WELDING PROJECT

GENERIC EMPLOYEE CONCERN

EVALUATION REPORT

REPORT NUMBER: WP-08-SQN, R1

DATE 08-26-86

SUBJECT: PAINTING REQUIREMENTS RELATED TO WELDS

CONCERNS CONSIDERED: IN-85-273-001
IN-85-192-002
EX-85-059-001
IN-85-451-001

PREPARED BY J.E. Rose 8/25/86, OC, WP

REVIEWED BY R.M. Bateman 8/25/86, OC, WP

REVIEWED BY R.P. Lynskey 8/25/86, QA, WP

REVIEWED BY S.E. Martin 9/2/86, CEG-H, WELDING

APPROVED BY W.R. Burton 9/3/86, PROGRAM MANAGER

Revision 1 incorporates comments made by the Senior Review Panel on 8/19/86.

GENERIC EMPLOYEE CONCERN

SUMMARY SHEET

Report Number: WP-08-SQN, R1

Report Title: PAINTING REQUIREMENTS RELATED TO WELDS

I. CONCERNS CONSIDERED: IN-85-273-001
IN-85-192-002
EX-85-059-001
IN-85-451-001

II. ISSUES INVOLVED

1. Welds over six feet off the floor have not been painted in the Reactor and Auxiliary Buildings.

2. Unpainted welds are in evidence on conduit and pipe supports in the Reactor Building.

3. Hanger welds should be painted as soon as they are finalized by QC.

4. Rust causes welds to be weakened.

5. Sandblasting removes metal from welds.

III. STATEMENT OF CONCERN/ISSUE VALIDITY

Validity: Y X , N_____, Substantiated: Y X , N_____

IV. EFFECT ON HARDWARE AND/OR PROGRAM

None

V. JUSTIFICATION

Features are painted in accordance with engineering drawings and specifications.

VI. RECOMMENDATION AND/OR CORRECTIVE ACTION NEEDED

*Completion of the protective coating reinspection and resultant corrective action under SQN-CAR-86-01-001 for Issues 1, 2, and 4.

VII. REINSPECTION NEEDED: Y_____, N *X .

VIII. ISSUE CLOSURE

By this report.

00270

IX. ATTACHMENT

1. Text of Employee Concerns

2. SQN-CAR-86-01-001.

3. Memo from P. R. Wallace to C. R. Brimer dated 2/18/86 (SO1860218833).

4. Memo from B. M. Patterson to P. R. Wallace dated 4/7/86 (SO1860403923).

5. Memo from P. R. Wallace to H. B. Rankin dated 4/8/86 (S53860407930).

GENERIC EMPLOYEE CONCERN

Report Number: WP-08-SQN, R1

Report Title: PAINTING REQUIREMENTS RELATED TO WELDS

I. SCOPE OF EVALUATION

This engineering analysis covers the following WBN concerns determined to have possible generic implications at SQN:

IN-85-273-001
IN-85-192-002
EX-85-059-001
IN-85-451-001

II. ISSUES ADDRESSED BY CONCERN(S)

Each concern was analyzed to determine the issues voiced by the concerned individuals. These issues are as follows:

1. Welds over six feet off the floor have not been painted in the Reactor and Auxiliary buildings.

2. Unpainted welds are in evidence on conduit and piping supports in the Reactor Building.

3. Hanger welds should be painted as soon as they are finalized by QC.

4. Rust causes welds to be weakened.

5. Sandblasting removes metal from welds.

III. CONCERN VALIDITY OR SUBSTANTIATION

The prime consideration for application of protective coatings in nuclear facilities is one of effective prevention of build-up of radioactive contamination on the building, structures, components, and systems of the facility. A secondary consideration is to provide a smooth, impervious surface (via a paint system) which will permit subsequent decontamination activities. These two considerations are effectively met by using nuclear grade coating systems. Using these basic considerations and additional environmental conditions, protective coating requirements are established by the Office of Engineering (OE) for every feature in the powerhouse. These requirements are transmitted to the Office of Construction (OC) or Nuclear Operations (NO) via drawings and specifications. The implementing organizations (OC or NO) coat the features based upon environmental conditions which that particular area will experience in plant operations. Not all areas are required to be coated. R1

