



## LABORATORY TEST REPORT

August 10, 1978

Testing Project: 01355C  
Final Report

SUBJECT: LOCA; Phenoline 305 Primer/Phenoline 305 Finish

REFERENCE: Mr. D. R. Leritz

PURPOSE: To determine the performance of Phenoline 305 Primer/Phenoline 305 Finish when exposed to the Bechtel CP-956-2/76 LOCA curve and evaluated according to ANSI N101.2-1972, Section 4.5 as interpreted by Carboline.

CONCLUSION: After the seven days of exposure to the LOCA curve:

1c Phenoline 305 Primer/1c Phenoline 305 Finish exhibits an acceptable performance.

PROCEDURE:

|                            |                 |
|----------------------------|-----------------|
| A) Systems Tested          | Total DFT Range |
| 1. 1c Phenoline 305 Primer | 12.5-13.0 mils  |
| 2c Phenoline 305 Finish    |                 |

B) Exposure

Bechtel CP-956-2/76 LOCA CURVE

1. Time-Temperature-Pressure Curve

| <u>Time</u>        | <u>Temperature</u> | <u>Pressure</u> |
|--------------------|--------------------|-----------------|
| Initial            | Ambient            | Ambient         |
| Initial to 6 hours | 340°F(171°C)       | 70 psig         |
| 6 hrs. to 96 hrs.* | 250°F(171°C)       | 30 psig         |
| 96 hrs. to 7 days  | 200°F(93°C)        | 10 psig         |

\*After six hours of exposure, temperature of the test environment was reduced by spraying test solution at 75°F (24°C) into the test chamber which was at 340°F (171°C), giving a final temperature of 250°F (121°C).

2. Water Chemistry

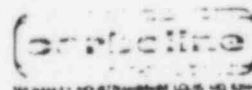
0.28 Molar  $H_3BO_3$  (3000 ppm Boron)

0.064 Molar  $Na_2S_2O_3$

NaOH added to adjust to a pH of 9.5 at 77°F (25°C).

From the Carboline Research & Development Laboratory

The technical data furnished is true and accurate to the best of our knowledge. However, no guarantee of accuracy is given or implied.



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PDR FOIA  
GARDE85-59 PDR



## LABORATORY TEST REPORT

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August 10, 1978  
Page 2

(Note: The Bechtel CP-956-2/76 LOCA Curve calls for an initial temperature rise to 340°F (171°C) in twenty seconds. In this test it took in excess of ten minutes to reach 340°F. Also, Bechtel CP-956-2/76 calls for a pressure drop to -10 psig, however, in this test only -3 psig was reached.)

### GRADING PROCEDURE:

The test coupons were evaluated for performance in the following areas:

1. Material flaking off
2. Delamination between coats and/or peeling
3. Blistering of the topcoat
4. Chalking of the topcoat
5. Excessive cracking

Grading procedures specified in Report N101.2-1972 of the American National Standards Institute-Protective Coatings for Light Water Nuclear Reactor Containment Facilities:

#### 4.5 Methods of Examining and Evaluating the Exposed Test Specimens

The dynamic and/or static elevated temperature-pressure and irradiation test panels shall be evaluated within 2 hours and again after 2 weeks after removal from the test chamber for the following surface defects: flaking, delamination and/or peeling, blistering, and chalking. Defects listed in Subsections 4.5.1 through 4.5.4 shall be dealt with as follows:

4.5.1 Flaking. ASTM D772, Evaluating Degree of Resistance to Flaking (Scaling) of Exterior Paints, Part 21, American Society for Testing and Materials, Philadelphia, Pa. 19103. Flaking shall not be permitted.

4.5.2 Delamination and/or Peeling. Delamination and/or peeling shall not be permitted.

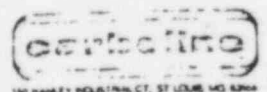
4.5.3 Blistering. Blistering shall be limited to a few, intact blisters, Size No. 4, ASTM D714, Standard Method of Evaluating Degree of Blistering of Paints, Part 21, American Society for Testing and Materials, Philadelphia, Pa. 19103. The number and the size of blisters shall be recorded.

