verified factual for the unit 1 containment floors.

Investigations of the Auxiliary Building floor coatings found that cracking and intercoat failure was primarily because of excessive dry film thickness, water damage, and improper considerations of surface conditions at the time of application. TVA memorandum (B61 850913 002) confirmed this finding during the investigation for concern IN-85-511-001.

The Carboline 295 surfacer was deleted from the floor coating system for level II areas. This resulted in the implementation of Coating System N3A-932, WBNP-N-946-II, for applications over specified bare concrete. The Carboline 295 free coating system was jointly developed by DNE and Division

of Nuclear Construction (DNC) personnel and approved by John Montel, Technical Director of Carboline. The system had been very successful when properly followed. However, excessive film buildup, thinning of the top coat, and failure to follow application instructions had resulted in cracks and loss of adhesion, both from the substrate and intercoat.

**Conclusion**

The failure of the floor coatings in the unit 1 Auxiliary Building was directly linked to excessive dry film thickness of Phenoline 305 finish and to the rewetting or improper use of Carboline 295 surfacer. Concern PH-85-040-003 partially stated that the intent of the 295 surfacer was to seal the item from radiation. The Carboline 295 was designed to fill and level a concrete surface prior to the application of the epoxy finish coat. The Carboline 295 surfacer had never been suggested for use as a decontamination coat. The issues could not be verified as factual.

**4.7 Findings on Issue 1.2.7 - Uncoated Welds**

**4.7.1 Generic - This issue was generic to WBN and SQN only. The findings were site specific for each plant.**

**4.7.2 Site specific**

**1. WBN**

**Discussion**

Investigations of the 12 concerns which made up this issue revealed that the concerns stemmed from misinterpretations or misunderstandings of Note 17 on Drawing 46W466-1 which reads as follows:

**Weld joints on hangers and supports, fabricated from precoated stock, may be left unprimed with no further coating required (in areas of low visibility and above the protectively coated dado) at the discretion of the construction engineer (unit 1 only).**

Note 17 resulted from the Coating Task Force, established by memorandum EDC 830919 602. The consensus of the task force was that Note 17 would facilitate meeting the fuel loading date targeted at the time and would help reduce cost overruns. However, note 17 had been deleted and incorporated into note 20 which reads as follows:

Weld joints on pipe and instrumentation hangers, and cable tray and conduit supports fabricated from precoated stock may be left unprimed with no further coating required (in areas of low visibility, low corrosion conditions, and above the protectively coated dado). This note does not apply to the main steam valve rooms and areas inside the crane wall.

Also, note 21 provided the protective coating boundaries when specifically denoted on the 46W460 series drawings for platforms and ladders and reads as follows:

For platforms and ladders located in this area: Protective coating to extend six feet above height of platforms and three feet horizontally beyond edges of platforms wherever platforms come in contact with the walls. Protective coating to extend three feet horizontally on each side of ladders to the full height of each ladder.

Notes 20 and 21 have clarified the protective coating requirements for units 1 and 2.

Areas listed and investigated for concerns IN-85-192-001, IN-85-192-002, IN-85-273-001, IN-85-451-001, IN-85-833-001, and WBN-MM-85-001 were of the same nature. They demonstrated rusty welds and the elimination of some top coating did exist in the Reactor and Auxiliary Buildings.

The investigation of concern IN-85-149-002 showed some welds were coated to the six foot dado while others were not in the unit 2, 1-4 accumulator rooms. It was also noted installations and welding were still in progress in these areas.

Concern IN-85-243-002 which stated: "All hangers and structural steel over six feet above the floor in the Reactor and Auxiliary Building units 1 and 2 are unpainted" could not be confirmed.

After concern IN-85-511-002 was investigated, it was determined the welds in the unit 2 north and south valve rooms would be touched up and that unit 1 valve room welds would either be touched up or that a corrosion allowance for each weld would be calculated. Form TVA 45D dated September 17, 1985, stated: ". . . without the assurance the area can be kept dry, it is best to paint any of these rusting and unpainted welds. . . ." This information was transmitted to WBN by way of memorandum B61 850925 009.

Concern EX-85-059-001 questioned the scheduling of painting welds. The CI stated a saving in surface preparation, metal loss, and tamper detection markings would be effected. In actuality the surface preparation and resulting metal loss would be about equal and in either case "tamper detection" markings on welds was a moot question because these markings were used on bolted connections, not welded.

In conclusion of this discussion, Specification G-55 called for blast cleaning or power tool cleaning, if blasting was prohibited. Specification N3A932 stated the details of the coating system.

Drawing 46W466-1 and 46W464-6 dictated the coating system for each area. As a general guide in the Reactor and Auxiliary Buildings, carbon steel was primed with CZ 11. Decontamination coating of Phenoline 305 was applied as the finish coat to all surfaces that may be subject to radioactive contamination. This was usually the floors and six feet up the wall and any equipment located in the area or projecting from the floor or wall. Above the six foot height, except around ladders, platforms, etc., painting was for corrosion control only.

|R2

### Conclusion

Basically, the concerns covered in this issue were confirmed; uncoated welds did exist and had resulted in some corrosion. This corrosion was above the dado of decontamination coating level and for the most part located in areas that had a low corrosion rate.

Since note 17 had been deleted and incorporated into Note 20, the uncoated welds in the unit 1 main steam valve rooms (both north and south) and inside the unit 1 crane wall will have to be coated. The issue was factual and presented a problem for which corrective action had been, or was being, taken as a result of an employee concerns evaluation.

No requirements existed which dictated a particular sequence of construction activities. Coating operations were based on good engineering judgment intended to maximize the efficiency of the overall construction schedule. The issue was factually accurate, but what it described was not a problem (i.e., not a condition requiring corrective action by ONP).

It was determined that leaving some welds uncoated on hangers and supports above the dado level would not present operational problems. The issue was factually accurate, but what it described was not a problem (i.e., not a condition requiring corrective action by ONP).