The general nature and large scope of issues 1 and 2 prevents a direct physical inspection of the Reactor and Auxiliary Buildings by Welding Project Evaluators. A correspondence search and discussions with the Division of Nuclear Quality Assurance revealed that a comprehensive reinspection of protective coatings has been initiated as the result of a QA survey. The results of this survey are documented on SQN-CAR-86-01-001. An integral part of this reinspection program will include a 100 percent baseline coating inspection of the Level 1 and 2 coating areas at SQN. SQN-CAR-86-01-001 describes the details of the deficiencies in the Protective Coating Program. Coating deficiencies are being identified and appropriate corrective actions are being established which address both program deficiencies and repairs to coated features. R1

There are no requirements which mandate a particular sequence of construction or modifications activities. The schedule is determined using prudent engineering judgement. OC or NO accomplishes coating operations based on a schedule intended to maximize efficiency in construction or modification activities.

All metallic materials oxidize (rust) to varying degrees. The engineering analysis of the need for coatings takes this characteristic into account. When a surface requires coating, the rust is removed.

Removal is primarily by sandblasting which has been and continues to be an industry-wide acceptable method of preparation of metallic features for painting. The metal removed in this process is minimal.

In summary, the resolution of each issue is as follows:

Issues 1, 2, and 4 are closed pending completion of protective coating reinspection and resultant corrective action under SQN-CAR-86-01-001.

Issue 3 is closed because it is an observation of prudent construction practices.

Issue 5 is closed because the practice of sandblasting is an accepted practice in preparation of metals for painting.

04/03/86 (EMPLOYEE CONCERNS)
09:40:27

LOC	STATUS	RESP	-QIC-	PPP	CFR	INSP	IC	------CONCERN-------	PROBLEM ID
	413	NSRS	ZO				SR	IN-85-273-001	WCMHS

KEYWORDS: MISCELLANEOUS WELD RUSTING X: W Y: C Z: N

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 PREVENTIN THESE PIPE SUPPORTS FROM PERFORMING INTENDED FUNCTIONS THEY WERE DESIGNED FOR. CI DID NOT SPECIFY ANY PARTICULAR AREAS IN REACTOR BUILDING BUT STATED THAT PIP SUPPORTS FOR FIRE PROTECTION SYSTEM IN AUX BLDG SHOULD BE LOOKED AT. CONSTRUCTION DEPT. CONCERN. (NOTE: ERT IS ACTIVELY INVESTIGATING THIS GENERIC CONCERN UNDER DIFFERENT FILE NUMBERS.)

TECHNICAL COMMENTARY:

ISSUE CONSIDERED:UNPAINTED WELDS ARE RUSTING.

LOC	STATUS	RESP	-QIC-	PPP	CFR	INSP	IC	------CONCERN-------	PROBLEM ID
	182	NSRS					SR	IN-85-192-002	WCDPS

KEYWORDS: MISCELLANEOUS WELD RUSTING X: W Y: C Z: N

NUMEROUS UNPAINTED WELDS ON CONDUIT AND PIPING SUPPORTS THROUGHOUT PLANT ARE RUSTED. POSSIBLE LACK OF PROTECTIVE COATING. EXAMPLE: REACTOR BLDG UNIT 1 AZ.) DEGREES, EL 720'.

TECHNICAL COMMENTARY:

ISSUE CONSIDERED:UNPAINTED WELDS ARE RUSTED.

LOC	STATUS	RESP	-QIC-	PPP	CFR	INSP	IC	------CONCERN-------	PROBLEM ID
							SR	EX-85-059-001	WCPTI

KEYWORDS: MISCELLANEOUS WELD RUSTING X: W Y: C Z: N

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 IMMEDIATEDLY. (CONSTRUCTION DEPARTMENT CONCERN). C/I HAS NO MORE INFORMATION.