4.5.4 Chalking. ASTM D659, Standard Method of Evaluating Degree of Resistance to Chalking of Exterior Paints, Part 21, American Society for Testing and Materials, Philadelphia, Pa. 19103. Heavy chalking shall not be permitted.

Any other changes in coating properties which are not also associated with the separation, or the release, of coating from the substrate shall not be a cause for rejection.

From the Carboline Research & Development Laboratory

The technical data furnished is true and accurate to the best of our knowledge. However, no guarantee of accuracy is given or implied.





# LABORATORY TEST REPORT

Testing Project: 01355C

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Page 3

ANSI N101.2-1972 Criteria  
(As interpreted by Carboline)

## Maximum Degree of Failure Allowable

Flaking ASTM D772 10 (None)

Delamination or Peeling None

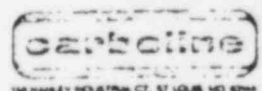
| *Blistering ASTM D714-56  | <u>Blister Size</u> | <u>Blister Density</u> |
|---|---------------------|------------------------|
| *NOTE: A blister is not<br>intact when it has resulted<br>in coating being separated<br>from the test coupon. | #2                  | None                   |
|   | #4                  | Few                    |
|   | #6                  | Medium                 |
|   | #8                  | Medium-Dense           |

Chalking ASTM D659 8 (Light)

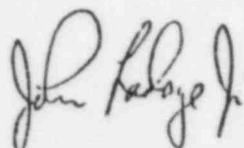
NOTE: Flaking, blistering and chalking are all evaluated according to ASTM Standards, with a rating of 10 indicating that no failure was observed in the specific grading area.

From the Carboline Research & Development Laboratory

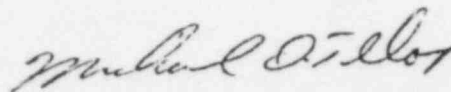
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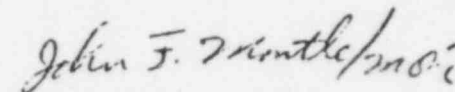
| Panel Identification<br>and<br>Coating System   | Total Dry<br>Film<br>Thickness | Flaking | Delamina-<br>tion or<br>Peeling | Blistering | Chalking   | Other<br>Performance<br>Characteristics          | Performance<br>Evaluation |
|---|--------------------------------|---------|---------------------------------|------------|------------|--|---------------------------|
| 1A 1c Phenoline 305 Primer<br>2c Phenoline 305 Finish                                   | 12.5 mils                      | 10      | None                            | 10         | 10         | Possible surface<br>blisters smaller<br>than #8F | Acceptable                |
| 1B 1c Phenoline 305 Primer<br>2c Phenoline 305 Finish                                   | 13.0 mils                      | 10      | None                            | 10         | 10         | Possible surface<br>blisters smaller<br>than #8F | Acceptable                |
| Acceptable Performance<br>ANSI N101.2-1972, Section 4.5,<br>As Interpreted by Carboline |                                | 10      | None                            | #4 to #8MD | #8 (Light) |  |                           |



John J. Ladage, Jr.  
Developmental Chemist  
Testing Department



Michael D. Tellor  
Supervisor  
Research & Development



John F. Montle  
Vice President  
Research & Development

/ra  
XC: JFM/CJW/DWM/MDT

DAN McBRIDE

8/10/76

JJL:

As we discussed, I would like to have Test Proj Report 1355C DBA Results on 305 P<sub>2</sub>/305 F written for this system only even though minimal documentation is available.

It is apparently the only 340 °F DBA results - passing - on this system.

If the test report is not acceptable to Ebasco then we'll do something else.

Dan

carboline

TESTING PROJECT # 01355 DISTRIBUTION

ORIGINAL DISTRIBUTION: JF/H/CTW/DWM/MDT/ 1 1 1  
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|-------------------|-------------------------------------|----------|----------|
| 8/1/78 Final      | Sargent & Lundy<br>Fed. Reud. / DWM | JFM      | 7/24/79  |
| 2/26/80 Final     | Florida Power & Light / Tim Dolan   | JSL      | 8/22/80  |
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REPORTS WRITTEN:

| REPORT DATE | EDITION | LENGTH TO DATE |
|-------------|---------|----------------|
| 8/10/78     | Final   |                |
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VBR-14022

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644-1000

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TELEX 44-7332

**PROTECTIVE COATINGS**

FOR CORROSION RESISTANCE • WATERPROOFING • FIRE PROTECTION • ROOFING

August 15, 1980

Mr. Don Sutton  
Commanche Peak Nuclear  
Power Station  
% Brown & Root, Inc.  
P. O. Box 1001  
Glen Rose, TX 76043

JOB NO. 95-1195  
**RECEIVED**  
AUG 26 1980  
**RECEIVED**

Dear Don:

Pursuant to our conversation, enclosed is Carboline Testing Project Report 01355C. This report provides LOCA test results on Phenoline 305 Primer/Phenoline 305 Finish.