2. SQN

Discussion

Concern IN-85-243-002 addressed hangers, structural steel members, and associated welds. Field evaluation, as a part of this, confirmed the SQN-CAR-86-01-001 baseline evaluation findings that there were some rusty welds on steel members. The rusting welds were the result of current modifications and repairs - not design requirements at SQN.

Concern IN-85-833-001 addressed the lack of top coat above the six-foot dado for decontamination in most areas where "smearable" contamination may be present. The requirements for application of decontamination coat up to a six-foot dado in coating service levels I and II areas were established from the experience at the Browns Ferry Nuclear Plant and to meet the As Low As Reasonably Achievable (ALARA) commitments. Carbon steel, including welds above the six-foot dado, should be primed for corrosion protection. Corrosion protection for carbon steel should be provided in areas of high humidity and temperature such as inside the containment crane wall where temperatures will range up to 98°F and humidity will be in the 98 percent range, and in the valve rooms where temperatures are high and rain can find its way into the area. Welds and/or carbon steel above the six-foot dado were not required to meet decontamination requirements. Rusting of carbon steel created a problem of (1) decontamination, (2) adhesion of coatings, and (3) was an indication of structural failure (this depended on the extent and rate of corrosion.)

Conclusion

There were some rusty welds and structural steel members that were to be scheduled for coating repair as they were identified and MRs were to be written from the baseline evaluation report.



In accordance with drawings and specifications, improper deletion of top coating or limiting of coating in general had not occurred as SQN. The issue could not be verified as factual.

## 5.0 Collective Significance

### 5.1 Significance of Each Issue

#### 5.1.1 Improper Mixing, Application, and Surface Preparation

Degradations raised in this concern could not be totally confirmed at the time ECTG investigations were conducted. Improper mixing and unclean (dusty) surfaces could not be verified as factual. Excessive application of inorganic zinc did occur due to a misinterpretation by craftsmen and inspectors of a chart in G-55 stating an allowable range for dry film thickness. Repairs had been made in unit 1 by Plant Maintenance through the Maintenance Request program. Deficiencies identified in Unit 2 by NCR WBN 6144 had been corrected with acceptable coating dry film thickness now in place. No physical damage to the plant existed in regards to this issue. The NSRS report, I-85-817-WBN, revealed that no formal preventive maintenance program had been developed at WBN prior to the investigation of this issue. The development and implementation of this program was to be addressed in Operations Subcategory Report 30100.

#### 5.1.2 Excessive Dry Film Thickness

It was probable that concern IN-85-472-010 in this issue was closely related to the issue discussed above in 5.1.1. In this case, no significance was assigned to this concern since acceptable repairs had been made in the unit 1 Reactor Building and only applied to small isolated areas. The conditions identified in concern IN-85-511-001 were found to exist in the unit 1 Auxiliary Building. This concern had some significance in that the excessive thickness of the coatings applied indicated a failure to follow specifications by the craftsmen and foremen. It also indicated inspections and wet or dry film checks were not made during the coating operations. The problem was identified before the employee concerns investigation and all applicators had been retrained. Investigations of this issue revealed no physical damage to the plant.

#### 5.1.3 Coating Application and Maintenance

Since this concern could not be found factual in unit 1 and construction procedures were in place for making repairs in unit 2, this issue was nonsignificant.

**5.1.4 Surface Preparation**

This issue was nonsignificant. Investigations revealed that intercoat adhesion failure was limited to a very small area at the Auxiliary Building elevator landing at elevation 713. No improper surface preparation caused deficiencies in the lower compartment of the unit 1 Reactor Building.

**5.1.5 Inappropriate Coating**

This issue was found factual from the standpoint that an epoxy coating was applied. However, investigations of this issue determined the correct coating systems (N3A932) had been applied in accordance with application instructions (WBNP-N-934 for concrete surfaces and WBNP-N-904 for carbon steel substrate). This issue was nonsignificant, since it was determined to be unfounded.

**5.1.6 Surfacer Deleted**

A review of the WBN QC records covering application of floor coatings in the unit 1 Reactor Building did not show the deletion of 295 surfacer as stated in concern PH-85-040-003 of this issue. This concern, therefore, could not be found factual and was nonsignificant.

Concern IN-85-711-001 of this issue involved the elimination of Carboline 295 surfacer in the application of floor coatings in the unit 1 Auxiliary Building. During the summer of 1982, a surfacer free coating system was developed by TVA at WBN with the approval of Carboline to be used in service level II areas such as those in the Auxiliary Building. This coating system was outlined in WBNP-SOP-21(RO).

Implementation of this coating system proved to be an acceptable and cost saving method of applying the finished epoxy coating. In view of the fact that surfacer was eliminated during applications in the Auxiliary Building, this issue was partially factual, but was nonsignificant.

### **5.1.7 Uncoated Welds**

#### **1. WBN**

This issue was determined to be nonsignificant since uncoated and rusty welds were found to exist primarily in low corrosion rated areas and above the decontamination dado level. The Coating Task Force of 1983 recommended that welds at WBN on hangers and supports above the protectively coated dado could be left unprimed with no further coating required. This was implemented by Design and Construction with the addition of note 17 on drawing 46W466-1. This note was the source of misinterpretation by DNC system engineers, QC inspectors, and craftsmen. The note had since been deleted and the subject was clarified by note 20.

Investigation of concern IN-85-511-002 in this issue resulted in a reevaluation of the conditions of welds in the valve rooms of both units. Rusting or unpainted welds in unit 1 were to be coated and welds in the unit 2 valve rooms were to be touched up as necessary due to high corrosive conditions present in the rooms.

#### **2. SQN**

Rusty welds, hangers, and other structural members were found to exist as a result of modifications and repairs—not as an oversight of design requirements.

Improper deletion of top coating or limiting of coating in general had not occurred, therefore, this issue was determined nonsignificant.

### **5.2 Collective Significance of the Subcategory**

#### **5.2.1 Generic**

The seven issues comprised of 22 employee concerns evaluated in this subcategory report were found generically to have no collective significance for WBN or SQN. Drawings, specifications, and other pertinent information were provided by the Architectural Design Branch to support an adequate coatings program.