TECHNICAL COMMENTARY:

ISSUES CONSIDERED: 1. UNPAINTED WELDS ARE RUSTED. (REPORT WP-08-SQN)
2. TORQUE PUTTY COULD BE DAMAGED. (

04/03/86 (EMPLOYEE CONCERNS)
09:40:27

LOC	STATUS	RESP	-QIC-	PPP	CFR	INSP	IC	------CONCERN-------	PROBLEM ID
		ERT	ZO				SR	IN-85-451-001	WCMHY

KEYWORDS: MISCELLANEOUS WELD RUSTING X: W Y: C Z: N

CI STATED IN 1984 THEY (PAINTERS) WERE INSTRUCTED NOT TO PAINT ANYTHING ABOVE 6 FT. IN RBI, PRESENTLY, THERE ARE RUSTY WELDS THROUGHOUT.

TECHNICAL COMMENTARY:

ISSUE CONSIDERED: UNPAINTED WELDS ARE RUSTED.

SQNP
AI-12
Page 14 of 16 Rev. 20

CORRECTIVE ACTION REPORT

REPORT NO. | SQ | CAR | 86 | 01000 |
PLT. | CAR | YR | MO | NO |

INITIATED BY Clifford A. Crownover DATE 1/24/86

REQUESTED BY (IF APPLICABLE) D. C. Craven See

SIGNIFICANT (CIRCLE ONE) YES (NO)

ASSIGNED TO P. R. Wallace

ADVERSE CONDITION: The Protective Coating Program as described in MI-10.14 (Rev. 17) does not adequately implement the requirements contained in Section 6.2 of the FSAR, Construction Specifications G-55 (dated 9/17/84), G-14 (dated 8/29/84), and Architectural Design Standard DS-A.9.8.1 (dated 2/4/85). (See Attachment for details.) Reference Survey 21-86-S-002.

ROOT CAUSE (CAUSE ANALYSIS REQUIRED [X] NOT REQUIRED [ ]):

CORRECTIVE ACTION (1) REMEDIAL CORRECTIVE ACTIONS(S)

See Attached

ESTIMATED COMPLETION DATE April 14, 1986

(2) ACTION(S) TO PREVENT RECURRENCE

See Attached

ESTIMATED COMPLETION DATE July 14, 1986

PROPOSED O.R. Wallace 2/4/86 RESP SUPV

CONCURRED D.C. Crown 3/6/86 QA SUPV

APPROVAL: THE RESOLUTION OF THE ABOVE DESCRIBED ADVERSE CONDITION IS ACCEPTABLE.

RECOMMENDED BY N/A
PORC CHAIRMAN (FOR SIGNIFICANT PLANT CARS ONLY) DATE

APPROVED BY for 3/6/86 ~~PLANT MGR~~/SITE DIRECTOR 3/6/86
DATE

COMPLETION - CORRECTIVE ACTION WAS COMPLETED ON _____ AND IS READY FOR VERIFICATION BY QA.

RESPONSIBLE SUPERVISOR DATE

VERIFICATION - CORRECTIVE ACTION TAKEN AS DESCRIBED ABOVE OR WITH THE FOLLOWING DEVIATIONS

VERIFIED BY _____ / _____
QA REP DATE

CLOSED BY _____
QA SUPERVISOR DATE

0043A/mbs

GENERAL NOTES:

1. The responsibility for these deficiencies involves various groups and organizations. Since these deficiencies all relate to the site Protective Coating Program, it was determined that resulting corrective action would be more effective if tracked and handled under one corrective action report.

2. Presently, there are no Nuclear Power upper tier documents describing a Protective Coating Program. The references to G-Specifications and Architectural Design Standards within this CAR are applicable because the notes on "As-Constructed" Drawing 46W466-1 refer to Construction Specifications G-41, G-42, and G-45 which were canceled. The index for Construction Specifications states that G-41, G-42, and G-45 were replaced by G-55. G-55 refers to G-14 for selecting, specifying, applying, and inspecting architectural paints and coatings. G-14 refers to Endes Architectural Design Guide DG-A9.8.1 regarding Nuclear Service Level I applications.