Because Phenoline 305 Primer and Finish are identical except for pigmentation, it is our contention that this data is also suitable for LOCA test qualification of Phenoline 305 Finish direct to steel for touch-up. This logic is the same as that used to justify testing finish coats in one color only rather than every color which may be used on Class I project steel, which is accepted throughout the industry.

Please let us know if additional information is needed.

Very truly yours,

*Dan W. McBride*

Dan W. McBride  
Power Industry Manager

lrb:503  
cc: Mr. Charles Rushing

B & R DCC DIST.

|                     |       |
|---------------------|-------|
| PROJECT MGR.        |       |
| PROJECT ENGR.       |       |
| QA MGR.             | 1     |
| PROJECT CONT. ENGR. | 1 1/2 |
| TUGCO QA            |       |
| PROJECT GEN. MGR.   |       |
| ARMS                | 1 1/2 |
| <i>Don Sutton</i>   | 1 1/2 |
|                     |       |
| <i>VBR</i>          | 1 1/2 |



## LABORATORY TEST REPORT

August 10, 1978

Testing Project: 01355C  
Final Report

SUBJECT: LOCA; Phenoline 305 Primer/Phenoline 305 Finish

REFERENCE: Mr. D. R. Leritz

PURPOSE: To determine the performance of Phenoline 305 Primer/Phenoline 305 Finish when exposed to the Bechtel CP-956-2/76 LOCA curve and evaluated according to ANSI N101.2-1972, Section 4.5 as interpreted by Carbolite.

CONCLUSION: After the seven days of exposure to the LOCA curve:

1c Phenoline 305 Primer/1c Phenoline 305 Finish exhibits an acceptable performance.

PROCEDURE:

|                            |                 |
|----------------------------|-----------------|
| A) Systems Tested          | Total DFT Range |
| 1. 1c Phenoline 305 Primer | 12.5-13.0 mils  |
| 2c Phenoline 305 Finish    |                 |

B) Exposure

Bechtel CP-956-2/76 LOCA CURVE

1. Time-Temperature-Pressure Curve

| <u>Time</u>        | <u>Temperature</u> | <u>Pressure</u> |
|--------------------|--------------------|-----------------|
| Initial            | Ambient            | Ambient         |
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\*After six hours of exposure, temperature of the test environment was reduced by spraying test solution at 75°F (24°C) into the test chamber which was at 340°F (171°C), giving a final temperature of 250°F (121°C).

2. Water Chemistry

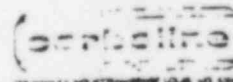
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0.064 Molar  $Na_2S_2O_3$

NaOH added to adjust to a pH of 9.5 at 77°F (25°C).

From the Carbolite Research & Development Laboratory

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Page 2

(Note: The Bechtel CP-956-2/76 LOCA Curve calls for an initial temperature rise to 340°F (171°C) in twenty seconds. In this test it took in excess of ten minutes to reach 340°F. Also, Bechtel CP-956-2/76 calls for a pressure drop to -10 psig, however, in this test only -3 psig was reached.)

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PROCEDURE:

The test coupons were evaluated for performance in the following areas:

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The dynamic and/or static elevated temperature-pressure and irradiation test panels shall be evaluated within 2 hours and again after 2 weeks after removal from the test chamber for the following surface defects: flaking, delamination and/or peeling, blistering, and chalking. Defects listed in Subsections 4.5.1 through 4.5.4 shall be dealt with as follows:

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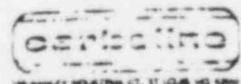
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Any other changes in coating properties which are not also associated with the separation, or the release, of coating from the substrate shall not be a cause for rejection.