### 5.2.2 Site specific

#### 1. WBN

The factual issues were due to a combination of management and employee effectiveness inadequacies. No valid issues were due to technical inadequacies. The established DNE and site procedures were adequate to perform the applications correctly.

A significant pattern determined from the evaluation of the concerns relevant to the issues in this report determined a failure of timely inspections early on in the coatings program. Coupling this with the painter foremen and craftsmen's failure to adhere closely to specifications, application instructions, etc., and misinterpretations of General Construction Specification G-55 and TVA drawing 46W466-1 by system engineers and craftsmen contributed to the concerns involving improper application and excessive coatings dry film thickness.

Failure of timely inspections and foremen and craftsmen's adherence to criteria created improper applications which were detected, documented, and corrected via NCRs, workplans, and training where applicable. These isolated cases, when compared with the total coatings program, were found to have little or no importance to the overall scope and no consequence to plant facilities. Repairs had been made and procedures for making minor isolated repairs were noted for unit 1. Unit 2 repairs had been made in accordance with NCR 6144 directions. Additional repairs were to be made to the protective coatings in unit 2 areas as the construction program phased out at WBN and at BLN as construction progressed.

#### 2. SQN

The issue, comprised of two concerns, which were site specific to SQN, was collectively nonsignificant. The concerns pertained to rusty welds and uncoated surfaces above the 6 foot dado and had no bearing on management and employee effectiveness or the operations of plant facilities.

**6.0 Cause**

**6.1 Improper Mixing, Application and Surface Preparation**

The misinterpretation by craftsmen and inspectors of the chart in G-55(R3) stating an allowable range for dry film thickness resulted in applications in excess of that desired and required.

**6.2 Excessive Dry Film Thickness**

The failure of craftsmen and foremen to follow the specifications in the application of Phenoline 305 finish coat.

**6.3 Coating Applications and Maintenance**

There was no cause associated with application. Early applications of coatings during the construction phase with little protection being provided led to coated surfaces which required considerable repairs and rework.

**6.4 Surface Preparation**

No apparent cause could be determined for this issue.

**6.5 Inappropriate Coating**

No cause could be determined for this issue since coatings present were applied in accordance with the specifications and coating requirements.

**6.6 Surfacer Deleted**

Excessive application of Phenoline 305 finish coat was due to lack of attention by painters and foreman.

**6.7 Uncoated Welds**

**1. WBN**

The cause for this issue was due to misinterpretations of Note 17 which was added to TVA drawing 46W466-1 upon the recommendations of the Coating Task Force of 1983.

**2. SQN**

Rusting welds because of current or ongoing modifications and repairs were determined to be the cause for this issue.

**7.0 Corrective Action**

**7.1 Corrective Action Already Taken**

**7.1.1 Improper Mixing, Application, and Surface Preparation**

No corrective action required. Areas evaluated in this issue had been corrected, and the dry film thickness limit chart had been removed from the G-55 (Revision 4) specification.

**7.1.2 Excessive Dry Film Thickness**

All applicators had been retrained to WBN-QCI-2.13, Revision 4, "Qualification of Protective Coating Applicators," per the requirements of NCR 6144, and some workplans had been identified from the "1985 unit 2 walkdown" performed by the DNC Civil Engineering Unit. A few examples of these were CAPOOBZ and CAPOOFZ for the Auxiliary Building and CRPOOAZ and CRPO2GZ for the Reactor Building.

**7.1.3 Coating Application and Maintenance**

Repairs had been made in unit 1 areas. Coating repairs had been made in unit 2 in accordance with NCR 6144 directions.

**7.1.4 Surface Preparation**

No corrective action required.

**7.1.5 Inappropriate Coating**

No corrective action completed.

**7.1.6 Surfacer Deleted**

No corrective action required.

**7.1.7 Uncoated Welds**

**1. WBN**

Corrective action had been recommended by DNE for NCR-W-378-P in a memorandum dated September 22, 1986 from K.C. Gandhi to D.M. Lake (B26 860922 035).

**2. SQN**

MRs were being written for necessary coatings repairs and cross checked against the baseline evaluation report.

7.2 Corrective Action from CATDs

7.2.1 Improper Mixing, Application, and Surface Preparation

None

7.2.2 Excessive Dry Film Thickness

Protective coatings which had been determined to be damaged, failing or otherwise out of specification in unit 1 were to be removed or replaced with existing MRs.

CATD 10300-WBN-01

The line management response was:

A formalized program for coatings maintenance and repair will be developed and in place before unit startup. A procedure will be developed requiring inspection and repairs of any areas identified as deficient during each outage.

A new procedure will be written or instructions incorporated into existing procedures to provide requirements for maintaining a formal list of unqualified coatings by January 5, 1988.

7.2.3 Coating Application and Maintenance

1. WBN

Repair protective coatings in unit 2 which have been determined to be damaged, failing, or otherwise out of specification with existing construction workplans. Develop and implement a surveillance program and/or policy whereby coatings will be protected and required repairs identified and corrected.

CATD 10300-WBN-02

The line management response was:

The November 1985 walkdowns identified damaged coatings. These areas are identified on QCI 1.60 workplans. Prior to issuing these workplans another walkdown is performed to identify any further damage that has occurred. Any documented coatings found to be failing or otherwise out of specification shall be identified on Nonconformance

Reports, such as NCR 6144 RO. The deficiencies shall be corrected per the disposition of the Nonconformance Reports. The Civil Engineering Unit attempts to protect coatings where ever possible from physical damage by covering and/or limiting access to areas where coatings have been completed. A final walkdown is made and damaged coatings are noted on the transfer punchlist. Repairs are completed just prior to transfer.

**2. BLN**

Develop and implement a surveillance program and/or policy whereby coatings will be protected and repairs identified and corrected.

