

SPECIFICATION NO. CNS-1205.00-00-0005

DATE February 25, 1974

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

UNIT 1 & 2

Title: Nuclear Safety Related Stainless Steel
Valves

REVISION LOG

- | | |
|----------------------------|----------------------------|
| <u>1 August 22, 1975</u> | <u>6 September 7, 1978</u> |
| <u>2 August 6, 1976</u> | <u>7 December 14, 1978</u> |
| <u>3 May 11, 1977</u> | <u>8 February 14, 1979</u> |
| <u>4 December 20, 1977</u> | <u>9 May 26, 1981</u> |
| <u>5 May 24, 1978</u> | <u>10 July 16, 1982</u> |

VERIFICATION OF SPECIFICATION

Station and Unit Number: Catawba Nuclear Station Units 1 & 2

Title of Specification: Nuclear Safety Related Stainless Steel Valves

Specification Number: CNS-1205.00-5

Revision: 10

This document specifies items related to QA CONDITION 1. In accordance with established procedures, its quality has been assured. Signatures certify that the above specification was originated, checked, approved and inspected (or waived) as noted below.

Prepared By: J. Z. Habel Jr. Date: 7-21-82

Checked By: E. D. Lindsey Date: 7-22-82

Approved By: J. K. Berry Date: 7-22-82

Inspection Waived By: R. E. Miller Date: 7/23/82

Inspection Waived For: ELECTRICAL MECHANICAL CIVIL

Inspected By: _____ Date: _____

Inspected By: _____ Date: _____

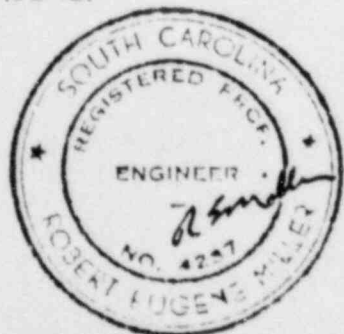
QUALITY ASSURANCE _____ Date: _____

(FOR ASME CODE ITEMS)

Division Mechanical + Nuclear Date: 7/23/82
Design Engineering Department

This is to certify that the above specification has been reviewed by me, the undersigned, and is correct, complete, and in compliance with 1971 Edition including the _____ Addendum of ASME Code, Section III, Paragraph NA3250 Summer 1973

(SEAL)



Signature R. E. Miller

Name: R. E. Miller
Registered Professional Engineer

No. 4237

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
UNITS 1 & 2

Nuclear Safety Related Stainless Steel Valves

Reference Section 5.0 REFERENCE DRAWINGS AND/OR ATTACHMENTS

The following attachments shall be renumbered and revised as follows:

- 5.15 Duke Power Company Standard Coating Specification NNN-11 revised on July 22, 1976 for valves located outside Reactor Building.
- 5.16 Duke Power Spare Parts Form, Form SP-1, Revision 1.

Add:

- 5.17 Duke Power Company Valve List Description, Rev. F dated July 16, 1982.

Reference Section 8.0 GENERAL DESIGN

Add:

- 8.1.24 Design of each valve shall satisfy requirements of this specification and following specific valve list:

- CN-0150-10
- CN-300-10
- CN-600-10
- CN-900-10
- CN-1500-10

Revise the following paragraph:

- 8.2.2 The stem material shall conform to SA-276, Type 316 Condition B; SA-564, Type 630; AMS 5659 or owner approved equal.

SPECIFICATION NO.: CNS-1205.00-00-0005
ADDENDUM NO.: 10
ATTACHMENT NO.: 5.15

DUKE POWER COMPANY	
DESIGN ENGINEERING DEPARTMENT	
NUCLEAR COATING SPECIFICATION NO. NNN-II	
	7-22-76 (3)
	10-21-74 (2)
By: Design Engineering	Date: <u>6-8-72</u> Revised: <u>6-1-74 (1)</u>

1. SCOPE

- 1.1 This specification defines the method of surface preparation, materials, application, and inspection for coating carbon steel surfaces cleaned to meet a minimum DP-SP5-Immersion (White Metal Blast Cleaning) that are rated as Class II Surface Areas of a nuclear power plant.
- 1.2 Class II Service Level for coatings applies to those systems and components of nuclear facilities which are essential to the attainment of the intended normal operating performance.
- 1.3 Examples: As a shop or field primer for liner plate, polar cranes, structural steel, tanks, steam generators to be stored outside for extended periods of time prior to installation. Also a primecoat for operating temperatures up to 900°F.

2. ATTACHMENTS

- 2.1 The following Duke Power Company attachments are attached to and made a part of this specification:
 - 2.1.1 Approved Materials
 - 2.1.2 Surface Preparations
 - 2.1.3 Application Procedures
 - 2.1.4 Workmanship Standards
 - 2.1.5 Inspection Standards
 - 2.1.6 Duke Power Company Data Sheets VII A
 - 2.1.7 Vendor Coating Information Form #1

3. COATING MATERIALS

- 3.1 Coating materials shall be in strict accordance with Duke Power Company Standard Approved Materials for System NNN-II.

4. COATING SYSTEM

- 4.1 Surface Preparation DP-SP5-Immersion White Metal Blast Cleaning
 - 4.2 Prime Coat DP#12 Inorganiz Ethyl Silicate @ 2.0 DFT
 Zinc Rich Primer
- | | |
|---------|---------|
| Minimum | 2.0 DFT |
| Maximum | 6.0 DFT |

DUKE POWER COMPANY		
DESIGN ENGINEERING DEPARTMENT		
NUCLEAR COATING SPECIFICATION NO. NNN-II		
		7-22-76 (3)
		10-21-74 (2)
By: Design Engineering	Date: 6-8-72	Revised: 6-1-74 (1)

5. SURFACE PREPARATION

- 5.1 Surface preparation shall be in strict accordance with Duke Power Company Standard Surface Preparation DP-SP5-Immersion.

6. APPLICATION

- 6.1 Application shall be in strict accordance with Duke Power Company Application Procedures for DP#12.

7. MIXING AND THINNING

- 7.1 Mixing and thinning shall be in strict accordance with Duke Power Company Data Sheets VII A, manufacturer's recommendations and SSPC-PA-1-64 Paint Application Specifications No. 1, Shop, Field, and Maintenance Painting.

8. EQUIPMENT

- 8.1 Equipment shall be in strict accordance with manufacturer's recommendations and SSPC-PA-1-64 Paint Application Specifications No. 1, Shop, Field, and Maintenance Painting.

9. WORKMANSHIP

- 9.1 Workmanship shall be in strict accordance with Duke Power Company Workmanship Standards for Nuclear Exposures.

10. INSPECTION

- 10.1 Inspection shall be in strict accordance with Duke Power Company Inspection Standards for Nuclear Exposures.

11. RECORDS

- 11.1 The vendor is to complete the Duke Power Company Design Engineering Department Vendor Coating Information Form #1 and return it with his bid proposal to Duke Power Company.

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

STANDARD APPROVED MATERIALS

By: Durwood Peach

DATE 1-1-74

REVISED

SYSTEM NNN

3. MATERIALS

3.1 The selection of materials for use in this specification by the applicator or vendor shall be those products listed in Section 3.3 unless specifically defined in Section 3.2. All materials selected shall be from one coating manufacturer.

3.2

3.3 Approved Materials

3.3.1 Coatings manufactured by Mobil Chemical Company.

DP#12 13-F-12 Mobil Zinc #7

DP#

DP#

DP#

3.3.2 Coatings manufactured by

DP#

DP#

DP#

DP#

3.3.3 Coatings manufactured by

DP#

DP#

DP#

DP#

3.3.4 Coatings manufactured by

DP#

DP#

DP#

DP#

3.4 Products are as shown on Duke Power Company Field Coatings Data Sheet VIIA and Manufacturers Product Technical Bulletins.

APPROVED BY QA

[Signature] 1-1-74
DATE

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

By: Durwood Peach

DATE 1-1-74

REVISED

5. SURFACE PREPARATION DP-SP5 - IMMERSION

- 5.1 Metal surfaces shall be prepared by dry hand sandblasting or automatic blast cleaning in strict accordance with Structural Steel Painting Council SSPC-SP5-63 (White Metal Blast Cleaning).
- 5.2 Minimum cleaning is as defined in Section 2.2 of SSPC-SP5-63. If Visual Standards are necessary, they shall be established by preparing actual panels for approval by Duke Power Company or from control panels designated by Duke Power Company. SSPC-VIS-1-63T Visual Standards shall not be used to establish minimum standards.
- 5.3 No surface preparation shall be allowed when the temperature is within 5°F of the dew point or above 90% relative humidity. Surface areas exposed to condensation or moisture prior to topcoating shall be reblasted.
- 5.4 Blasting shall not be performed in the same area where coating or curing of coated surfaces are in process.
- 5.5 The surface shall be free of excessive grease or oil prior to blast cleaning. Organic solvents, alkaline solutions, steam, hot water with detergents, or other systems that completely remove dirt, oil, grease, etc., may be used.
- 5.6 Blasting equipment shall be in good operating conditions as required by the manufacturer. Traps and filters in air lines shall be frequently cleaned and checked.
- 5.7 The grit shall be sharp silica sand, steel slag grit, similar or equal to 16-35 mesh flint silica to give a 1.2 to 2.5 mils anchor pattern. No polished surfaces shall be allowed.
- 5.8 The compressed air used for nozzle blasting shall be free of detrimental amounts of condensed water and oil. Adequate separators and traps shall be used. Nozzle pressure shall not be less than 80 psi.
- 5.9 Contaminated sand or grit shall not be used for finished work.
- 5.10 Remove weld spatter and visible welding contamination. Grind sharp edges to 1/8" radius and grind welds. Skip welds should be welded solid or caulked.
- 5.11 All visible burrs, slivers, scabs, and weld spatter shall be removed after blast cleaning.
- 5.12 The prime coat shall be applied within 8 hours after blasting and/or before any rust blooms begin to form. Reblast all surfaces that exceed these conditions before applying prime coat.
- 5.13 Remove all traces of grit, dust, grease, and foreign matter after blast cleaning and prior to application of each coat of material by solvent cleaning, high pressure air or other.

BY QA

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

By: Durwood Peach

DATE 1-1-74

REVISED

6. APPLICATION FOR DP# 12

- 6.1 No material shall be applied when the surface or air temperature is below 35°F or above 110°F, when the relative humidity is above 90%, or when the temperature is within 5°F of the dew point.
- 6.2 Material shall be applied by spray application provided the minimum DFT per coat and workmanship requirements of this specification are met.
- 6.3 Minimum DFT shall be as specified in section 4 when inspected in accordance with SSPC-PA2-72.
- 6.4 All areas with DFT readings less than specified in section 4 shall be corrected as specified in section 6.7.
- 6.5 Prior to topcoating each coat shall be allowed to dry in strict accordance with the following minimum guidelines based on temperature and relative humidity unless covered by a written project variation procedure.

TEMPERATURE

	40°F	50°F	60°F	70°F	80°F	90°F
40%	72 hr.					
50%		60 hr.				
60%			48 hr.			
70%				36 hr.		
80%					24 hr.	
90%						12 hr.

- 6.6* Drying time for shipment or stacking together of finish coated work shall be in accordance with the following minimum guidelines unless covered by a written project variation procedure.

TEMPERATURE

	40°F	50°F	60°F	70°F	80°F	90°F
40%	12 hr.					
50%		8 hr.				
60%			6 hr.			
70%				4 hr.		
80%					2 hr.	
90%						1 hr.

*Adequate cure can be checked by scratching primed surface with a coin. A cured zinc film will polish and an uncured zinc film will wrinkle.

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DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

By: Durwood Peach

DATE 1-1-74

REVISED _____

6.7 Touch Up Procedures with DP# 12

- 6.7.1 Surface preparation of damaged or bare areas shall be in accordance with DPSP#6, except for areas previously blast cleaned to a DPSP#6 that have no signs of rust blooms which shall be cleaned to a minimum DP-SP3.
- 6.7.2 Application shall be in accordance with section 6.1 through section 6.7 for all previously primed steel not exceeding the drying times specified in section 6.5.
- 6.7.3 Application for previously primed surfaces which have exceeded drying times specified in section 6.5 shall be the same as 6.7.2 except material shall be thinned 25% to 50%.
- 6.7.4 Stacking and loading after touch up shall be in accordance with section 6.6 unless areas touched up do not make contact with other surfaces during stacking and loading.