From the Carboline Research & Development Laboratory

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Page 3

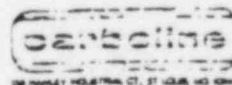
ANSI N101.2-1972 Criteria  
(As interpreted by Carboline)Maximum Degree of Failure Allowable

|                                    |                     |                        |
|------------------------------------|---------------------|------------------------|
| Flaking ASTM D772                  |                     | 10 (None)              |
| Delamination or Peeling            |                     | None                   |
| *Blistering ASTM D714-56           | <u>Blister Size</u> | <u>Blister Density</u> |
|                                    | #2                  | None                   |
| *NOTE: A blister is <u>not</u>     | #4                  | Few                    |
| <u>intact</u> when it has resulted | #6                  | Medium                 |
| in coating being separated         | #8                  | Medium-Dense           |
| from the test coupon.              |                     |                        |
| Chalking ASTM D659                 |                     | 8 (Light)              |

NOTE: Flaking, blistering and chalking are all evaluated according to ASTM Standards, with a rating of 10 indicating that no failure was observed in the specific grading area.

From the Carboline Research &amp; Development Laboratory

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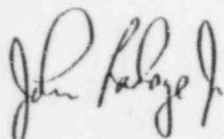


Testing Project: 01355C

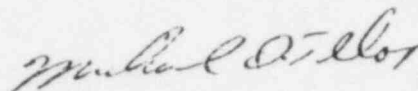
August 10, 1978  
Page 4

| Panel Identification<br>and<br>Coating System         | Total Dry<br>Film<br>Thickness | Flaking | Delamination<br>or<br>Peeling | Blistering | Chalking   | Other<br>Performance<br>Characteristics          | Performance<br>Evaluation |
|---|--------------------------------|---------|-------------------------------|------------|------------|--|---------------------------|
| 1A 1c Phenoline 305 Primer<br>2c Phenoline 305 Finish | 12.5 mils                      | 10      | None                          | 10         | 10         | Possible surface<br>blisters smaller<br>than #8F | Acceptable                |
| 1B 1c Phenoline 305 Primer<br>2c Phenoline 305 Finish | 13.0 mils                      | 10      | None                          | 10         | 10         | Possible surface<br>blisters smaller<br>than #8F | Acceptable                |
| Acceptable Performance                                |                                | 10      | None                          | #4 to #8HD | #8 (Light) |  |                           |

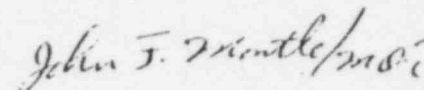
ANSI N101.2-1972, Section 4.5,  
As Interpreted by Carboline



John J. Ladage, Jr.  
Developmental Chemist  
Testing Department



Michael D. Teller  
Supervisor  
Research & Development



John F. Montle  
Vice President  
Research & Development

/ra  
XC: JFH/CJM/TGM/HDT

DAN McBRIDE

8/10/76

JJL:

As we discussed, I would like to have Test Prog Report 1355C DBA Results on 305 P<sub>1</sub>/305 F written for this system only even though minimal documentation is available.

It is apparently the only 340 °F DBA results - passing - on this system.

If the test report is not acceptable to Ebasco then we'll do something else.

Dan

carboline

TESTING PROJECT # 01355 DISTRIBUTION

ORIGINAL DISTRIBUTION: JFM/ CJS/ DWM/ MDT/ / / /

JSL/ MDT/ JFM

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| 2/26/80 Final     | Florida Power & Light / Tim Dehan | JSL      | 8/22/80  |
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TEST.91477-1

CPSES NRC TRT

SSER - COATINGS 2

DBA QUALIFICATION TESTING

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Work PACKAGE DATA -

DBA TEST REPORTS VOL I OF II

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THIS DATA PACKAGE CONSISTS OF:

- 5 "VAULT PACKAGES" OF DBA TEST DATA REC'D BY THE TRT FROM TUEC ON AUG 29, 1984 (IN VOL I)
- DBA TEST DATA REC'D BY THE TRT FROM TUEC ON AUG 10, 1984, LABELLED BY TUEC "DBA REPORTS - SITE CIVIL ENGR FILE" (IN VOLS I + II) - THIS INCLUDES TEST DATA FOR AMERON, CARBOLINE, IMPERIAL, KEELER + LONG, + WESTINGHOUSE