**CATD 10300-BLN-01**

The line management response was:

DNC BLN has an informal program for protecting applied coatings in vulnerable areas. A formal surveillance program will be implemented by June 30, 1987, to verify that protection is provided in high-risk areas.

Identification and repair of coatings are already covered by BNP-QCP-2.4, "Protective Coatings for Concrete and Carbon Steel Surfaces," and BNP-QCP-9.2, "Transfer of Permanent Plant Equipment, Systems, or Structures to the Office of Nuclear Power."

**7.2.4 Surface Preparation**

None

**7.2.5 Inappropriate Coating**

None

**7.2.6 Surfacer Deleted**

Review the coating systems and requirements with foremen and painters assigned to do the coatings work. Ensure QC inspection is performed on all floor coating operations.

**CATD 10300-WBN-03**



The line management response was:

WBN-QCI-2.13 "Qualification of Protective Coatings Applications" requires the Civil Quality Control (CQC) Unit to provide a training program in all phases of the protective coatings program in WBN-QCI-2.12 "Protective Coatings - Application Instructions." This covers Service Level I coatings. Training of foremen and painters is documented on WBN-QCI-2.13 Attachment A and Attachment B. A revision effective February 6, 1987, to WBN-SOP-21 requires the Civil Engineering Unit to provide a training program for craft foremen for these procedures. WBN-SOP-21 covers Service Level II coatings. Foremen and painters will be trained to this SOP before they are allowed to work in these areas. This training is documented on WBN-QCI-1.11-1 Attachment A.

QC inspections are performed on all coatings in Service Level I areas by CQC inspectors as required by WBN-QCP-2.12 "Protective Coatings Inspection." A CQC inspector or Civil Engineering Unit representative performs surveillance inspections of coatings outside Service Level I areas as required in WBN-SOP-21.

#### 7.2.7 Uncoated Welds

##### 1. WBN

Clean and coat welds in high corrosion areas such as the north and south valve rooms and inner crane wall of unit 1 containment.

CATD 10300-WBN-04

The line management response was:

Work is in progress to clean and coat welds inside the crane wall for unit 1 containment using workplan E-6351-1. The work inside containment is scheduled to be complete prior to startup.

Work in the north and south main steam valve rooms has not begun but will start as manpower becomes available from the work inside containment.

There is no requirement that any of this coating work be completed before startup. If all coating work is not completed before startup, the remaining uncoated welds will be coated as access to these areas becomes available during outages.

**2. SQN**

Rusting welds and structural steel members are to be scheduled for coating repairs as identified through the Maintenance Request process.

**CATD 10307-SQN-01**

**Line management response:**

Rusting conditions were found during implementation of the following Preventive Maintenance packages:

|                    |                    |
|--------------------|--------------------|
| <b>PH-1474-364</b> | <b>PH-1521-364</b> |
| <b>PH-1434-364</b> | <b>PH-1436-364</b> |
| <b>PH-1435-364</b> | <b>PH-1437-364</b> |
| <b>PH-1438-364</b> | <b>PH-1473-364</b> |
| <b>PH-1439-364</b> | <b>PH-1518-364</b> |
| <b>PH-1520-364</b> | <b>PH-1519-364</b> |

These Preventive Maintenance packages are being evaluated by DNE. All rusting conditions have been given a repair priority of 2. Priority 2 items are not required for restart. Maintenance Requests and Work Releases will be generated on these items.

**8.0 ATTACHMENTS**

**Attachment A - Listing of Employee Concerns Indicating Safety Relationship and Generic Applicability**

**Attachment B - List of Evaluators**

**Attachment C - List of Concerns by Issue**

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

Attachment A  
 TENNESSEE VALLEY AUTHORITY  
 OFFICE OF NUCLEAR POWER  
 EMPLOYEE CONCERN PROGRAM SYSTEM (ECP)  
 LIST OF EMPLOYEE CONCERN INFORMATION  
 SUBCATEGORY: 103 PROTECTIVE COATINGS

PAGE-1  
 RUN TIME-12:17:55  
 RUN DATE-10/16/86

CATEGORY: CO CONSTRUCTION -PROCESS

| CONCERN NUMBER          | SUB CAT  | R CAT      | PLT LOC | GENERIC APPL B B S W F L Q B | QTC/NSRS INVESTIGATION REPORT | P S R | CONCERN DESCRIPTION   | REFERENCE SECTION # CATEGORY - CO SUBCATEGORY - 103 |
|-------------------------|----------|------------|---------|------------------------------|-------------------------------|-------|---|---|
| EX-85-059-001<br>T50179 | CO<br>ME | 103<br>509 | S       | WBN                          | N N N Y<br>REPORT             | NO    | WHY AREN'T HANGER WELDS AND PIPE WELDS PAINTED AS SOON AS THEY ARE FINALIZED BY THE QC INSPECTOR AS COMPLETE AND ACCEPTABLE. THE DELAY CAUSES WELDS TO RUST, AND THE PASSAGE OF TIME OR THE PROCESS OF CLEANING THE WELDS MIGHT BREAK THE "PINK" PAINT ON BOLTS. RUSTING WEAKENS THE WELDS AND SANDBLASTING WILL REMOVE METAL, AND IS AN UNNECESSARY STEP (COST) IF WELDS WERE PAINTED IMMEDIATELY. (CONSTRUCTION DEPARTMENT CONCERN). C/I HAS NO MORE INFORMATION. | 3.2.7 and 4.7.2.1                                   |
| IN-85-043-001<br>T50064 | CO       | 103        | N       | WBN                          | N N N Y<br>REPORT             | NO    | ZINC BASE PAINT BEING USED ON HANGERS IN CONTAMINATED AREAS IN BOTH UNITS 1 AND 2. C/I COULD NOT PROVIDE ANY SPECIFICS OR DETAILS. NO FOLLOW-UP REQUIRED.   | 3.2.5 and 4.5.2                                     |
| IN-85-149-002<br>T50075 | CO       | 103        | N       | WBN                          | N N N Y<br>REPORT             | SR    | NEW/REWORK WELDS ON HANGERS IN UNIT 2, REACTOR BLDG, ACCUMULATOR ROOMS 1-4, ARE RUSTING. CI FEELS THESE WELDS SHOULD BE PAINTED. CI COULD NOT PROVIDE ANY ADDITIONAL INFORMATION OR DETAILS.  | 3.2.7 and 4.7.2.1                                   |
| IN-85-192-001<br>T50021 | CO       | 103        | N       | WBN                          | N N N Y<br>REPORT             | SR    | GROSS RUST IN COOLING ROOM #2, R. B. #1 AZ-170 DEGREES, EL 720' (CONDUIT SUPPORTS, PIPING SUPPORTS, EMBEDS)   | 3.2.7 and 4.7.2.1                                   |