7. MIXING AND THINNING

- 7.1 Prior to thinning or application, all material shall be thoroughly mixed in such a manner as to insure the breaking apart of all lumps, complete dispersion of all settled pigments, and a uniform composition.
- 7.2 Mixing and thinning shall be with a power mixer in accordance with DP Product Data Sheet VII A for DP# 12 for the product selected.
- 7.3 Mixed material shall be applied within the maximum pot life specified on DP Product Data Sheet VII A for DP# 12 for the product selected or prior to any significant change in viscosity, whichever comes first.
- 7.4 Use of additional thinner to lower the viscosity after the mixed pot life has been exceeded shall not be allowed.
- 7.5 If work is stopped for short periods of time, material will be flushed from the fluid lines and equipment cleaned.
- 7.6 Mixed material shall be strained through a 30-50 mesh strainer prior to application.

APPROVED BY QA

[Signature] 1-1-74
APPROVED BY

DUKE POWER COMPANY DESIGN ENGINEERING DEPARTMENT		
WORKMANSHIP STANDARDS NUCLEAR EXPOSURES		
BY: Design Engineering	DATE <u>6-1-74</u>	REVISED _____

9. WORKMANSHIP

- 9.1 All work shall meet the minimum requirements of the Duke Power Company Coating Specifications and referenced standards or previously agreed upon variations of these standards.
- 9.2 All work shall be supervised by qualified persons who have read and understand the Duke Power Company Standard Coating Specifications for the specific work he is responsible for supervising.
- 9.3 All work will be done by persons experienced with the specific materials being applied or used unless accompanied by someone who is experienced in the work being performed.
- 9.4 Any completed work not meeting the minimum requirements of the Duke Power Company Coating Specification shall be corrected prior to topcoating or completion of advanced stages of the operation.
- 9.5 The following standards of workmanship are considered necessary to accomplish good workmanship and shall be adhered to unless covered by a written project variation procedure.
- 9.5.1 Coating Materials
- 9.5.1.1 All paint materials and accessories shall be delivered to the jobsite in original, unopened containers with the manufacturer's labels and tags intact. Containers shall remain unopened until required for mixing and thinning.
- 9.5.1.2 All paint shall be stored under cover and off the ground for no longer than the shelf life specified, and at the minimum-maximum temperatures specified on Duke Power Company Field Coatings Product Data Sheet VII A.
- 9.5.2 Coating System
- 9.5.2.1 Only paint materials approved in section 3 of this specification shall be allowed.
- 9.5.2.2 The DFT of each coat and of the entire system shall meet the requirements of section 4 of this specification for both number of coats and minimum DFT.

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DUKE POWER COMPANY DESIGN ENGINEERING DEPARTMENT		
WORKMANSHIP STANDARDS NUCLEAR EXPOSURES		
BY: Design Engineering	DATE <u>6-1-74</u>	REVISED _____

9.5.3 Surface Preparation

- 9.5.3.1 Cleaning and Painting shall be scheduled so that the dust and other contaminants from the cleaning process will not fall on newly painted surfaces.
- 9.5.3.2 Where required, imperfections, holes, stictwelds in the surface shall be filled with approved fillers or caulking.
- 9.5.3.3 Hardware, trim, underwriters labels, manufacturer's serial numbers, dials, gauges, and other items shall be removed or masked to allow proper application of the coatings and prevent damage.
- 9.5.3.4 All concrete hardners, curing agents and form release agents shall be compatible with the recommended coating system or be removed prior to any coating work.

9.5.4 Masking of Friction Joints and Weld Joints

- 9.5.4.1 Steel surfaces which are primed with an inorganic zinc primer shall not be masked if the following conditions are specified:
- Areas to be welded shall be primed with a fully weldable inorganic zinc primer.
 - Areas to be joined with High Tension (Friction Type) bolts such as ASTM Type A325 or A490 shall be primed with an inorganic zinc primer - either weldable or non-weldable.

Steel surfaces which are primed with an inorganic zinc primer shall be masked back two inches from edges to be welded if they are to become part of a vessel which must conform to the ASME Pressure Vessel Code.

- 9.5.4.2 Steel surfaces which are primed in the shop shall be masked as noted below if an inorganic primer is used.

DUKE POWER COMPANY DESIGN ENGINEERING DEPARTMENT		
WORKMANSHIP STANDARDS NUCLEAR EXPOSURES		
BY: Design Engineering	DATE <u>6-1-74</u>	REVISED _____

- a. Areas to be welded shall be masked so that no organic coating is within six (6) inches of the weld prior to the welding operation.
- b. Areas to be joined with the High Tension (Friction Type) bolts such as ASTM Type A325 or A490 shall be masked so that no organic coating is beneath the bolts prior to joining.
- c. These requirements shall also apply to organic topcoats when shop applied or when applied prior to assembly or erection.

9.5.5 Application

- 9.5.5.1 All applied coatings shall be free of runs, sags, drops, ridges, waves, laps, bubbles, embedded foreign matter, and other indications of improper application procedures.
- 9.5.5.2 Drying time between coats shall be in accordance with section 6 of this specification, Duke Power Company Field Coatings Product Data Sheet VII A, and the Manufacturer's Product Data Sheets on the specific products in that order of priority.

9.5.6 Mixing and Thinning

- 9.5.6.1 Mixing and thinning shall be in accordance with section 6 of this specification and Duke Power Company Field Product Data Sheet VII A.

9.5.7 Equipment

- 9.5.7.1 All equipment shall meet the requirements of section 8 of this specification.
- 9.5.7.2 All equipment shall be maintained in good working order. It shall be thoroughly cleaned and inspected daily. Worn tips, spray nozzles, hoses, blast nozzles, and other parts necessary to meet good work standards shall be replaced regularly.
- 9.5.7.3 Effective oil and water separators shall be used and serviced on all air lines.

APPROVED BY QA

G. A. [Signature]

6-1-74

DUKE POWER COMPANY DESIGN ENGINEERING DEPARTMENT		
INSPECTION STANDARDS NUCLEAR EXPOSURES		
BY: Design Engineering	DATE <u>6-1-74</u>	REVISED _____

10. INSPECTION

- 10.1 Duke Power Company, the coating manufacturer and their responsible representatives shall have access to shop or field at all times during the surface preparation, and application of coating work or to inspect work previously finished.
- 10.2 The Owner reserves the right to reject all work that does not meet the Duke Power Company Coating Specification. This may be done either at the vendor's shop or at the jobsite.
- 10.3 All or any portion of finished work not meeting the minimum standards of this specification and referenced standards shall be corrected by the applicator or vendor, unless otherwise agreed to in writing by Duke Power Company.
- 10.4 Inspection by Duke Power Company or their responsible representatives, or failure to provide inspection shall not relieve the applicator of his responsibilities to provide materials and perform the work in accordance with the Duke Power Company coating specifications.
- The applicator shall be required to furnish proper inspection equipment as necessary to check the minimum or maximum conditions of this specification.
- 10.5 Duke Power Company Inspection Procedures for nuclear exposures will be made available to the applicator upon written request or presented in detail at the pre-start up meeting for each project.

REVISION BY QA

6-1-74

6-1-74

DUKE POWER COMPANY
FIELD COATINGS PRODUCT DATA SHEET VIIA

COMPANY: Mobil Chemical Company	DP NO: 12
PRODUCT NAME: Mobilzinc 7	DATE: 1-1-74, rev. 6-1-74
	PRODUCT NO: 13-F-12

PRODUCT DESCRIPTION: An inorganic ethyl silicate zinc rich metal primer formulated for excellent weathering and abrasion resistance. Affords cathodic protection of the steel. Can be applied to load bearing surfaces.

USAGES: As a shop or field primer over blast cleaned steel surfaces exposed to long term weathering before being topcoated or severe moisture after being topcoated with an epoxy, vinyl, urethane, chlorinated rubber or latex finish.

PRODUCT INFORMATION

PIGMENT TYPE:	Zinc dust, Inerts and Colorants
VEHICLE TYPE:	Ethyl Silicate
SOLVENTS & DILUENTS:	Alcohols, Glycol Ether
COLOR:	Gray Green
GLOSS:	Low
SOLIDS BY VOLUME:	63%
SOLIDS BY WEIGHT:	80.5%
WEIGHT PER GALLON:	21.3 lbs + .3
THEO. COVERAGE @ 1.0 DFT:	800 sq. ft.
THEO. COVERAGE @ <u>2.5</u> DFT:	320 sq. ft.
VISCOSITY:	70 + ku
PIGMENT VOLUME CONCENTRATION:	85.5
FLASH POINT:	76°F
TOXICITY:	Zinc dust
SHELF LIFE:	6 months on vehicle
STORAGE TEMPERATURE:	25°F - 100°F
PACKAGED:	2 component

PHYSICAL PROPERTY INFORMATION

NORMAL EXPOSURE:	Interior and exterior (topcoated)
FLEXIBILITY:	Poor
ABRASION:	Excellent
NORMAL DFT PER COAT:	2.0 - 5.0 mils
RECOMMENDED DFT:	2.5 mils

TEMPERATURE LIMITS	<u>INTERIOR</u>	<u>EXTERIOR</u>	<u>IMMERSION</u>
CONSTANT:	750°F	750°F	120°F
INTERMITTENT:	850°F	850°F	120°F

CHEMICAL RESISTANCE	<u>FUME</u>	<u>SPLASH/SPILLAGE</u>	<u>IMMERSION</u>
ACID	NR	NR	NR
ALKALI	R	NR	NR
SOLVENT	R	R	R
SALT	R	R	R
WATER	R	R	R

APPROVED BY QA

U.S. ... 1-1-74

APPROVED BY _____ DATE _____

MANUFACTURER PRODUCT NO: 13-F-12

DUKE POWER NO: 12

MIXING: Pour liquid component "A" (6.6 lbs. liquid) into a clean dry, metal container, sift component "B" (14.6 lbs. dust) slowly into the liquid while stirring constantly with power mixer until smooth and free from lumps. Strain through a 30-50 mesh screen.

SUBSTRATES	PRIMERS	SURFACE PREPARATIONS	
		NORMAL	SEVERE
Steel	Self	SP#6, 10	SP#5, 10
Galvanized	Self	SP#6, 10	SP#5, 10

FINISH COATS: DP#53, 62, 63, 64, 67, 68, 69, 70, 73, 74, 75

APPLICATION: PREFERRED Conventional Spray or special Airless Spray
 LIMITED Brush (small touch up)

THINNER: BRUSH/ROLL 7-T-3
 SPRAY 7-T-16, 7-T-3

CLEAN-UP Alcohol, 7-T-16, 7-T-3

THINNING %: BRUSH/ROLL 0-20
 SPRAY 0-20

POT LIFE (+) @: 50°F 10 hr.
 70°F 8 hr.
 90°F 4 hr.

DRYING TIME (+):	<u>TOUCH</u>	<u>HANDLE</u>	<u>HARD</u>	<u>RECOAT</u>
50°F	1 hr.	4 hr.		3-48 hrs.
70°F	45 min.	3 hr.		Depending upon temperatures
90°F	30 min.	2 hr.		and relative humidity.

EQUIPMENT:

COMMENTS:

1. Do not exceed 6.0 mils dft.
2. Do not topcoat with alkyds on oil based coatings.
3. Material must have rough surface profile for proper adhesion.
4. Apply wet--do not dry spray or allow excessive overspray.
5. Material is moisture cured.

APPROVED BY QA

ABR...

R-Recommended LR-Limited Recommendations NR-Not Recommended NA-Not Applicable

**DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT
VENDOR COATING INFORMATION #1**

Project: _____ Date: _____
 D.P. Co. _____ Paint _____
 Spec. No.: _____ Category: _____
 Vendor: _____ Equip: _____

GENERAL INFORMATION

Substrate Material: _____

Estimated Surface Area
 By Sq. Ft. _____ Per Item _____ Total _____

Estimated Coating Quantities
 Primer _____ Gal. Intermediate _____ Gal. Finish _____ Gal.