1. Contrary to the FSAR Section 6.2.1.6, no program has been established or implemented at Sequoyah to account for unidentified/uncontrolled coatings which have been applied to components installed in Level I coating areas. (e.g., Coatings on vendor supplied equipment such as motors or junction boxes. Specifically, some instrument panel mounting plates to be installed in a Level I coating area were coated using unapproved coatings (on MR A-564799) as specified on TVA drawing 46W600-23 without consideration for their impact on the percentage of unapproved coatings within containment.)

   a. MI-10.14 does not require the use of specific types of protective coatings for application on certain equipment as delineated in Section 6.2.1.6 of the FSAR. (e.g., RCP motors, accumulators, steam generators, etc.)

   NOTE: Corrective action must include: (1) an evaluation (USQD, NCR, etc.) of any installation of unidentified coatings which may not have been accounted for and (2) correction of drawings (i.e., 46W600-23) which specifies use of an unapproved coating on equipment to be installed in a Level I coating area.

2. MI-10.14 does not adequately implement the requirements of G-55, G-14, FSAR Section 6.2, and Architectural Design Standard DS-A.9.8.1.

   Examples:

   a. No definitions are contained in MI-10.14 to identify Level I and Level II coating areas as specified in Architectural Design Standard DS-A.9.8.1. Additionally, MI-10.14 does not list those Level I coating surfaces which are located outside containment. (For example, reactor coolant makeup water tank, essential air system tank interiors, emergency diesel fuel storage tank interiors, condensate storage tanks, and chemical and volume control system/RCS makeup system tank interiors).

   b. Periodic surveillance inspections of Level II coating system maintenance are not specified in MI-10.14 or performed as required per Section 8.1.1 of G-55.

   c. MI-10.14 does not ensure that coatings which have been stored at low temperatures are brought up to 70°F minimum before application as required in Section 4.3 of G-55.

   d. MI-10.14 does not implement the requirements for adhesion testing that are specified in Section 5.4 of G-55.

   e. MI-10.14 does not require the use of the "Tooke" gauge for verifying adequate dry film thickness for substrates which are <u>not</u> carbon steel as required per Section 4.5 of G-55.

      NOTE: Carbon steel substrates are checked using a magnetic gauge.

f. MI-10.14 references Construction Specifications G-41, G-42, and G-45 which have been canceled. Additionally, the SQN Protective Coatings Maintenance and Repair Manual is referenced in MI-10.14 but has not been approved (by PORC, etc.).

3. Notes on Drawing 46W466-1 have not been kept current to incorporate changes to Construction Specifications. (For example, drawing notes contain references to G-41, G-42, and G-45 which have been canceled. Attachment Cs to AI-25 were submitted during the performance of Survey 21-85-S-015 to correct this specific problem.)

Corrective actions should address not only those actions taken to correct these specific deficiencies, but also actions taken to further identify and correct other deficiencies within the Protective Coatings Program.

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : P. R. Wallace, Plant Manager, OHP, POB-2, Sequoyah Nuclear Plant

FROM : C. R. Brimer, Manager, Site Services, OHP, SB-2, Sequoyah Nuclear Plant

DATE : FEB 18 1986

SUBJECT: SEQUOYAH NUCLEAR PLANT (SQN) - CORRECTIVE ACTION REPORT (CAR) NO. SQ CAR-86-01-001 - NATS NO. 8461 - PROTECTIVE COATING PROGRAM

The following analysis and corrective action is being done in order to correct all deficiencies identified in CAR No. SQ-CAR-86-01-001.

Root Cause Analysis

The coating problems identified by this report were caused by the lack of a controlling upper-tier document for coating repairs and maintenance. Construction specifications and procedures were adequate for the new application phase of the plant, but they did not address all the aspects associated with repairing and maintaining the critical coatings during years of service. Additional FSAR requirements were not incorporated into the plant program.

Corrective Action

1. A new SQM is being prepared to provide control of all procedures, methods, responsibilities, and documentation of all aspects of surface preparation, coating application, and maintenance of all critically coated areas at SQN. This upper-tier document will incorporate the requirements of all applicable G-specifications, design guides and standards, and as-constructed drawings and will establish procedures for documenting compliance with section 6.2 of the FSAR.