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

REFERENCE - ECPS131J-ECPS13IC  
 FREQUENCY - REQUEST  
 ONP - ISSS - RMM

Attachment A  
 TENNESSEE VALLEY AUTHORITY  
 OFFICE OF NUCLEAR POWER  
 EMPLOYEE CONCERN PROGRAM SYSTEM (ECPS)  
 LIST OF EMPLOYEE CONCERN INFORMATION  
 SUBCATEGORY: 103 PROTECTIVE COATINGS

PAGE-2  
 RUN TIME-12:17:55  
 RUN DATE-10/16/86

CATEGORY: CO CONSTRUCTION -PROCESS

| CONCERN NUMBER          | CAT      | SUB CAT    | S<br>H<br>R<br>D | PLT<br>LOC | GENERIC<br>APPL<br>B B S W<br>F L Q B | QTC/NSRS<br>INVESTIGATION<br>REPORT | P<br>S<br>R | CONCERN<br>DESCRIPTION   | REFERENCE SECTION #<br>CATEGORY - CO<br>SUBCATEGORY - 103 |
|-------------------------|----------|------------|------------------|------------|---------------------------------------|-------------------------------------|-------------|--|---|
| IN-85-192-002<br>T50021 | CO<br>WE | 103<br>509 | S                | WBN        | N N N Y<br>REPORT                     |                                     | SR          | NUMEROUS UNPAINTED WELDS ON CONDUIT AND PIPING SUPPORTS THROUGHOUT PLANT ARE RUSTED. POSSIBLE LACK OF PROTECTIVE COATING. EXAMPLE: REACTOR BLDG UNIT 1 AZ.170 DEGREES, EL 720'   | 3.2.7 and 4.7.2.1   |
| IN-85-243-001<br>T50027 | CO       | 103        | N                | WBN        | N N N Y<br>REPORT                     |                                     | SR          | THE PAINT ON THE DOMES ON UNIT 1&2 WAS NOT MIXED ACCORDING TO PROCEDURES. WHEN THE COLOR APPEARED RIGHT THE PAINT WAS SPRAYED ON TOO THICKLY, AND ON AN UNCLEAN AND DUSTY SURFACE. UNIT 1 DURING 1975, UNIT 2 DURING 1977. | 3.2.1 and 4.1.2   |
| IN-85-243-002<br>T50027 | CO       | 103        | N                | WBN        | N N N Y<br>REPORT                     |                                     | SR          | ALL HANGER AND STRUCTURAL STEEL OVER 6' ABOVE FLOOR IN THE REACTOR BLDG. AND AUX. BLDG. UNITS 1 & 2 ARE UNPAINTED. THIS WAS A COST SAVING FACTOR.  | 3.2.7, 4.7.2.1, and<br>4.7.2.2                            |

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

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

Attachment A  
 TENNESSEE VALLEY AUTHORITY  
 OFFICE OF NUCLEAR POWER  
 EMPLOYEE CONCERN PROGRAM SYSTEM (ECP)  
 LIST OF EMPLOYEE CONCERN INFORMATION  
 SUBCATEGORY: 103 PROTECTIVE COATINGS

PAGE-3  
 RUN TIME-12:17:55  
 RUN DATE-10/16/86

CATEGORY: CO CONSTRUCTION -PROCESS

| CONCERN NUMBER | CAT | SUB CAT | R D | PLT LOC | GENERIC APPL<br>B B S W<br>F L Q B | QTC/NSRS<br>INVESTIGATION<br>REPORT | P<br>S<br>R | CONCERN<br>DESCRIPTION   | REFERENCE SECTION #<br>CATEGORY - CO<br>SUBCATEGORY - 103 |
|----------------|-----|---------|-----|---------|------------------------------------|-------------------------------------|-------------|--|---|
| IN-85-273-001  | CO  | 103     | S   | MBN     | N N N Y<br>REPORT                  |                                     | SR          | IN UNIT 1 REACTOR AND AUX BLDGS., WELDS ON PIPE SUPPORTS, SPECIFICALLY PIPE SUPPORTS INSTALLED OVER 6 FEET OFF THE FLOOR, HAVE NOT BEEN PAINTED AFTER SUPPORTS WERE COMPLETED AND QC ACCEPTED. CI IS CONCERNED THAT RUST/CORROSION WILL OCCUR TO THESE UNPAINTED WELDS AND WEAKEN THE PIPE SUPPORTS THUS PREVENTING THESE PIPE SUPPORTS FROM PERFORMING INTENDED FUNCTIONS THEY WERE DESIGNED FOR. CI DID NOT SPECIFY ANY PARTICULAR AREAS IN REACTOR BUILDING BUT STATED THAT PIPE SUPPORTS FOR FIRE PROTECTION SYSTEM IN AUX. BLDG. SHOULD BE LOOKED AT. CONSTRUCTION DEPT. CONCERN. | 3.2.7 and 4.7.2.1   |

(NOTE: ERT IS ACTIVELY INVESTIGATING THIS GENERIC CONCERN UNDER DIFFERENT FILE NUMBERS). NO FOLLOW UP REQUIRED.