Duke Power Standard Coating (Completed by vendor if DP Co. standard spec. is used)

Duke Power Coating System		Finish Color No. and Name	
	Primer	Intermediate	Topcoat
Duke Power Product No.	DP#	DP#	DP#
Manufacturer			

VENDOR'S STANDARD COATING

Surface Preparation (check one)

Steel Structures Painting Council SSPC-Standards-64

SP1	SP2	SP3	SP5	SP6	SP7	SP8	SP10	Other (describe)

Generic Coating

	Alkyd	Lacquer	Phenolic	Epoxy	Urethane	Other (describe)
Primer						
Intermediate						
Finish						

SPECIFICATION NO.: CNS-1205.00-00-0005
ADDENDUM NO.: 10
ATTACHMENT NO.: 5.16

DUKE POWER COMPANY
 SPARE PARTS FORM

Plant: _____ SYSTEM IDENTIFICATION NO.: _____ DATE: _____
 Component: _____ Specification No. _____ D.E. MPSCo Order No. _____
 D.E.P.R. No. _____ Contractor Name _____ S.P. MPSCo Order No. _____
 S.P.P.R. No. _____ Duke Drawing No. _____ Manufacturer's Equipment Model No. _____
 Base Delivery Date: _____ Contractor Dwg. No. _____ (1) _____
 Alternate Date: _____

Spare Part Name & No. (2)	Recommended QTY/UNIT (3)	Expected Service Life of Recommen- ded Spares (4)	Basis For Recommendation (5)	Manufacturing Lead Time (6)	Price (Base) Price (Alt) (7)	Comments (8)

SPECIFICATION NO.: CNS-1205.00-00-0005
ADDENDUM NO.: 10
ATTACHMENT NO.: 5.17

DUKE POWER COMPANY
VALVE LIST DESCRIPTION

Specification : CNS-1205.00-00-0005
Addendum No.: 10
Attachment No.: 5.17
Page 1 of 8

GENERAL:

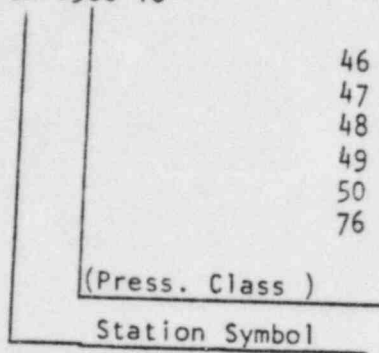
This valve list description will supply the vendor with the necessary information required to interpret Duke Power Company Valve Lists. Each column of the valve list and the abbreviations used are defined. Information defined by the following notes is not directly referenced to by the valve list but is, in fact, an extension of each valve list.

All valves are to meet Duke Power Company Valve Specifications as presented to vendor on award of contract.

NOTES:A) Valve List Numbering System

<u>Code</u>	
CN-1500-16	10 Stainless Steel (Nuclear)
	11 Stainless Steel 2 1/2" and larger (Conventional)
	12 Carbon Steel (Nuclear)
	13 Carbon Steel 2 1/2" and larger (Conventional)
	14 Stainless 2 1/2" and larger (Nuclear)
	15 Cast Iron
	16 Stainless Steel 2 1/2" and larger (Nuclear)
	17 Stainless Steel 2 1/2" and larger (Conventional)
	18 Carbon Steel 2 1/2" and larger (Nuclear)
	19 Carbon Steel 2 1/2" and larger (Conventional)
	20 Carbon Steel 2 1/2" and larger (Nuclear)
	21 Carbon Steel 2" and smaller (Conventional)
	22 Carbon Steel 2" and smaller (Nuclear)
Body	23 Stainless Steel 2" and smaller (Conventional)
Material	24 Stainless Steel 2" and smaller (Nuclear)
	25 Stainless Steel - Plug Valves (Conventional)
	26 Stainless Steel - Plug Valves (Nuclear)
	27 Carbon Steel - Diaphragm Valves (Conventional)
	28 Carbon Steel - Plug Valves (Nuclear)
	29 Aluminum - Diaphragm Valves (Conventional)
	30 Stainless Steel - Diaphragm Valves (Nuclear)
	31 Bronze Diaphragm Valves (Conventional)
	32 Carbon Steel - Disphragm Valves (Nuclear)
	33 Carbon Butterfly Valves (Conventional)
	34 Carbon Steel Butterfly Valves (Nuclear)
	35 Carbon Steel Butterfly Valves (Conventional)
	36 Carbon Steel Butterfly Valves (Nuclear)
	37
	38 Solenoid Valves (Nuclear)
	39 Carbon Steel Butterfly Valves (Conventional)
	40 Stainless Steel-Ball Valves (Nuclear)
	41 Carbon Steel-Ball Valves (Nuclear)
	42 Carbon Steel - 2" and smaller (Conventional)
	43 Stainless steel - 2" and smaller (Conventional)
	44 Carbon Steel - 2" and smaller (Nuclear)
	45 Stainless Steel - 2" and smaller (Nuclear)

CN-1500-16



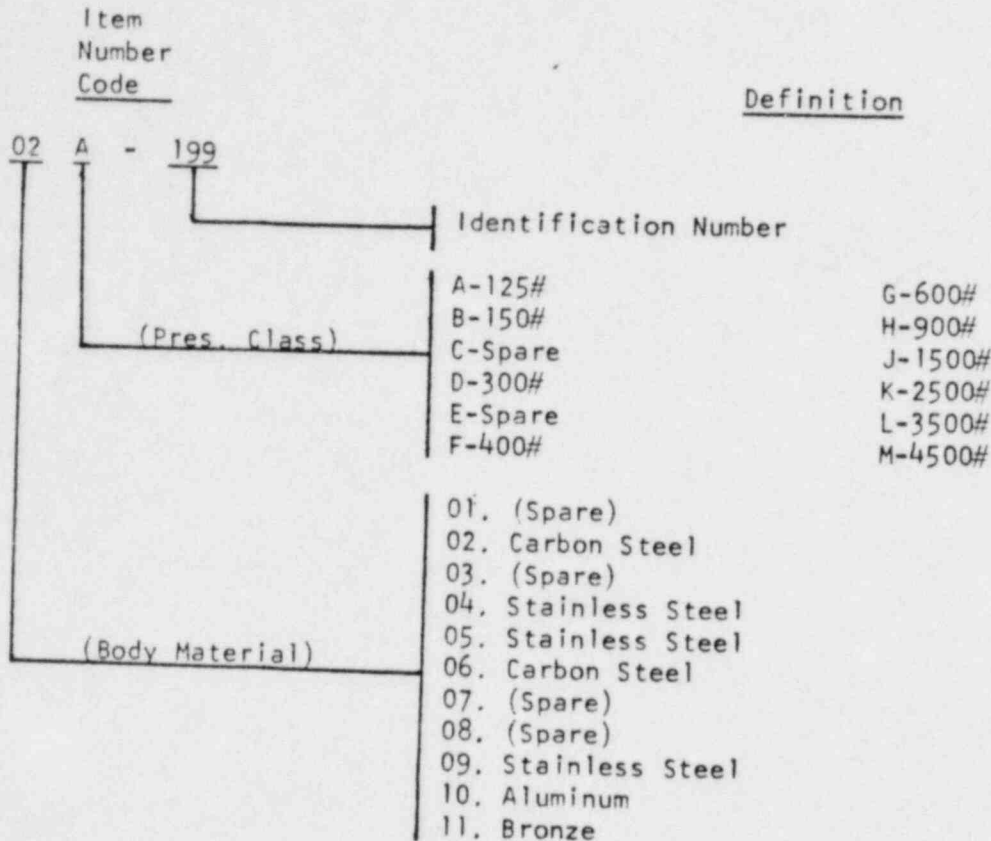
- 46 Stainless Steel - 2" and smaller (Conventional)
- 47 Stainless Steel - 2" and smaller (Nuclear)
- 48 Carbon Steel - 2" and smaller (Nuclear)
- 49 Carbon Steel - Ball Valves (Conventional)
- 50 Stainless Steel - Ball Valves (Conventional)
- 76 Carbon Steel Wafer Check Valves (Nuclear)

125#	400 #	1500#	4500#
150#	600#	2500#	
300#	900#	3500#	

Valve list number will appear at the top of each sheet of the applicable valve list; along with the latest revision number and date revised.

B) Item Number (First Column of Valve List)

Each valve shall have a metal tag, permanently secured to the valve yoke or as otherwise defined and as called for in the valve specification, which will show the item number of the valve.



* All materials required for use in DPCo classification A, B, C, D, E, F, G, and H (see item "C" this description) will be procured in accordance with the applicable Specification.

Item numbers succeeded by an asterisk denote valves located within the reactor building. Please refer to the applicable Duke Power Company Specification regarding these valves.

C) Duke Valve Class (Second Column of Valve List)

This note described the different Duke Class and applicable Design Criteria for each class of valves.

<u>DPCo Class</u>	<u>Design Criteria</u>	<u>Seismic Loading</u>
A	ASME Section III, Class 1	Yes
B	ASME Section III, Class 2	Yes
C	ASME Section III, Class 3	Yes
D	ASME Section III, Class 2	No
E	ANSI B31.1.0	No
F	ANSI B31.1.0	Yes
G	ANSI B31.1.0	No
H	Duke Power Specification	No

D) Type (Third Column of Valve List)

This note describes the different types of valves and is used by Duke Power Company.

<u>Code</u>	<u>Definition</u>
SN	Solenoid Valve
GT	Gate Valve
GL	Globe Valve
CK	Check Valve
DP	Diaphragm Valve
BF	Butterfly Valve
PV	Plug Valve
NV	Needle Valve

E) Quantity (Fourth Column of Valve List)

Column 4 of the valve list gives the quantity required. Each valve should be tagged with an item number as outlined in B) of this description.

F) Size (Fifth Column of Valve List)

All sizes are nominal pipe size (NPS) and will be given in inches.

G) Manufacturers Figure Number (Sixth Column of Valve List)

Column 6 of the valve list will give the manufacturer's drawing or figure number. This column will be completed when Duke knows the appropriate number required. When this column is left blank, the valve manufacturer will supply the valve most suitable for Duke's requirements as spelled out on the valve list.

H) Operator (Seventh Column of Valve List)

<u>Code</u>	<u>Definition</u>
HW	Manufacturer's standard handwheel
CW	Chainwheel Operated (valve will be installed with stem in horizontal position and arranged for chain wheel operation). Chainwheel only shall be furnished with valve and shall be mounted by the manufacturer prior to shipment (Chain by Duke Power Company).
EMO	Electric Motor Operated - <u>Unless otherwise stated</u> , Electric Motor Operators will be supplied in accordance with the Specification.

EMO succeeded by an asterisk (*) indicates that valve has a safety-related function and must meet the Electric Valve Operator Acceptance Criteria as defined in valve specification.

<u>Code</u>	<u>Definition</u>
SOL	Solenoid Operated
AIR	Air Operated
XO	Special Operator (See Remarks - Item "N" of this description)

I) Operator Speed (Eighth Column of Valve List)

This note indicates speed of operation required. If left blank or otherwise unspecified, standard speed (12 in./min.) is to be supplied.

J) Valve Ends (Ninth Column of Valve List)

This note describes the different end preparation required on valves.

For butt welding ends, the following code will apply:

<u>Code</u>	<u>Definition</u>
B-160	Pipe Schedule
	The particular Weld End Preparation Detail on Duke Drawing No. 1676-1

For socket weld, screwed, flanged and special ends, the following codes will apply:

<u>Code</u>	<u>Definition</u>
SW	Socket weld ends to be in accordance with ANSI B16.11.
SCR	Screwed ends to be in accordance with ANSI B16.11
F1	125# Cast Iron - Flat Face
F2	250# Cast Iron - 1/16" Raised Face
F3	150# Steel - Flat Face
F4	150# Steel - 1/16" Raised Face
F5	300# Steel - Flat Face
F6	300# Steel - 1/16" Raised Face
SE	Special Ends - See Remarks Item "N" this description
WAF	Wafer
FLN	Flanged ends - Diaphragm Valves

K) Seal Leak-Off (Tenth Column of Valve List)

This column will indicate when a valve requires a lantern gland leak-off connection.