2. In addition to the implementation of a new SQM, which will provide overall program control for nuclear protective coatings, other existing MIs will be revised as required to comply with and support the new SQM. Included in these revisions will be a major revision to MI-10.14, which will correct all of the deficiences addressed by the CAR. New procedures will be issued as required to provide mandatory periodic surveillance inspections of all critically coated areas and to control a documentation log of all uncontrolled coatings inside primary containment.

Actions to Prevent Reccurrence

The implementation of the program described above should correct all deficiencies noted by the CAR and should provide complete control and consistent program guidance to correct other deficiencies that may exist and prevent reccurrence of problems of this nature.

2

P. B. Wallace

SEQUOYAH NUCLEAR PLANT (SQN) - CORRECTIVE ACTION REPORT (CAR) NO. SQ-CAR-86-01-001 - MATS NO. 8461 - PROTECTIVE COATING PROGRAM

Attached is an outline for a revised nuclear program at SQN that will include all concerns addressed by the Nuclear Safety Review Staff and the Quality Assurance Staff on CAR No. SQ-CAR-86-01-001.

C. H. Brimer

GSW:DFG:LBR:HC
Attachment
cc (Attachment):
RIMS, MR 4N 72A-C

This was prepared principally by L. B. Rogers.

8703030414 42

NUCLEAR PROTECTIVE COATING PROGRAM

DOCUMENT	TITLE	PRIORITY	DEFICIENCY ADDRESSED	ACTION ITEM	ASSIGNED TO	EST COMP
(New) SQM ___	Nuclear Protective Coating Program	(1)	Coating program description including definition of Level I & II Areas, clarification of inconsistencies in G-SPECS, FSAR, etc.; establish training; certification of painters, inspectors, and engineers & uncontrolled coatings exempt log	1 A-F	Rogers/Browton	4/25
(REV) SQA-65	Quality Control of Materials, Parts,& Services	(3)	Procurement problems	Added	Stutz/(Rogers & Hays Review)	3/14
(REV) AI-11	Receipt, Inspection, Non-conforming Items QA Level/Description Changes & Substitutions	(3)	Material testing and certification	2B	Stutz/Staley Rogers/Hays G-44 Incorporation (Hays)	3/14
(REV) AI-36	Storage, Handling, and Shipping of QA Material	(1)	Storage problems	2A	Staley/Stutz Browton (Rogers)	2/14
(REV) PMs	Mandatory Surveillance and Maintenance	(3)	Regular inspection	3B	Browton/Rogers	3/14
(REV) PMs	Baseline Inspection Criteria	(1)	Existing problems	3A	Browton/Rogers	2/28

	Perform Baseline Evaluation		Determine present status	3A	Rogers/OE	4/14
	Identify Priority Items		Determine present status	3A	Rogers/OE	5/14
(R&W) MI 10.1a of Protective Coating in the Reactor and Auxiliary Bldg	Application Repair	(2)	Future repairs	2E	Brewton/Rogers	3/14
(R&W) Drawings	All DWG's Relating to Coatings	(3)	Existing discrepancies	___	Rankin	7/14
IQT (Materials)	Paint & Equipment	(2)	Contingency for emergency	4A	Brewton/Rogers	7/1
IQT (Services)	Contractor Repairs	(2)	Contingency for emergency	4B	Brewton/Rogers	7/1
Emergency Contract	Coating Inspection/	(1)	Baseline inspection	4B	Brewton/Rogers	2/14
	NSRS Comments/ Employee Concerns	(1)	Resolve open NSRS/Employee Concern issues		Rogers/Goetchius	2/14

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO: P. H. Wallace, Plant Manager, ONP, POB-2, Sequoyah Nuclear Plant

FROM: B. M. Patterson, Superintendent, Maintenance, ONP, POB-2, Sequoyah Nuclear Plant

DATE: 4/7/86

SUBJECT: SEQUOYAH NUCLEAR PLANT (SQN) - UNPAINTED HANGERS AND STRUCTURAL STEEL OVER SIX FEET ABOVE THE FLOOR - EMPLOYEE CONCERN NO. IN-85-243-002-SHP

Reference: Memorandum to you from H. L. Abercrombie dated February 13, 1986, "Recommendations Generated From the Generic Concerns Task Force That Require Action by Your Organization" (SQO 860207 800)

Employee Concern No. IN-85-243-002-SHP refers to a complete lack of coating on steel over 6 feet from the floor at Watts Bar Nuclear Plant. This condition does not exist at SQN although some isolated areas are uncoated or damaged.