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

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

Attachment A  
 TENNESSEE VALLEY AUTHORITY  
 OFFICE OF NUCLEAR POWER  
 EMPLOYEE CONCERN PROGRAM SYSTEM (ECPS)  
 LIST OF EMPLOYEE CONCERN INFORMATION  
 SUBCATEGORY: 103 PROTECTIVE COATINGS

PAGE-4  
 RUN TIME-12:17:55  
 RUN DATE-10/16/86

CATEGORY: CO CONSTRUCTION -PROCESS

| CONCERN NUMBER          | CAT | SUB CAT    | S<br>H<br>R<br>D | PLT<br>LOC | GENERIC<br>APPL<br>B B S W<br>F L Q B | QIC/NSRS<br>INVESTIGATION<br>REPORT | P<br>S<br>R | CONCERN<br>DESCRIPTION   | REFERENCE SECTION #<br>CATEGORY - CO<br>SUBCATEGORY - 103 |
|-------------------------|-----|------------|------------------|------------|---------------------------------------|-------------------------------------|-------------|--|---|
| IN-85-451-001<br>T50034 | CO  | 103<br>509 | S                | WBN        | N N N Y<br>REPORT                     |                                     | SR          | CI STATED IN 1984 THEY (PAINTERS) WERE INSTRUCTED NOT TO PAINT ANYTHING ABOVE 6 FT. IN RBI PRESENTLY THERE ARE RUSTY WELDS THROUGHOUT RBI.   | 3.2.7 and 4.7.2.1   |
| IN-85-472-009<br>T50275 | CO  | 103        | N                | WBN        | N N N Y<br>REPORT                     |                                     | SR          | SURFACES, BOTH CONCRETE AND STEEL, WERE IMPROPERLY PREPARED PRIOR TO PAINTING. NOTED AREAS WERE IN THE LOWER PORTION OF THE REACTOR CONTAINMENT, UNIT 1. 1982/1983. CONSTRUCTION DEPARTMENT CONCERN. NO FURTHER INFORMATION IN FILE. | 3.2.4 and 4.4.2   |
| IN-85-472-010<br>T50275 | CO  | 103        | N                | WBN        | N N N Y<br>REPORT                     |                                     | SR          | COATINGS IN THE UNIT 1 REACTOR BUILDING ARE OUT OF SPECIFICATION WITH REGARD TO COATING THICKNESS. CONSTRUCTION DEPARTMENT CONCERN. NO FURTHER INFORMATION IN FILE.  | 3.2.2 and 4.2.2   |

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

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

Attachment A  
 TENNESSEE VALLEY AUTHORITY  
 OFFICE OF NUCLEAR POWER  
 EMPLOYEE CONCERN PROGRAM SYSTEM (ECP)  
 LIST OF EMPLOYEE CONCERN INFORMATION  
 SUBCATEGORY: 103 PROTECTIVE COATINGS

PAGE-5  
 RUN TIME-12:17:55  
 RUN DATE-10/16/86

ATEGORY: CO CONSTRUCTION -PROCESS

| CONCERN NUMBER          | CAT | SUB CAT | R | PLT LOC | GENERIC APPL B B S W F L Q B | QTC/NSRS INVESTIGATION REPORT | P S R | CONCERN DESCRIPTION  | REFERENCE SECTION # CATEGORY - CO SUBCATEGORY - 103 |
|-------------------------|-----|---------|---|---------|------------------------------|-------------------------------|-------|--|---|
| N-85-511-005            | CO  | 103     | N | MBN     | N N N Y REPORT               |                               | SR    | NRC IDENTIFIED THE FOLLOWING CONCERN RELATED TO IN-85-511-002 BASED ON REVIEW OF QTC FILE. "NO ENGINEERING ANALYSIS PRECEDING FIRST DECISION TO STOP PRIMIG WELDS." FROM REVIEW OF EXPURGATED FILE CONCERN IS MORE ACCURATELY DESCRIBED AS: "CI KNEW OF NO ENGINEERING....."   | 3.2.7 and 4.7.2.1                                   |
| IN-85-511-001<br>150113 | CO  | 103     | N | MBN     | N N N Y REPORT               | IN-85-511-001                 | NO    | EXCESSIVE COATING THICKNESSES IN "CARBOLINE 305" APPLICATIONS CAUSES CRACKS AND LOW ADHESION STRENGTH LEVELS. CARBOLINE REPRESENTATIVE CONFIRMED THAT 305 COATING SHOULD BE APPLIED IN 4-6 MIL THICKNESS--NOT 15-30 MILS ALLOWED BY TVA INFORMAL MEMO ON FLOOR COATINGS - SERVICE LEVEL 11 AREAS (REF CARBOLINE SPEC. SHEET "PHENOLINE 305 FINISH DATED MARCH 84). EXAMPLES INCLUDE: (1) UNIT 1, ROOM A-23, 692' EL AUX BUILD. COATING APPLIED IN 10-25 MIL LAYERS--SOME SPOTS 1/4" -3/8" THICK (100 TIMES TOO THICK) APPROX. 10-12 ADHESION TESTS FAILED IN THIS AREA. (2) UNIT 1, ROOM A-14 ON 692' ELE. AUX BLDG., - NUMEROUS "GREATER THAN HAIRLINE" CRACKS - EXCESSIVE MILLAGE. (3) UNIT 1, | 3.2.2 and 4.2.2                                     |

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

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

Attachment A  
 TENNESSEE VALLEY AUTHORITY  
 OFFICE OF NUCLEAR POWER  
 EMPLOYEE CONCERN PROGRAM SYSTEM (ECPS)  
 LIST OF EMPLOYEE CONCERN INFORMATION  
 SUBCATEGORY: 103 PROTECTIVE COATINGS