<u>Code</u>	<u>Definition</u>
Yes	Valve shall have a lantern gland leak-off connection in accordance with the valve specification.
NA	Lantern gland leak-off not applicable.

L) Lock and Locking Device (Eleventh Column of Valve List)

This column will indicate when a valve requires a lock and locking device. (Mfg. standard)

<u>Code</u>	<u>Definition</u>
Yes	Valve to be equipped with lock and locking device. However, when valve has a chainwheel operator, lock and locking device will be supplied by Duke Power Construction Department.
NA	Lock and locking device not applicable.

M) Design Condition - PSIG and Temp (Twelfth and Thirteenth Columns of Valve List)

The PSIG and Temperature (° F) column provides the vendor with the necessary information needed to supply the appropriate valve. Design temperature and pressure ratings will be furnished for the applicable pressure class regarding check and handwheel operated globe and gate valves. On air and motor operated valves the differential pressure across the valve will be the pressure given in the PSIG column.

N) Remarks

Any additional or special information required by the manufacturer to produce the quality valves as required by Duke will be spelled out in the remarks area. (See attached sample of valve list for remarks area).

O) Revisions

Revisions to any valve list will be indicated in a cover letter transmittal with each valve list.

P) Delivery Schedule

The total quantity ordered of any one item may be divided into groups with different required delivery dates. The following code will give the vendor the essential information for the applicable delivery schedule:

Code: DELIVERY REOD: (000) AA/AA/AA

Definition: (000) - Quantity Required
AA/AA/AA - Date Required

LIST NUMBER 3
 PLANT CODE = CAT
 FILE ID = 84

DUKE POWER COMPANY
 DESIGN ENGINEERING DATA BASE
 CAT AREA NUCLEAR STATION
 VALVE ITEM LIST

PAGE 7 of 8
 05/15/78

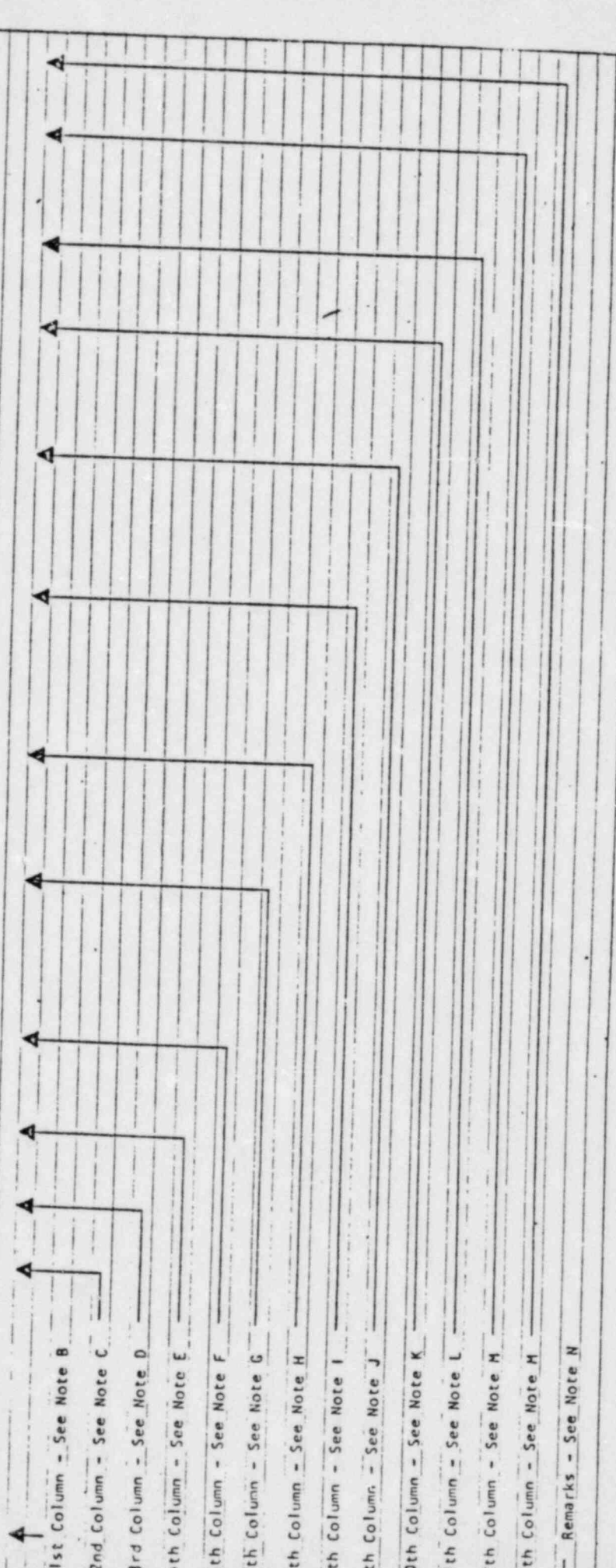
ITEM NUMBER CLASS TYPE QUANTITY SIZE MANUFACTURES OPERATOR OPERATOR SPEED ENDS SEAL LOCKING DESIGN LOCK G
 DRAWING NUMBER TYPE VALVE LIST NUMBER CN-9999-99 HW WAF NR YES 125 100
 PSIG DEB.F

D23-401 C BF 50 4.00
 RMS:MAX. OPERATING FLOW RATE - 450 GPH
 DELIVERY REQ: (025)03/01/77
 DELIVERY REQ: (025)03/01/78

D58-402 B GT 24 3.00
 RMS:ACTIVE VALVE
 DELIVERY REQ: (012)10/01/77
 DELIVERY REQ: (012)10/01/78

C50-403 A SL 50 1.00
 RMS:CAPACITY - 1500 SCFH AT 350 PSIG. ENERGIZE OPEN. COIL 125V DC. REMOTE POSITION INDICATOR REED. SERVICE - AIR
 DELIVERY REQ: (050)01/01/80

D6J-404 F GL 1000 1.00
 DELIVERY REQ: (250)06/01/79
 DELIVERY REQ: (050)



Remarks - See Note N

REVISION		INITIALS	DATE
A	Revised and re-issued	DDM	12/15/77
B	Added Nuclear Diaphragm and Wafer Check List to Note "A"	R.D.S.	3/7/79
C	Added Nuclear Ball and a 3" and smaller list to Note "A"	D.D. King	11/18/80
D	Updated Note "A" to revise No. 41 to Carbon Steel Ball Valves and No. 42 to 2" and smaller conventional valves. Also added No.'s 43 & 45 thru 49 for new contract requirements.	David D. King	3/16/82
E	Updated Note "A" to revise No. 48 to Carbon Steel 2" and smaller Nuclear valves. Also added No.'s 44 and 50 for new contract requirements. Revised Note C to indicate DPCo Class H as Duke's own specification.	David D. King	3/31/82
F	Updated Note "A" to revise No. 10 and No. 12 to allow for the use of all size valves.	David D. King	7/16/82

SPECIFICATION NO.: CNS-1205.00-00-0005
ATTACHMENT NO.: 5.12

NUCLEAR SAFETY RELATED

SPECIFICATION NO. CN-000-I-1

DATE 11-1-75

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

UNIT 1-2

Title: Nuclear Coating

Specification No. CN-000-I-1 Class I Coatings

REVISION LOG

1 _____
2 _____
3 _____
4 _____
5 _____

6 _____
7 _____
8 _____
9 _____
10 _____

NUCLEAR SAFETY RELATED

VERIFICATION OF SPECIFICATION

Station and Unit Number: Catawba 1-2

Title of Specification: Nuclear Coating Specification No. CN-000-T-1

Class T Coatings

File Number: CN-1167.02

Revision: _____

This document specifies items related to nuclear safety. In accordance with established procedures, its quality has been assured. Signatures certify that the above specification was originated, checked, approved and inspected (or waived) as noted below:

Prepared By: C L Bisson Date: 11-11-75

Checked By: [Signature] Date: 11-11-75

Approved By: [Signature] Date: 11-11-75

Inspection Waived By: [Signature] Date: 11-11-75

Inspection Waived For: ELECTRICAL MECHANICAL CIVIL

Inspected By: A. B. [Signature] Date: 11-11-75

Inspected By: _____ Date: _____

QUALITY ASSURANCE TC [Signature] Date: 11-11-75

(FOR ASME CODE ITEMS)

Division Date: _____
Design Engineering Department

This is to certify that the above specification has been reviewed by me, the undersigned, and is correct, complete, and in compliance with 1971 Edition of ASME Code, Section III, Paragraph NA-3250.

(SEAL)

SIGNATURE: _____

NAME: _____
Registered Professional Engineer

No. _____

NUCLEAR SAFETY RELATED

DUKE POWER COMPANY

DESIGN ENGINEERING DEPARTMENT

NUCLEAR COATING SPECIFICATION NO. CN-000-I-1

By: Design Engineering

Date: 11-1-75

Revised:

1. SCOPE

- 1.1 This specification defines the method of surface preparation, materials, application, and inspection and record requirements for coating carbon steel surfaces cleaned to meet a minimum DP-SP 10 - Immersion (near white metal blast cleaning) rated as class I surface areas of a nuclear power plant.
- 1.2 Class I surfaces are exposed areas in the Containment and Reactor Buildings and the interior of tank linings of the reactor coolant system, that must withstand a DBA and LOCA.
- 1.3 Examples: As a shop or pre-installation system for equipment and misc. components that cannot be blast cleaned and coated in place and where normal operating surface temperatures do not exceed 200°F. Normally only touch up of damaged areas is required after installation.

2. ATTACHMENTS

- 2.1 The following Duke Power Company attachments are attached to and made a part of this specification:
 - 2.1.1 Approved Materials
 - 2.1.2 Surface Preparations
 - 2.1.3 Application Procedures
 - 2.1.4 Workmanship Standards
 - 2.1.5 Inspection Standards
 - 2.1.6 Record Requirements
 - 2.1.7 Duke Power Company Field Data Sheet VIIA

3. COATING MATERIALS

- 3.1 Coating materials shall be in strict accordance with Duke Power Company Standard Approved Materials for System CN-000-I-1.

4. COATING SYSTEM

- | | | | |
|-----|---------------------|--|----------------|
| 4.1 | Surface Preparation | DP-SP10-immersion (near white metal blast cleaning). | |
| 4.2 | Prime Coat | DP#12 Inorganic Ethyl Silicate
Zinc Rich Primer | @ 2.0 DFT |
| 4.3 | Finish Coat | DP#67 Catalyzed Phenolic Epoxy | @ 4.0 DFT |
| | | Minimum | <u>6.0 DFT</u> |

NUCLEAR SAFETY RELATED

DUKE POWER COMPANY	
DESIGN ENGINEERING DEPARTMENT	
NUCLEAR COATING SPECIFICATION NO. CN-000-I-1	
By: Design Engineering	Date: 11-1-75 Revised:

5. SURFACE PREPARATION

- 5.1 Surface Preparation shall be in strict accordance with Duke Power Company Standard Surface Preparation DP-SP10-immersion.

6. APPLICATION

- 6.1 Application shall be in strict accordance with Duke Power Company Application Procedures for, DP#12 and DP#67.

7. MIXING AND THINNING

- 7.1 Mixing and thinning shall be in strict accordance with Duke Power Company Data Sheets VII A, manufacturer's recommendations and SSPC-PA-1-64 Paint Application Specifications No. 1, Shop, Field, and Maintenance Painting.

8. EQUIPMENT

- 8.1 Equipment shall be in strict accordance with manufacturer's recommendations and SSPC-PA-1-64 Paint Application Specifications No. 1, Shop, Field, and Maintenance Painting.

9. WORKMANSHIP

- 9.1 Workmanship shall be in strict accordance with Duke Power Company Workmanship Standards for Nuclear Exposures.

10. INSPECTION

- 10.1 Inspection shall be in strict accordance with Duke Power Company Inspection Standards for Nuclear Exposures.

11. RECORD REQUIREMENTS

- 11.1 Records for all Class I Level Vendor coating work shall be in strict accordance with Duke Power Company Nuclear Coating Certification CN-MMM-7.
- 11.2 Records for all Class I Level Field applied coating work shall be in strict accordance with Duke Power Company Construction Procedure M-20.