As part of the response to SQ-CAB-86-01-001, a comprehensive protective coatings program was established. An integral part of the program is to perform a 100 percent baseline coating inspection of the levels 1 and 2 coating areas at SQN. This inspection will initiate repairs of areas with degraded coating by means of the coatings preventative maintenance program.

It is my position that our inspection and maintenance program is sufficient to address the concerns and recommendations of this generic concern.

B. M. Patterson

CAB:WSW:DPC:HC
cc: RIMS, MR 4N 72A-C

This was prepared principally by W. E. Ross.

COORDINATION: Chuck B. Brewton/Electrical Maintenance, Sequoyah
Lanson B. Rogers/Nuclear Services Welding and Metallurgy Section, LP 5S 111D-C

4/7/86 - bcc: H. L. Abercrombie, ONP, OAPS-4, Sequoyah
•/45D (attached)

TO: H. L. Abercrombie — 4/7/86
Site Director, O&PS-4, SQN

FROM: P. R. Wallace — 6500
Sequoyah Nuclear Plant

TEL CALL:

Re: SQN - UNPAINTED HANGERS AND STRUCTURAL STEEL OVER SIX FEET ABOVE THE FLOOR - EMPLOYEE CONCERN NO. IN-86-243-002-SQN

Please find attached our response to the subject employee concern.

Attachment
RV
cc: Reg. Engineering Section - SQN

3 2456

RIMS, MR 4N 72A-C

S53 860407 980

86 04 10 0263

TVA 38 (08-83)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO: H. B. Rankin, Manager, Design Services, ONP, DSC-E, Sequoyah Nuclear Plant

FROM: P. R. Wallace, Plant Manager, ONP, POB-2, Sequoyah Nuclear Plant

DATE: APR 8 1986

SUBJECT: SEQUOYAH NUCLEAR PLANT (SQN) - ADDITION OF SPECIAL COATING SYSTEMS FOR PROJECT CONSTRUCTION SPECIFICATION N2A931

Due to the implementation of a revised coating program at SQN, reference CAR #SQ-86-01-001, we are requesting the services of ADB for a revision of Construction Specification N2A931, to incorporate various products that are available for Level I and II coating applications. Plant personnel have determined coating products that could be possibly used for Level I and II applications and have compiled the attached list. New coating systems that are acceptable should be incorporated into N2A931. Compatibility of new systems with existing systems should be incorporated into N2A931 also. The items with asterisks should be addressed on a priority basis.

P. R. Wallace

BMP:MAS:TAK:DF
Attachment
cc: RIMS, MR 4N 72A-C
D. F. Goetcheus, ONP, SB-2, Sequoyah

This was prepared principally by C. L. Brewton.

5/045

ATTACHMENT A

New Coating Systems

Level I - Steel
1) E&L #4500
2) E&L #4500 and CZ11SG
3) Amercoat #90 and CZ11SG
4) Nutec #1201 and CZ11SG
5) Carbozinc 11SG and Tnemec 90-93
6) Tnemec 90-93

Level II - Steel
•1) E&L #3500 and CZ11
2) Amerlock 400 and CZ11
3) E&L #3500
•4) Amerlock 400
•5) Tnemec 90-93

Level II - Concrete
1) E&L #4129, E&L #3400, and E&L #3500
2) E&L #3500 and Mobil 46x16
•3) E&L #3500
•4) Amerlock 400

New Coating System Compatibility

Level I - Steel
1) E&L #4500 used w/Phenoline 305
2) Nutec 1201 used w/Phenoline 305
3) Amercoat 90 used w/Phenoline 305

Level II - Steel
1) E&L #3500 used w/Phenoline 305
•2) Carbozinc 11 used w/Tnemec 90-93
3) Amerlock 400 used w/Phenoline 305

CLB:DF
3/27/86
5/046