PAGE-6  
 RUN TIME-12:17:55  
 RUN DATE-10/16/86

CATEGORY: CO CONSTRUCTION -PROCESS

| CONCERN NUMBER          | SUB CAT | R CAT | PLT D | LOC | GENERIC APPL<br>B B S W<br>F L Q B | QTC/MSRS INVESTIGATION REPORT | P<br>S<br>R | CONCERN DESCRIPTION   | REFERENCE SECTION #<br>CATEGORY - CO<br>SUBCATEGORY - 103 |
|-------------------------|---------|-------|-------|-----|------------------------------------|-------------------------------|-------------|---|---|
| 11-85-511-002<br>150115 | CO      | 103   | N     | WBN | N N N Y<br>REPORT                  |                               |             | 715' ELE., R&S LINES AT A-10 AND A-11- EXCESSIVE MILLAGE, AND CRACKING AT BASE OF INSTRUMENT PANEL 5' FROM EAST WALL. (4) UNIT 1 715' ELE., ROOM A-22, NEAR "LITTLE VALVE GALLERY" (5' X 20' ROOM WITH NO CEILING) - CSL II COATING WITH EXCESSIVE MILLAGE. CI HAS NO FURTHER INFORMATION. NO FURTHER FOLLOWUP REQUIRED.  | 3.2.7 and 4.7.2.1   |
|                         |         |       |       |     |                                    |                               |             | SR DWG. 46N464-6 & 46N466-1 HAVE HAD NOTES ADDED/CHANGED TO ELIMINATE PRIMING OF STRUC. STEEL WELDS. STRU STL WELDS IN THE NORTH AND SOUTH VALVE ROOMS OF UNITS 1&2 EXHIBIT CORROSION BECAUSE THEY WERE NOT PAINTED AFTER EXTENSIVE REWORK--CONFIGURATION ALLOWS WATER TO COLLECT, AND UNIT 1 STRUCTURAL STEEL WELDS HAVE LOST UP TO 1/16" OF WELD METAL TO RUST. PIPE WELDS ARE NOW PRIMED, BUT MANY EXIST THAT ARE NOT PRIMED. CI HAD NO MORE INFORMATION. NO FURTHER FOLLOW UP REQUIRED. |   |

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.



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

Attachment A  
 TENNESSEE VALLEY AUTHORITY  
 OFFICE OF NUCLEAR POWER  
 EMPLOYEE CONCERN PROGRAM SYSTEM (ECP)  
 LIST OF EMPLOYEE CONCERN INFORMATION  
 SUBCATEGORY: 103 PROTECTIVE COATINGS

PAGE-7  
 RUN TIME-12:17:55  
 RUN DATE-10/16/86

CATEGORY: CO CONSTRUCTION -PROCESS

| CONCERN NUMBER         | CAT | SUB CAT | R D | PLT LOC | GENERIC APPL<br>B B S W<br>F L Q B | QIC/NSRS<br>INVESTIGATION<br>REPORT | P<br>S<br>R | CONCERN<br>DESCRIPTION  | REFERENCE SECTION #<br>CATEGORY - CO<br>SUBCATEGORY - 103 |
|------------------------|-----|---------|-----|---------|------------------------------------|-------------------------------------|-------------|---|---|
| N-85-511-003<br>150109 | CO  | 103     | N   | MBN     | N N N Y<br>REPORT                  |                                     | SR          | INPROPER SURFACE PREPARATION ON SURFACES THAT ARE RECOATED FOILS TO PERMIT ADEQUATE INTER-LAYER BONDING. THIS ALLOWS COATING TO PEEL AND CHIP UP. EXAMPLE OF MULTI-LAYERING AND PEELING CAN BE SEEN IN THE #2 AUX. BLDG. AT THE ELEV. LANDINGS. C/I HAS NO MORE INFORMATION. NO FOLLOW UP REQUIRED.                     | 3.2.4 and 4.4.2   |
| N-85-711-001<br>150069 | CO  | 103     | N   | MBN     | N N N Y<br>REPORT                  |                                     | NO          | CARBOLIC 295 SURFACER WAS ELIMINATED FROM THE PROTECTIVE COATING APPLICATION ON THE FLOORS OF THE AUX. BUILDING, UNIT 1. C/I HAS OBSERVED CRACKING AND FLAKING OF THE PAINT WHICH COULD ALLOW RADIOACTIVE MATERIALS INTO THE CONCRETE. THIS OCCURRED IN 1983-1984. NO FURTHER DETAILS AVAILABLE. NO FOLLOW-UP REQUIRED. | 3.2.6 and 4.6.2   |
| N-85-833-001<br>150084 | CO  | 103     | N   | MBN     | N N Y Y<br>REPORT                  |                                     | SR          | TOP COAT OF PAINT WAS DELETED AS A REQUIREMENT ABOVE 6' (ABOVE FLOOR LEVEL) IN UNIT 1 REACTOR BUILDING. ITEMS /WALLS ARE PAINTED WITH PRIMER COAT ONLY ABOVE THIS ELEVATION. C/I IS CONCERNED THAT THIS COULD ADVERSELY AFFECT WASHDOWN/RADIOLOGICAL DECONTAMINATION OF AREAS.  | 3.2.7, 4.7.2.1,<br>and 4.7.2.2                            |

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

REFERENCE - ECPS131J-ECPS131C  
 FREQUENCY - REQUEST  
 ONP - 1555 - RHM

Attachment A  
 TENNESSEE VALLEY AUTHORITY  
 OFFICE OF NUCLEAR POWER  
 EMPLOYEE CONCERN PROGRAM SYSTEM (ECP)  
 LIST OF EMPLOYEE CONCERN INFORMATION  
 SUBCATEGORY: 103 PROTECTIVE COATINGS