NUCLEAR SAFETY RELATED

DUKE POWER COMPANY	
DESIGN ENGINEERING DEPARTMENT	
STANDARD APPROVED MATERIALS	
BY: Design Engineering	DATE 11-1-75
	REVISED _____

SYSTEM CN-000-I-1

3. MATERIALS

3.1 The selection of materials for use in this specification by the applicator or vendor shall be those products listed in Section 3.3 unless specifically defined in Section 3.2. All materials selected shall be from one coating manufacturer.

3.2

3.3 Approved Materials

3.3.1 Coatings manufactured by Carboline Company

- DP# 12 Earbozinc II
- DP# 67 Phenoline 305 Finish
- DP#
- DP#

3.3.2 Coatings manufactured by

- DP#
- DP#
- DP#
- DP#

3.3.3 Coatings manufactured by

- DP#
- DP#
- DP#
- DP#

3.3.4 Coatings manufactured by

- DP#
- DP#
- DP#
- DP#

3.4 Products are as shown on Duke Power Company Field Coatings Data Sheet VIIA and Manufacturers Product Technical Bulletins.

APPROVED BY QA

TC Elliott
 APPROVED BY _____ DATE 11-11-75

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

By: Durwood Peach

DATE 1-1-74

REVISED

5. SURFACE PREPARATION DP-SPI0 - IMMERSION

- 5.1 Metal surfaces shall be prepared by dry hand sandblasting or automatic blast cleaning in strict accordance with Structural Steel Painting Council SSPC-SPI0-63 (Near White Metal Blast Cleaning).
- 5.2 Minimum cleaning is as defined in Section 2.2 of SSPC-SPI0-63. If Visual Standards are necessary, they shall be established by preparing actual panels for approval by Duke Power Company or from control panels designated by Duke Power Company. SSPC-VIS-1-63T Visual Standards shall not be used to establish minimum standards.
- 5.3 No surface preparation shall be allowed when the temperature is within 5°F of the dew point or above 90% relative humidity. Surface areas exposed to condensation or moisture prior to topcoating shall be reblasted.
- 5.4 Blasting shall not be performed in the same area where coating or curing of coated surfaces are in process.
- 5.5 The surface shall be free of excessive grease or oil prior to blast cleaning. Organic solvents, alkaline solutions, steam, hot water with detergents, or other systems that completely remove dirt, oil, grease, etc., may be used.
- 5.6 Blasting equipment shall be in good operating conditions as required by the manufacturer. Traps and filters in air lines shall be frequently cleaned and checked.
- 5.7 The grit shall be sharp silica sand, steel slag grit, similar or equal to 16-35 mesh flint silica to give a 1.2 to 2.5 mils anchor pattern. No polished surfaces shall be allowed.
- 5.8 The compressed air used for nozzle blasting shall be free of detrimental amounts of condensed water and oil. Adequate separators and traps shall be used. Nozzle pressure shall not be less than 80 psi.
- 5.9 Contaminated sand or grit shall not be used for finished work.
- 5.10 Remove weld splatter and visible welding contamination. Grind sharp edges to 1/8" radius and grind welds. Skip welds should be welded solid or caulked.
- 5.11 All visible burrs, slivers, scabs, and weld splatter shall be removed after blast cleaning.
- 5.12 The prime coat shall be applied within 8 hours after blasting and/or before any rust blooms begin to form. Reblast all surfaces that exceed these conditions before applying prime coat.
- 5.13 Remove all traces of grit, dust, grease, and foreign matter after blast cleaning and prior to application of each coat of material by solvent cleaning, high pressure air or brush.

APPROVED BY QA

W.B. Smith 6-11-74
DATE

S-8-13

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

By: Durwood PeachDATE 1-1-74

REVISED

5. SURFACE PREPARATION DP-SPI0 - IMMERSION

- 5.1 Metal surfaces shall be prepared by dry hand sandblasting or automatic blast cleaning in strict accordance with Structural Steel Painting Council SSPC-SPI0-63 (Near White Metal Blast Cleaning).
- 5.2 Minimum cleaning is as defined in Section 2.2 of SSPC-SPI0-63. If Visual Standards are necessary, they shall be established by preparing actual panels for approval by Duke Power Company or from control panels designated by Duke Power Company. SSPC-VIS-1-63T Visual Standards shall not be used to establish minimum standards.
- 5.3 No surface preparation shall be allowed when the temperature is within 5°F of the dew point or above 90% relative humidity. Surface areas exposed to condensation or moisture prior to topcoating shall be reblasted.
- 5.4 Blasting shall not be performed in the same area where coating or curing of coated surfaces are in process.
- 5.5 The surface shall be free of excessive grease or oil prior to blast cleaning. Organic solvents, alkaline solutions, steam, hot water with detergents, or other systems that completely remove dirt, oil, grease, etc., may be used.
- 5.6 Blasting equipment shall be in good operating conditions as required by the manufacturer. Traps and filters in air lines shall be frequently cleaned and checked.
- 5.7 The grit shall be sharp silica sand, steel slag grit, similar or equal to 16-35 mesh flint silica to give a 1.2 to 2.5 mils anchor pattern. No polished surfaces shall be allowed.
- 5.8 The compressed air used for nozzle blasting shall be free of detrimental amounts of condensed water and oil. Adequate separators and traps shall be used. Nozzle pressure shall not be less than 80 psi.
- 5.9 Contaminated sand or grit shall not be used for finished work.
- 5.10 Remove weld splatter and visible welding contamination. Grind sharp edges to 1/8" radius and grind welds. Skip welds should be welded solid or caulked.
- 5.11 All visible burrs, slivers, scabs, and weld splatter shall be removed after blast cleaning.
- 5.12 The prime coat shall be applied within 8 hours after blasting and/or before any rust blooms begin to form. Reblast all surfaces that exceed these conditions before applying prime coat.
- 5.13 Remove all traces of grit, dust, grease, and foreign matter after blast cleaning and prior to application of each coat of material by solvent cleaning, high pressure air or brush.

APPROVED BY QA

W. B. Smith 1-1-74
DATE

S-8-13

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

By: Durwood Peach

DATE 1-1-74

REVISED

6. APPLICATION FOR DP# 12

- 6.1 No material shall be applied when the surface or air temperature is below 35°F or above 110°F, when the relative humidity is above 90%, or when the temperature is within 5°F of the dew point.
- 6.2 Material shall be applied by spray application provided the minimum DFT per coat and workmanship requirements of this specification are met.
- 6.3 Minimum DFT shall be as specified in section 4 when inspected in accordance with SSPC-PA2-72.
- 6.4 All areas with DFT readings less than specified in section 4 shall be corrected as specified in section 6.7.
- 6.5 Prior to topcoating each coat shall be allowed to dry in strict accordance with the following minimum guidelines based on temperature and relative humidity unless covered by a written project variation procedure.

TEMPERATURE

	40°F	50°F	60°F	70°F	80°F	90°F
40%	72 hr.					
50%		60 hr.				
60%			48 hr.			
70%				36 hr.		
80%					24 hr.	
90%						12 hr.

- 6.6* Drying time for shipment or stacking together of finish coated work shall be in accordance with the following minimum guidelines unless covered by a written project variation procedure.

TEMPERATURE

	40°F	50°F	60°F	70°F	80°F	90°F
40%	12 hr.					
50%		8 hr.				
60%			6 hr.			
70%				4 hr.		
80%					2 hr.	
90%						1 hr.

*Adequate cure can be checked by scratching primed surface with a coin. A cured zinc film will polish and an uncured zinc film will wrinkle.

APPROVED BY QA

APPROVED BY _____ DATE _____

S-10-12-1

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

By: Durwood Peach

DATE 1-1-74

REVISED

6.7 Touch Up Procedures with DP# 12

- 6.7.1 Surface preparation of damaged or bare areas shall be in accordance with DPSP#6, except for areas previously blast cleaned to a DPSP#6 that have no signs of rust blooms which shall be cleaned to a minimum DP-SP3.
- 6.7.2 Application shall be in accordance with section 6.1 through section 6.7 for all previously primed steel not exceeding the drying times specified in section 6.5.
- 6.7.3 Application for previously primed surfaces which have exceeded drying times specified in section 6.5 shall be the same as 6.7.2 except material shall be thinned 25% to 50%.
- 6.7.4 Stacking and loading after touch up shall be in accordance with section 6.6 unless areas touched up do not make contact with other surfaces during stacking and loading.

7. MIXING AND THINNING

- 7.1 Prior to thinning or application; all material shall be thoroughly mixed in such a manner as to insure the breaking apart of all lumps, complete dispersion of all settled pigments, and a uniform composition.
- 7.2 Mixing and thinning shall be with a power mixer in accordance with DP Product Data Sheet VII A for DP# 12 for the product selected.
- 7.3 Mixed material shall be applied within the maximum pot life specified on DP Product Data Sheet VII A for DP# 12 for the product selected or prior to any significant change in viscosity, whichever comes first.
- 7.4 Use of additional thinner to lower the viscosity after the mixed pot life has been exceeded shall not be allowed.
- 7.5 If work is stopped for short periods of time, material will be flushed from the fluid lines and equipment cleaned.
- 7.6 Mixed material shall be strained through a 30-50 mesh strainer prior to application.

APPROVED BY QA

[Signature] 1-1-74
APPROVED BY DATE

NUCLEAR SAFETY RELATED

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

BY: Design Engineering DATE 11-1-75 REVISED

6. APPLICATION FOR DP#67

- 6.1 No material shall be applied when the surface or air temperature is below 50°F or above 120°F, when the relative humidity is above 90%, or when the temperature is within 5°F of the dew point.
- 6.2 Material shall be applied by brush, roller or spray application provided the minimum DFT per coat and workmanship requirements of this specification are met.
- 6.3 Paint that has been stored at low temperatures shall be brought up to a minimum of 70°F before mixing and thinning.
- 6.4 Prior to thinning or application all material shall be thoroughly mixed in such a manner as to insure the breaking apart of all lumps, complete dispersion of all settled pigments, and a uniform composition.
- 6.5 Storage, mixing, thinning, and induction time shall be with a power mixer in accordance with DP Product Data Sheet VII A for DP#67 for the product selected.
- 6.6 Mixed material shall be applied within the maximum pot life specified on DP Product Data Sheet VII A for DP#67 for the product selected or prior to any significant change in viscosity, whichever comes first.
- 6.7 Use of additional thinner to lower the viscosity after the mixed pot life has been exceeded shall not be allowed.
- 6.8 The following procedures are considered good paint practices and shall be followed to insure maximum performance of the product.
- 6.8.1 Mixed material shall be strained through a 30-50 mesh strainer prior to application.
- 6.8.2 If application is stopped for short periods of time, material will be flushed from the fluid lines and spray equipment cleaned.
- 6.8.3 Hot spray application may be used to control fluid temperature and viscosity, but normally should not exceed 90°F fluid temperature.
- 6.9 Minimum DFT shall be as specified in section 4 when inspected in accordance with SSPC-PA2-72 or based on solids by volume and coverage per gallon for non-metal surfaces.

APPROVED BY QA

TC Lopez 11-11-75
APPROVED BY DATE

NUCLEAR SAFETY RELATED

DUKE POWER COMPANY		
DESIGN ENGINEERING DEPARTMENT		
BY: Design Engineering	DATE <u>11-1-75</u>	REVISED _____

- 6.10 All areas with DFT readings less than specified in section 6.9 shall receive an additional coat of DP#67.
- 6.11 Prior to topcoating each coat shall be allowed to dry in strict accordance with the following minimum guidelines unless covered by a written project variation procedure.

	<u>Brush</u>	<u>Spray</u>
6.11.1 Below 50°F	Until dry	Until dry
6.11.2 50°F - 70°F	72 hr. - 48 hr.	36 hr. - 24 hr.
6.11.3 70°F - 90°F	48 hr. - 36 hr.	24 hr. - 12 hr.
6.11.4 90°F - 120°F	36 hr. - 24 hr.	12 hr. - overnight
- 6.12 Drying time for shipment or stacking together of finish coated work shall be in accordance with the minimum guidelines unless covered by a written project variation procedure.

6.12.1 Below 50°F	Do not handle
6.12.2 50°F - 70°F	24 hr.
6.12.3 70°F - 90°F	12 hr.
6.12.4 90°F - 120°F	8 hr.
- 6.13 Touch Up Procedures
 - 6.13.1 Touch up for damaged areas or bare areas shall be in strict accordance with section 5 of this specification.
 - 6.13.2 Application shall be in strict accordance with section 6.1 through section 6.7.
 - 6.13.3 Touch up for holidays or damage to small areas does not require minimum drying time for previous coats.
- 6.14 Finished work shall not be subjected to immersion is less than 5 days at temperatures 70°F or higher or in less than 7 days at temperatures below 70°F.

S-10-67-2

APPROVED BY QA
TC Felick 11-11-75
 APPROVED BY _____ DATE _____

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

WORKMANSHIP STANDARDS
NUCLEAR EXPOSURES

BY: Design Engineering DATE 6-1-74 REVISED _____

9. WORKMANSHIP

- 9.1 All work shall meet the minimum requirements of the Duke Power Company Coating Specifications and referenced standards or previously agreed upon variations of these standards.
- 9.2 All work shall be supervised by qualified persons who have read and understand the Duke Power Company Standard Coating Specifications for the specific work he is responsible for supervising.
- 9.3 All work will be done by persons experienced with the specific materials being applied or used unless accompanied by someone who is experienced in the work being performed.
- 9.4 Any completed work not meeting the minimum requirements of the Duke Power Company Coating Specification shall be corrected prior to topcoating or completion of advanced stages of the operation.
- 9.5 The following standards of workmanship are considered necessary to accomplish good workmanship and shall be adhered to unless covered by a written project variation procedure.
 - 9.5.1 Coating Materials
 - 9.5.1.1 All paint materials and accessories shall be delivered to the jobsite in original, unopened containers with the manufacturer's labels and tags intact. Containers shall remain unopened until required for mixing and thinning.
 - 9.5.1.2 All paint shall be stored under cover and off the ground for no longer than the shelf life specified, and at the minimum-maximum temperatures specified on Duke Power Company Field Coatings Product Data Sheet VII A.
 - 9.5.2 Coating System
 - 9.5.2.1 Only paint materials approved in section 3 of this specification shall be allowed.
 - 9.5.2.2 The DFT of each coat and of the entire system shall meet the requirements of section 4 of this specification for both number of coats and minimum DFT.

APPROVED BY QA

DUKE POWER COMPANY DESIGN ENGINEERING DEPARTMENT		
WORKMANSHIP STANDARDS NUCLEAR EXPOSURES		
BY: Design Engineering	DATE <u>6-1-74</u>	REVISED _____

9.5.3 Surface Preparation

- 9.5.3.1 Cleaning and Painting shall be scheduled so that the dust and other contaminants from the cleaning process will not fall on newly painted surfaces.
- 9.5.3.2 Where required, imperfections, holes, stickwelds in the surface shall be filled with approved fillers or caulking.
- 9.5.3.3 Hardware, trim, underwriters labels, manufacturer's serial numbers, dials, gauges, and other items shall be removed or masked to allow proper application of the coatings and prevent damage.
- 9.5.3.4 All concrete hardners, curing agents and form release agents shall be compatible with the recommended coating system or be removed prior to any coating work.

9.5.4 Masking of Friction Joints and Weld Joints

- 9.5.4.1 Steel surfaces which are primed with an inorganic zinc primer shall not be masked if the following conditions are specified:
 - a. Areas to be welded shall be primed with a fully weldable inorganic zinc primer.
 - b. Areas to be joined with High Tension (Friction Type) bolts such as ASTM Type A325 or A490 shall be primed with an inorganic zinc primer - either weldable or non-weldable.

Steel surfaces which are primed with an inorganic zinc primer shall be masked back two inches from edges to be welded if they are to become part of a vessel which must conform to the ASME Pressure Vessel Code.

- 9.5.4.2 Steel surfaces which are primed in the shop shall be masked as noted below if an inorganic primer is used.

APPROVED BY: QA
R. Hardy 6-11-74
REVISED BY:

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

WORKMANSHIP STANDARDS
NUCLEAR EXPOSURES

BY: Design Engineering DATE 6-1-74 REVISED

- a. Areas to be welded shall be masked so that no organic coating is within six (6) inches of the weld prior to the welding operation.
- b. Areas to be joined with the High Tension (Friction Type) bolts such as ASTM Type A325 or A490 shall be masked so that no organic coating is beneath the bolts prior to joining.
- c. These requirements shall also apply to organic topcoats when shop applied or when applied prior to assembly or erection.

9.5.5 Application

- 9.5.5.1 All applied coatings shall be free of runs, sags, drops, ridges, waves, laps, bubbles, embedded foreign matter, and other indications of improper application procedures.
- 9.5.5.2 Drying time between coats shall be in accordance with section 6 of this specification, Duke Power Company Field Coatings Product Data Sheet VII A, and the Manufacturer's Product Data Sheets on the specific products in that order of priority.

9.5.6 Mixing and Thinning

- 9.5.6.1 Mixing and thinning shall be in accordance with section 6 of this specification and Duke Power Company Field Product Data Sheet VII A.

9.5.7 Equipment

- 9.5.7.1 All equipment shall meet the requirements of section 8 of this specification.
- 9.5.7.2 All equipment shall be maintained in good working order. It shall be thoroughly cleaned and inspected daily. Worn tips, spray nozzles, hoses, blast nozzles, and other parts necessary to meet good work standards shall be replaced regularly.
- 9.5.7.3 Effective oil and water separators shall be used and serviced on all air lines.

APPROVED BY QA

A. B. [Signature] 6-1-74
APPROVED BY _____

5-12-9

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

INSPECTION STANDARDS
NUCLEAR EXPOSURES

BY: Design Engineering DATE 6-1-74 REVISED _____

10. INSPECTION

- 10.1 Duke Power Company, the coating manufacturer and their responsible representatives shall have access to shop or field at all times during the surface preparation, and application of coating work or to inspect work previously finished.
- 10.2 The Owner reserves the right to reject all work that does not meet the Duke Power Company Coating Specification. This may be done either at the vendor's shop or at the jobsite.
- 10.3 All or any portion of finished work not meeting the minimum standards of this specification and referenced standards shall be corrected by the applicator or vendor, unless otherwise agreed to in writing by Duke Power Company.
- 10.4 Inspection by Duke Power Company or their responsible representatives, or failure to provide inspection shall not relieve the applicator of his responsibilities to provide materials and perform the work in accordance with the Duke Power Company coating specifications.

The applicator shall be required to furnish proper inspection equipment as necessary to check the minimum or maximum conditions of this specification.
- 10.5 Duke Power Company Inspection Procedures for nuclear exposures will be made available to the applicator upon written request or presented in detail at the pre-start up meeting for each project.

APPROVED BY QA

[Signature] 5-13-74
DATE

SPECIFICATION NO. CN-MMM-I

DATE 2-4-75

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
UNITS 1-2

Title: Nuclear Coating Certification

Specification No. CN-MMM-I

Class I Coatings

REVISION LOG

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____

VERIFICATION OF SPECIFICATION



Station and Unit Number: Catamba 1-2

Title of Specification: Nuclear Coating Certification

Specification No. CN-MMM-I Class I Coatings

File Number: CN-1167.02

Revision: _____

This document specifies items related to nuclear safety. In accordance with established procedures, its quality has been assured. Signatures certify that the above specification was originated, checked, approved and inspected (or waived) as noted below:

Prepared By: C L Biggers Date: 2-7-75

Checked By: [Signature] Date: 2-7-75

Approved By: [Signature] Date: 2-7-75

Inspection Waived By: [Signature] Date: 2-7-75

Inspection Waived For: ELECTRICAL MECHANICAL CIVIL

Inspected By: [Signature] Date: 2-7-75

Inspected By: _____ Date: _____

QUALITY ASSURANCE T.C. Roberts Date: 2-10-75

(FOR ASME CODE ITEMS)

Division Date: _____
Design Engineering Department

This is to certify that the above specification has been reviewed by me, the undersigned, and is correct, complete, and in compliance with 1971 Edition of ASME Code, Section III, Paragraph NA-3250.

(SEAL)

SIGNATURE: _____

NAME: _____
Registered Professional Engineer

No. _____

DUKE POWER COMPANY

DESIGN ENGINEERING DEPARTMENT

NUCLEAR COATING SPECIFICATION NO. CN-MMM-I

By: Design Engineering

Date: 2-4-75

Revised:

1. PURPOSE AND SCOPE

- 1.1 The purpose of this specification is to implement planned and systematic actions necessary to provide Duke Power Company with adequate confidence that a coating material has been properly manufactured and applied in a shop to Class I Service level substrates of nuclear facilities.
- 1.2 This specification establishes minimum records required for coating materials, surface preparation, application of materials and inspection.
- 1.3 The procedure conforms to Section 1.2.4 ANSI N101.4-1972 (American National Standard Institute - Quality Assurance for Protective Coatings Applied to Nuclear Facilities).

2. ATTACHMENTS

- 2.1 The following Duke Power Co. attachments are attached to and made a part of this specification.
 - 2.1.1 Duke Power Company Quality Assurance Department Supplier Quality Assurance Certification - Form 930.1.
 - 2.1.2 Coating Materials - Manufacturer's Product Identity Certification Record - DPNC Form 2.
 - 2.1.3 Duke Power Company Supplier Quality Assurance Record - DPNC Form 3.

3. GENERAL REQUIREMENT

- 3.1 The Duke Power Company QA Department Supplier Quality Assurance Certification Form 930.1 shall be completed by the supplier for all Class I coating work.
 - 3.1.1 One copy of Form 930.1 shall accompany each shipment to the jobsite.
 - 3.1.2 Two copies of Form 930.1 per shipment shall be sent to Duke Power Company Quality Assurance Manager, Engineering.
 - 3.1.3 Form 930.1, when completed as specified, shall be authorization for Duke Power Construction to accept delivery of components and materials. Absence of properly completed QA Certification form shall result in quarantine or return of the component or materials to the supplier.

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

NUCLEAR COATING SPECIFICATION NO. CN-MMM-I

By: Design Engineering Date: 2-4-75 Revised: _____

- 3.2 A coating material - Manufacturer's Product Identity Certification Record (DPNC Form #2) shall be obtained from the coating manufacturer for each batch of paint and thinner used by the vendor on Class I components.
- 3.2.1 Two copies of each DPNC Form #2 shall be sent to Duke Power Company Quality Assurance Manager, Engineering.
- 3.2.2 DPNC Form #2 shall be enclosed to cover each batch of material used on any or all components or materials shipped as listed on Duke Power Company QA Department Supplier Quality Assurance Certification.
- 3.3 A Duke Power Company Supplier Quality Assurance Record (DPNC Form 3) shall be filled out for all Class I coating work.
- 3.3.1 A separate form may be used to cover the following combinations of materials and components.
- 3.3.1.1 All work in each shipment.
- 3.3.1.2 Different types of components in each shipment.
- 3.3.1.3 Series of similar types of components in each shipment.
- 3.3.2 Two copies of DPNC Form 3 shall be sent to Duke Power Company Quality Assurance Manager, Engineering.
- 3.3.3 Failure of the vendor to meet all requirements of the bid specification or incomplete and inaccurate QA Documentation shall result in rejection by the owner of any or all components covered by that DPNC Form 3.

4. DOCUMENTATION

This section contains additional explanations and examples to aid the vendor in properly completing the forms listed in sections 2.1.1, 2.1.2, and 2.1.3.

- 4A. DPNC Form 3 (Sample Form attached).