PAGE-8  
 RUN TIME-12:17:55  
 RUN DATE-10/16/86

ATEGORY: CO CONSTRUCTION -PROCESS

| CONCERN NUMBER         | SUB CAT | R CAT | PLT LOC | GENERIC APPL<br>B B S W<br>F L Q B | QTC/MSRS<br>INVESTIGATION<br>REPORT | P<br>S<br>R | CONCERN DESCRIPTION   | REFERENCE SECTION #<br>CATEGORY - CO<br>SUBCATEGORY - 103 |
|------------------------|---------|-------|---------|------------------------------------|-------------------------------------|-------------|---|---|
| N-86-273-001<br>T50186 | CO      | 103   | N MBN   | N Y N Y<br>REPORT                  |                                     | SR          | MBNP - UNIT 1 & 2: CONTAINMENT COATINGS (#295 & #305) ARE NOT PROPERLY DONE & MAINTAINED. THE INTEGRITY OF THE COATINGS IS BEING ERODED & QUESTIONABLE. CI IS CONCERNED THAT THE PAINT WILL CURL & POP-UP AND CLOG THE DRAINS IN CASE OF A (LOCA) ACCIDENT WHEN THE TEMPERATURE & PRESSURE BUILDS UP IN THE REACTOR. PAINT SPECIFICATIONS & STANDARDS ARE NOT FOLLOWED, ESPECIALLY IN RECOATING OF #305. CONSTRUCTION DEPT. CONCERN. CI HAS NO FURTHER INFORMATION. | 3.2.3 and 4.3.2   |
| N-85-040-003<br>T50205 | CO      | 103   | N MBN   | N N N Y<br>K-FORM                  |                                     | SR          | WATTS BAR STOPPED USING PROTECTIVE UNDER COATING #295 IN 1983 AND APPLIED ONLY THE TOP OR FINAL COATING #305 PAINT IN CONTAINMENT, REACTOR BUILDING 1. CI STATED THAT THE COATING #295 WAS TO SEAL THE ITEM FROM RADIATION. CONSTRUCTION DEPT. CONCERN. CI HAS NO FURTHER INFORMATION.  | 3.2.6 and 4.6.2   |
| N-85-001<br>T50186     | CO      | 103   | N MBN   | N N N Y<br>REPORT                  |                                     | SR          | HANGERS DO NOT HAVE THE WELDS PAINTED AND ARE PRERUSTING. HANGERS IN VARIOUS LOCATIONS IN AB & LOWER CONTAINMENT ABOVE THE 6 FOOT PROTECTIVE COATING ON WALLS.  | 3.2.7 and 4.7.2.1   |

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

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

Attachment A  
 TENNESSEE VALLEY AUTHORITY  
 OFFICE OF NUCLEAR POWER  
 EMPLOYEE CONCERN PROGRAM SYSTEM (ECP)  
 LIST OF EMPLOYEE CONCERN INFORMATION  
 SUBCATEGORY: 103 PROTECTIVE COATINGS

PAGE-9  
 RUN TIME-12:17:55  
 RUN DATE-10/16/86

ATEGORY: CO CONSTRUCTION -PROCESS

| CONCERN NUMBER          | CAT | SUB CAT | R D | PLT LOC | GENERIC APPL<br>B B S W<br>F L Q B | QTC/MSRS<br>INVESTIGATION<br>REPORT | P<br>S<br>R | CONCERN<br>DESCRIPTION  | REFERENCE SECTION #<br>CATEGORY - CO<br>SUBCATEGORY - 103 |
|-------------------------|-----|---------|-----|---------|------------------------------------|-------------------------------------|-------------|---|---|
| 11-85-013-005<br>150030 | CO  | 103     | N   | WBN     | N N N Y<br>REPORT                  | WI-85-013-005                       | NO          | WELD JOINTS, HANGERS AND SUPPORTS FABRICATED OF PRECOATED STOCK MAY BE LEFT UNCOATED WITH NO FURTHER COATING REQUIRED. NOTE ON 46M466-1   | 3.2.7 and 4.7.2.1   |
| 11-85-077-001<br>150176 | CO  | 103     | N   | WBN     | N N N Y<br>REPORT                  |                                     | SR          | CI ADVISED THAT AFTER EPOXY WAS APPLIED IN THE STEAM GENERATING ROOM, CI HEARD (COULD NOT SPECIFY SOURCE) THAT EITHER AN INAPPROPRIATE EPOXY WAS USED OR NO EPOXY WAS SUPPOSED TO BE USED IN THAT AREA BECAUSE OF HEAT IN THAT AREA. CI NEVER HEARD OF THE EPOXY BEING REMOVED AND DOUBTS THAT IT WOULD HAVE BEEN DONE ADEQUATELY BECAUSE OF THE TIME INVOLVED IN THE REMOVAL. CI SAID INSTALLATION REQUIRED 2 SHIFTS WORKING 6 MONTHS. REMOVAL WOULD BE 2-3 TIMES LONGER. CONST. DEPT. CONCERN. CI HAS NO FURTHER INFORMATION. | 3.2.5 and 4.5.2   |

22 CONCERNS FOR CATEGORY CO SUBCATEGORY 103

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

**ATTACHMENT B**

**List of Evaluators**

**Watt Bar Nuclear Plant (WBN) Concerns**

- E. C. McDonald

**Sequoyah Nuclear Plant (SQN) Concerns**

- E. C. McDonald

**Bellefonte Nuclear Plant (BLN) Concerns**

- E. C. McDonald

**ATTACHMENT C**

**List of Concerns by Issue**

**1.2.1 Improper Mixing, Application,  
and Surface Preparation**

**Concern Number IN-85-243-001**

**1.2.2 Excessive Dry Film Thickness**

**Concern Numbers IN-85-472-010  
IN-85-511-001**

**1.2.3 Coating Application and Maintenance**

**Concern Number IN-86-273-001**

**1.2.4 Surface Preparation**

**Concern Numbers IN-85-472-009  
IN-85-511-003**

**1.2.5 Inappropriate Coating**

**Concern Numbers IN-85-043-001  
WI-85-077-001**

**1.2.6 Surfacer Deleted**

**Concern Numbers IN-85-711-001  
PH-85-040-001**

**1.2.7 Uncoated Welds**

**Concern Numbers EX-85-059-001  
IN-85-149-002  
IN-85-192-001  
IN-85-192-002  
IN-85-243-002  
IN-85-273-001  
IN-85-451-001  
IN-85-511-N05  
IN-85-511-002  
IN-85-833-001  
WBN-MM-85-001  
WI-85-013-005**