DUKE POWER COMPANY
DESIGN ENGINEERING DEPARTMENT

NUCLEAR COATING SPECIFICATION NO. CN-MVM-I

By: Design Engineering Date: 2-4-75 Revised:

- 4.1 Identify components or equipment so that separate items are traceable, and can be matched up with a specific Report No.
- 4.2 Example: Carbon steel, cast iron, stainless, aluminum, etc.
- 4.3 This information is for items covered by each DPNC Form 3.
- 4.4 Information should be reported in even gallons for items covered by each DPNC Form 3.
- 4.5 List all information required for each batch of material used on components covered by this DPNC Form 3 and attach a DPNC Form 2 for each batch of material listed on this DPNC Form 3.
- 4.6 Duke Power Company Design Specification used.
- 4.7 Examples: Steel grit, silica sand, glass beads, garnet.
- 4.8 Examples: 8/20, 8/35, 16/35, 30/50, etc.
- 4.9 Example: Xylol, methyl ethyl ketone, etc.
- 4.10 Read pressure at nozzle with ANG air needle gauge or equal. (Do not use pressure at compressor.)
- 4.11 Was moisture trap used effectively (yes) (no)?
- 4.12 Temperatures are to be taken in actual work areas and shall cover all conditions during surface preparation and exposure of components cleaned prior to priming.
- 4.13 Indoors - In a closed building kept at ambient temperatures.
- 4.14 Outdoors - Exposed to weather (even if under a roof).
- 4.15 Example - Brush, roller, spray, flow coated, etc.
- 4.16 Example - Graco airless, Devilbiss conventional.
- 4.17 Example - E Fluid Tip.
- 4.18 Example - #704 Air Cap.
- 4.19 Example - Yes (motor driven), yes (manual), (no).
- 4.20 Was oil separator used effectively? (yes) (no)

DUKE POWER COMPANY

DESIGN ENGINEERING DEPARTMENT

NUCLEAR COATING SPECIFICATION NO. CN-MMM-I

By: Design Engineering Date: 2-4-75 Revised: _____

- 4.21 Report actual total dry film thickness after primer, intermediate and finish coat.
- 4.22 Report number to be same on both front and back page. Report numbers shall be logged and numbered in sequence from 1 to _____ to cover all reports of a given Duke Power Company Bid Specification.
- 4.8. DPNC Form 2
- 4.23 The vendor shall fill out the General Data Section and attach a DPNC Form 2 to the purchase order sent to the coating manufacture.
- 4.24 The coating manufacturer shall complete the Component Data Section, Mixed Component Data Section and Signature and Title section and return to the vendor.
- 4.0. Form 930.1.
- 4.25 In space 1 write "Components inspected and are in compliance with Nuclear Coating Certification Specification CN-MMM-I, dated 2-4-75".
- 4.26 List Report Nos. for all DPNC Form #3, under QA Documentation Required, on the Form 930.1 for each shipment.

SAN LE

DPNC FORM 3
DUKE POWER COMPANY
SUPPLIER COATINGS QUALITY ASSURANCE RECORDS
CLASS I

Project : _____ Date: _____

D.P. Co. _____ Shipping _____
Spec. No. _____ I.D. No. _____

Mill Power Order No. _____ Release No. _____

Vendor: _____

Equipment Name and No. (4.1) _____

GENERAL INFORMATION

Substrate Material: (4.2) _____

Estimated Surface Area Coated
Sq. Ft./Item (4.3) _____ No. Items (4.3) _____ Total Sq. Ft. (4.3) _____

Estimated Coating Quantities
Primer (4.4) Gal. _____ Intermediate (4.4) Gal. _____ Finish (4.4) Gal. _____

Date Work Began (4.3) _____ Date Work Completed (4.3) _____

Duke Power Coating System		Dated	Finish Color No. and Name	
Duke Power Product No.	Primer DP#		Intermediate DP#	Topcoat DP#
Manufacturer				

1. MATERIALS IDENTIFICATION

DP NO.	PRODUCT NO.	PRODUCT NAME	BATCH NO.	EXPIRATION DATE	GALLONS USED
(4.5)	(4.5)	(4.5)	(4.5)	(4.5)	(4.5)

2. MATERIAL WAREHOUSING

Storage Temperature		Material Stored		
Maximum	Minimum	Indoors	Outdoors	Other
°F	°F			

Date 6-1-74; Revised

CN-5-13-3-5
SAMPLE

Report No. (4.22) _____
Page 2 of 11 pages

SAMPLE

DPNC FORM 3

3. SURFACE PREPARATION

Surface Preparation No. (4.6)

Abrasive: Type (4.7) Solvent: Type (4.9)
 Size (4.8) Product No. _____
 Mfg. _____ Mfg: _____

Nozzle Pressure (4.10) Moisture Trap (4.11)

Temperature Ambient Surface Dew Point
 Max.: (4.12) °F (4.12) °F (4.12) °F
 Min.: (4.12) °F (4.12) °F (4.12) °F

Maximum Time Between Cleaning and Coating _____ Hrs.

Work Done: Indoors (4.13) Outdoors (4.14) Night _____ Day _____

Inspected By: _____ Approved By: _____

4. APPLICATION

Method of Application (4.15)

Spray: Type Spray Gun (4.16) Agitator Pot (4.19)
 Fluid Tip (4.17) Moisture Trap (4.11)
 Air Cap (4.18) Oil Separator (4.20)

Temperature: Ambient Surface Dew Point
 Max.: (4.12) °F (4.12) °F (4.12) °F
 Min.: (4.12) °F (4.12) °F (4.12) °F

Recoat Time Minimum Maximum Average
 Primer: _____ Hr. _____ Hr. _____ Hr.
 Intermediate: _____ Hr. _____ Hr. _____ Hr.
 Finish: _____ Hr. _____ Hr. _____ Hr.

Measured DFT Minimum Maximum Average
 (mils)
 Primer: (4.21) DFT (4.21) DFT (4.21) DFT
 Intermediate (4.21) DFT (4.21) DFT (4.21) DFT
 Finish: (4.21) DFT (4.21) DFT (4.21) DFT

Work Done: Indoors _____ Outdoors _____ Night _____ Day _____

Inspected by: _____ Approved by: _____

Date 6-1-74: Revised

CN-5-13-3-6
SAMPLEReport No. (4.22)
Page 6 of 11 pages

DPNC FORM 2

COATING MATERIALS - MANUFACTURER'S PRODUCT IDENTITY CERTIFICATION RECORD
GENERAL DATA

PURCHASER _____
 BILLING ADDRESS _____
 SHIPPING ADDRESS _____
 PROJECT DESIGNATION _____
 DATE _____ PURCHASE ORDER NO. _____ RELEASE NO. _____
 COATING MANUFACTURER _____
 PRODUCT DESIGNATION _____
 GALLONS ORDERED _____ GALLONS SHIPPED _____ REFERENCE NO. _____

COMPONENT DATA

	MIXED	INDIVIDUAL
COMPONENT	_____	_____
BATCH NO.	_____	_____
GAL. ORDERED	_____	_____
GAL. SHIPPED	_____	_____
DATE MFG'D.	_____	_____
SHELF LIFE	_____	_____
SOLIDS BY VOLUME	_____	_____
WT./GAL.	_____	_____
VISCOSITY	_____	_____
MIXING RATIO BY VOL.	_____	_____

* (By Fed. Test Method Std. No. 141, Method 4814 or by ASTM D1475)
 ** (Method _____ @ _____ *F)

MIXED COMPONENT DATA

GENERIC TYPE _____ POT LIFE _____ @ _____ *F
 FLASH POINT (TOC) _____ DFT PER COAT _____ INDUCTION PERIOD _____ @ _____ *F
 COLOR (VISUAL) _____
 RECOAT TIME RANGE _____ @ _____ *F _____ /R.H.
 DRY HARD _____ HRS. @ _____ *F _____ /R.H.
 TACK FREE _____ HRS. @ _____ *F _____ /R.H.

COMMENTS:

Signature _____
 Title _____
 Date _____

Checked By _____
 Revision 1 Dated 12-4-73
 Revision 2 Dated 1-1-74

Distribution: 1 copy with shipment
 2 copies Duke Civil Design
 CN-S-13-3-7

DPNC FORM 3
DUKE POWER COMPANY
SUPPLIER COATINGS QUALITY ASSURANCE RECORDS
CLASS I

Project: _____ Date: _____

D.P. Co. _____ Shipping _____
Spec. No. _____ I.D. No. _____

Mill Power Order No. _____ Release No. _____

Vendor: _____

Equipment Name and No. _____

GENERAL INFORMATION

Substrate Material: _____

Estimated Surface Area Coated
Sq. Ft./Item _____ No. Items _____ Total Sq. Ft. _____

Estimated Coating Quantities
Primer _____ Gal. Intermediate _____ Gal. Finish _____ Gal.

Date Work Began _____ Date Work Completed _____

Duke Power Coating System		Dated	Finish Color No. and Name	
Duke Power Product No.	Primer DPW		Intermediate DPW	Topcoat DPW
Manufacturer				

1. MATERIALS IDENTIFICATION

DP NO.	PRODUCT NO.	PRODUCT NAME	BATCH NO.	EXPIRATION DATE	GALLONS USED

2. MATERIAL WAREHOUSING

Storage Temperature		Material Stored		
Maximum	Minimum	Indoors	Outdoors	Other
°F	°F			

Date 6-1-74; Revised

DN-S-1,-3-8

Report No. _____

Page 8 of 11 pages

DPNC FORM 3

3. SURFACE PREPARATION

Surface Preparation No. _____

Abrasive: Type _____ Solvent: Type _____
 Size _____ Product No. _____
 Mfg. _____ Mfg. _____

Nozzle Pressure _____ Moisture Trap _____

Temperature Ambient: _____ Surface _____ Dew Point _____
 Max.: _____ °F _____ °F _____ °F
 Min.: _____ °F _____ °F _____ °F

Maximum Time Between Cleaning and Coating _____ Hrs.

Work Done: Indoors _____ Outdoors _____ Night _____ Day _____

Inspected By: _____ Approved By: _____

4. APPLICATION

Method of Application _____

Spray: Type Spray Gun _____ Agitator Pot _____
 Fluid Tip _____ Moisture Trap _____
 Air Cap _____ Oil Separator _____

Temperature: Ambient _____ Surface _____ Dew Point _____
 Max.: _____ °F _____ °F _____ °F
 Min.: _____ °F _____ °F _____ °F

Recoat Time Minimum _____ Maximum _____ Average _____
 Primer: _____ Hr. _____ Hr. _____ Hr.
 Intermediate: _____ Hr. _____ Hr. _____ Hr.
 Finish: _____ Hr. _____ Hr. _____ Hr.

Measured DFT Minimum _____ Maximum _____ Average _____
 (mils) _____
 Primer: _____ DFT _____ DFT _____ DFT
 Intermediate _____ DFT _____ DFT _____ DFT
 Finish: _____ DFT _____ DFT _____ DFT

Work Done: Indoors _____ Outdoors _____ Night _____ Day _____

Inspected by: _____ Approved by: _____

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
SUPPLIER QUALITY ASSURANCE CERTIFICATION

Name of Supplier _____

Item No. _____

Address of Supplier Plant _____

Spec. No. _____ Rev. _____

Component(s) or Material _____

Date _____

Shipping ID No. _____

Release No. _____

Mill Power Order No. _____

Certification included _____ Full _____ Partial _____

The following listed tests and inspections have been completed as required by specification: (If partial certification, list materials or components for which certification applies.)

- 1) _____
- 2) _____
- 3) _____

Physical and Chemical Analysis _____	Major Repair Records and Chart _____
Design Report _____	Repair NDT _____
Stress Report _____	Hydro (Test Press.-PSIG _____)
Heat Treatment _____	Cleanliness _____
Radiographic Test _____	Operating Test _____
Ultrasonic Test _____	Performance Curve _____
Magnetic Particle _____	ASME Data Report _____
Penetrant Tests _____	Personnel Qualifications on Record _____

Deviation Record _____

The following QA Documentation as required by the specification is attached to the original copy of this form: (If partial certification, include documentation applicable only to this specific shipment.)

DPNC Form #3 (List Report No.)

(continued)

DUKE POWER COMPANY
QUALITY ASSURANCE DEPARTMENT
SUPPLIER QUALITY ASSURANCE CERTIFICATION

The listed component(s) or material(s) conform to the requirements of Duke Power Company Specification _____ with the approved deviations noted above. The QA documentation has been completed and attached to this form. No later than component or material shipment, the compliance QA documentation packet is being transmitted to Duke Power Company

H. L. Huggett
Quality Assurance Manager, Engineering
Quality Assurance Department
P. O. Box 2178
Charlotte, N. C. 28242

A copy of this completed Supplier Quality Assurance Certification form will be included with shipping papers and shipped with the component to Duke Power Company, at the address designated in the specification. This is to certify that the item of equipment identified above fully meets the requirement of the above listed specification including all of the codes, standards, test requirements, and quality assurance requirements invoked therein.

Supplier Representative Authorized Signature

Title _____ Date _____

DUKE POWER COMPANY
FIELD COATINGS PRODUCT DATA SHEET VIIA

COMPANY: Carboline Company PRODUCT NAME: Carbo Zinc #11	Rev. 11-1-75 DP NO: 12 rev. 11-1-75 DATE: 1-1-74, rev. 3-10-75 PRODUCT NO: Carbo Zinc #11																								
PRODUCT DESCRIPTION: An inorganic ethyl silicate zinc rich metal primer formulated for excellent weathering and abrasion resistance. Affords cathodic protection of the steel. Can be applied to load bearing surfaces.																									
USAGES: As a shop or field primer over blast cleaned steel surfaces exposed to long term weathering before being topcoated or severe moisture after being topcoated with an epoxy, vinyl, urethane, chlorinated rubber or latex finish.																									
PRODUCT INFORMATION																									
PIGMENT TYPE: VEHICLE TYPE: SOLVENTS & DILUENTS: COLOR: GLOSS: SOLIDS BY VOLUME: SOLIDS BY WEIGHT: WEIGHT PER GALLON: THEO. COVERAGE @ 1.0 DFT: THEO. COVERAGE @ 2.5 DFT: VISCOSITY: PIGMENT VOLUME CONCENTRATION: FLASH POINT: TOXICITY: SHELF LIFE: STORAGE TEMPERATURE: PACKAGED:	Metallic Zinc Inerts Inorganic ethyl silicate Glycol ether, Aromatic Solvents Gray or Green Flat 60% 80% 21.2 lbs. 1,000 sq. ft. 400 sq. ft. NA 86°F Aromatic & Ketone solvents, zinc dust 9 Months + 25°F - 125°F 2 Component																								
APPROVED BY QA <i>TC Robert 11-11-75</i> APPROVED BY _____ DATE _____																									
PHYSICAL PROPERTY INFORMATION																									
NORMAL EXPOSURE: FLEXIBILITY: ABRASION: NORMAL DFT PER COAT: RECOMMENDED DFT:	Interior and Exterior (topcoated) Poor Excellent 2.0 - 3.0 mils 2.5 mils																								
TEMPERATURE LIMITS	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>INTERIOR</u></th> <th style="text-align: center;"><u>EXTERIOR</u></th> <th style="text-align: center;"><u>IMMERSION</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">CONSTANT:</td> <td style="text-align: center;">750°F</td> <td style="text-align: center;">750°F</td> <td style="text-align: center;">120°F</td> </tr> <tr> <td style="text-align: center;">INTERMITTENT:</td> <td style="text-align: center;">850°F</td> <td style="text-align: center;">850°F</td> <td style="text-align: center;">120°F</td> </tr> </tbody> </table>		<u>INTERIOR</u>	<u>EXTERIOR</u>	<u>IMMERSION</u>	CONSTANT:	750°F	750°F	120°F	INTERMITTENT:	850°F	850°F	120°F												
	<u>INTERIOR</u>	<u>EXTERIOR</u>	<u>IMMERSION</u>																						
CONSTANT:	750°F	750°F	120°F																						
INTERMITTENT:	850°F	850°F	120°F																						
CHEMICAL RESISTANCE	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FUME</u></th> <th style="text-align: center;"><u>SPLASH/SPILLAGE</u></th> <th style="text-align: center;"><u>IMMERSION</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">ACID</td> <td style="text-align: center;">LR</td> <td style="text-align: center;">NR</td> <td style="text-align: center;">NR</td> </tr> <tr> <td style="text-align: center;">ALKALI</td> <td style="text-align: center;">R</td> <td style="text-align: center;">NR</td> <td style="text-align: center;">NR</td> </tr> <tr> <td style="text-align: center;">SOLVENT</td> <td style="text-align: center;">R</td> <td style="text-align: center;">R</td> <td style="text-align: center;">R</td> </tr> <tr> <td style="text-align: center;">SALT</td> <td style="text-align: center;">R</td> <td style="text-align: center;">R</td> <td style="text-align: center;">R</td> </tr> <tr> <td style="text-align: center;">WATER</td> <td style="text-align: center;">R</td> <td style="text-align: center;">R</td> <td style="text-align: center;">R</td> </tr> </tbody> </table>		<u>FUME</u>	<u>SPLASH/SPILLAGE</u>	<u>IMMERSION</u>	ACID	LR	NR	NR	ALKALI	R	NR	NR	SOLVENT	R	R	R	SALT	R	R	R	WATER	R	R	R
	<u>FUME</u>	<u>SPLASH/SPILLAGE</u>	<u>IMMERSION</u>																						
ACID	LR	NR	NR																						
ALKALI	R	NR	NR																						
SOLVENT	R	R	R																						
SALT	R	R	R																						
WATER	R	R	R																						

NUCLEAR SAFETY RELATED

MANUFACTURER PRODUCT NO: Carbo Zinc #11

MIXING: Pour liquid resin (10 parts by weight) into a clean dry metal container, sift zinc (22 parts by weight) into the resin while stirring with power mixer until smooth and free from lumps. Box after thinning.

SUBSTRATES	PRIMERS	SURFACE PREPARATIONS	
		NORMAL	SEVERE
Steel	Self	SP#6, 10	SP#5, 10
Galvanized	Self	SP#6, 10	SP#5, 10

FINISH COATS: DP#53, 62, 63, 64, 67, 68, 69, 70, 73, 74, 75

APPLICATION: **PREFERRED** Conventional Spray or Special airless
LIMITED Brush (touch up)

THINNER: **BRUSH/ROLL** High Temperature #33, Low Temperature #26
SPRAY, High Temperature #33, Low Temperature #26

CLEAN-UP Ketones

THINNING %: **BRUSH/ROLL** 0-20
SPRAY 0-20

POT LIFE (+) @: 50°F 14 hr.
 70°F 10 hr.
 90°F 6 hr.

DRYING TIME (-):	TOUCH	HANDLE	HARD	RECOAT
50°F	1 hr.	4 hr.		3-48 hr.
70°F	45 min.	3 hr.		Depending upon temperature and relative humidity.
90°F	30 min.	2 hr.		

EQUIPMENT:

COMMENTS:

1. Do not exceed 6.0 mils dft.
2. Do not topcoat with alkyds, or oil based coating.
3. Material must have rough surface profile for proper adhesion.
4. Apply wet--do not dry spray or allow excessive overspray.
5. Material is moisture cured.

APPROVED BY CA
J.C. Robert 11-11-25
 APPROVED BY DATE

R-Recommended LR-Limited Recommendations NR-Not Recommended NA-Not Applicable

DUKE POWER COMPANY
FIELD COATINGS PRODUCT DATA SHEET VIIA

COMPANY: Carboline Company

DP NO: 67

PRODUCT NAME: Phenoline 305 Finish

DATE: 11-1-75

PRODUCT NO: 305 Finish

PRODUCT DESCRIPTION: A phenolic epoxy formulated for good abrasion, moisture and chemical resistance.

USAGES: As an intermediate or finish coat over numerous surfaces subject to intermittent moisture and chemical contamination where a high gloss finish is required or surfaces to be finish coated with epoxies or urethanes.

PRODUCT INFORMATION

PIGMENT TYPE:	Titanium Dioxide, Inert silicates
VEHICLE TYPE:	Modified Phenolic Resin
SOLVENTS & DILUENTS:	Phenoline Thinner
COLOR:	Various
GLOSS:	Medium
SOLIDS BY VOLUME:	72%
SOLIDS BY WEIGHT:	81%
WEIGHT PER GALLON:	11.1 lbs.
THEO. COVERAGE @ 1.0 DFT:	1280 Sq Ft.
THEO. COVERAGE @ <u>4.0</u> DFT:	320 Sq. Ft.
VISCOSITY:	80-100 Ku
PIGMENT VOLUME CONCENTRATION:	22%
FLASH POINT:	215°F Cleveland O C
TOXICITY:	Moderate Skin Sensitizer
SHELF LIFE:	2 yrs.
STORAGE TEMPERATURE:	25°F - 125°F
PACKAGED:	2 Component

PHYSICAL PROPERTY INFORMATION

NORMAL EXPOSURE:	Interior and Exterior
FLEXIBILITY:	Good
ABRASION:	Excellent
NORMAL DFT PER COAT:	3.0 - 4.0 DFT
RECOMMENDED DFT:	4.0 DFT

TEMPERATURE LIMITS	<u>INTERIOR</u>	<u>EXTERIOR</u>	<u>IMMERSION</u>
CONSTANT:	200°F	200°F	NR
INTERMITTENT:	250°F	250°F	NR

CHEMICAL RESISTANCE	<u>FUME</u>	<u>SPLASH/SPILLAGE</u>	<u>IMMERSION</u>
ACID	R	R	LR
ALKALI	R	R	LR
SOLVENT	R	R	LR
SALT	R	R	LR
WATER	R	R	LR

APPROVED BY QA

TC R. List 11-1-75
APPROVED BY DATE

NUCLEAR SAFETY RELATED

MANUFACTURER PRODUCT NO: Phenoline 305 Finish

DUKE POWER NO: 67

MIXING: Mix 4 parts by volume of base to 1 part by volume of catalyst. Stir thoroughly with power mixer and box after thinning.

SUBSTRATES	PRIMERS	SURFACE PREPARATIONS	
		NORMAL	SEVERE
Steel	DP#12	SP6	SP5, SP10

FINISH COATS: DP#67, 34, 62, 69, 72

APPLICATION:	PREFERRED LIMITED	Spray, Roller Brush
THINNER:	BRUSH/ROLL SPRAY	0 - 15% 0 - 15%
	CLEAN-UP	Phenoline Thinner
THINNING %:	BRUSH/ROLL SPRAY	Phenoline Thinner Phenoline Thinner
POT LIFE (⊖) @:	50°F 70°F 90°F	3 hr. 1½ hr. 1 hr.

DRYING TIME (⊖):	TOUCH	HANDLE	HARD	RECOAT
50°F	16 hr.	24 hr.	8 days	24 hr.
70°F	8 hr.	12 hr.	4 days	18 hr.
90°F	6 hr.	8 hr.	3 days	12 hr.

EQUIPMENT:

COMMENTS:

APPROVED BY QA

TC Phil 11/11/75
APPROVED BY DATE

R-Recommended LR-Limited Recommendations NR-Not Recommended NA-Not Applicable

SPECIFICATION NO.: CNS-1205.00-00-0005
ATTACHMENT NO.: 5.13

NUCLEAR SAFETY RELATED

VERIFICATION OF SPECIFICATION Spec. No.: CNS-1205.00-00-0005
Attachment No.: 5.13
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Station and Unit Number: Catawba 1-2

Title of Specification: Nuclear Coating Specification No. CN-NNN-I
Class I Coatings

File Number: CN-1167.02

Revision: 2

This document specifies items related to nuclear safety. In accordance with established procedures, its quality has been assured. Signatures certify that the above specification was originated, checked, approved and inspected (or waived) as noted below:

Prepared By: C L Bigger Date: 11-17-75

Checked By: [Signature] Date: 11-17-75

Approved By: [Signature] Date: 11-17-75

Inspection Waived By: [Signature] Date: 11-18-75

Inspection Waived For: X ELECTRICAL MECHANICAL CIVIL

Inspected By: J. J. Wolfe Date: 11-18-75

Inspected By: Date:

QUALITY ASSURANCE TC Roberts Date: 11-18-75

(FOR ASME CODE ITEMS)

Division Date:
Design Engineering Department

This is to certify that the above specification has been reviewed by me, the undersigned, and is correct, complete, and in compliance with Edition including the Addendum of ASME Code, Section III, Paragraph .

(SEAL)

SIGNATURE:

NAME:
Registered Professional Engineer

No.