FOIA-85-59

A88



## LABORATORY TEST REPORT

August 11, 1978

Testing Project: 01684  
FINAL REPORT

SUBJECT: LOCA; Amercoat D-6/Phenoline 305 Finish and the Comanche Peak FSAR LOCA Curve

REFERENCE: Comanche Peak Nuclear Station; Mr. Don Sutton; Mr. Keith Falk; Mr. Dan W. McBride; Testing Project 01651

PURPOSE: To determine the performance of 1c Amercoat D-6/1c Phenoline 305 Finish when exposed to the Comanche Peak Steam Electric Station, FSAR LOCA curve and evaluated according to ANSI N101.2-1972, Section 4.5 as interpreted by Carboline.

CONCLUSION: After the seven days of the Comanche Peak FSAR LOCA curve, the following exhibit an acceptable performance:

|     | <u>System</u>                              | <u>Primer Cure</u>                              |
|-----|--|---|
| 1,2 | 1c Amercoat D-6<br>1c Phenoline 305 Finish | 17 days at 67-79°F (19-26°C)<br>and 53-88% R.H. |
| 3,4 | 1c Amercoat D-6<br>1c Phenoline 305 Finish | 17 days at 95-100°F (35-38°C)<br>and 100% R.H.  |

PROCEDURE:A) Test Coupons

Size: 2" x 4" x 1/4" Certified ASTM A36 Steel

Surface Prep: Gritblasted to SSPC-SP5-63

Abrasive Media: GFH #50 grit (Cleveland Metal Abrasives, Inc.)

| B)  | <u>Systems Tested</u>                                 | <u>Batch Numbers</u> | <u>Dry Film Thickness</u> |
|-----|---|----------------------|---------------------------|
| 1,2 | 1c Amercoat D-6<br>(cured in Cure Cabinet*)           | 1503310<br>1503210   | 2.5 - 3.5 mils            |
|     | 1c Phenoline 305 Finish                               | 7B0427M<br>6M3959M   | 6.2 - 8.6 mils            |
|     |   |                      | 9.2 - 11.1 mils           |
| 3,4 | 1c Amercoat D-6<br>(cured in High Humidity<br>Drum**) | 1503310<br>1503210   | 2.4 - 3.3 mils            |
|     | 1c Phenoline 305 Finish                               | 7B0427M<br>6M3959M   | 4.7 - 5.4 mils            |
|     |   |                      | 7.3 - 8.0 mils            |

\*Cure Cabinet is at ambient temperature but, has humidity controlled from 50% to 90% R.H.

\*\*High Humidity Drum is at 100°F (38°C) and 100% R.H.  
From the Carboline Research & Development Laboratory

The technical data furnished is true and accurate to the best of our knowledge. However, no guarantee of accuracy is given or implied.

carboline



# LABORATORY TEST REPORT

August 11, 1978/Page 2

Testing Project: 01684  
FINAL REPORT

## PROCEDURE: (Continued)

### C. Cure Schedule

- 1,2 Amercoat D-6: 17 days at 67-79°F (19-26°C) and 53-88% Relative Humidity.  
Phenoline 305 Finish: 18 days at 71-80°F (22-27°C) and 55-70% Relative Humidity.
- 3,4 Amercoat D-6: 17 days at 95-100°F (35-38°C) and 100% Relative Humidity.  
Phenoline 305 Finish: 18 days at 71-80°F (22-27°C) and 55-70% Relative Humidity.

### D. Exposure

Texas Utilities Generating Company, Comanche Peak Steam Electric Station, FSAR Figures 6.2.1-1 and 6.2.1-2.

#### 1. Time/Temperature/Pressure Profile

| <u>Time</u>               | <u>Temperature</u>       | <u>Pressure</u> | <u>Spray Condition</u> |
|---------------------------|--------------------------|-----------------|------------------------|
| Initial to 10 seconds     | 240°F (115°C)            | 44 psia         | Static                 |
| 10 seconds to 15 mins.    | 270°F (132°C)            | 58 psia         | Dynamic                |
| 15 mins. to 1 hour        |                          |                 |                        |
| 15 mins.                  | 215°F (102°C)            | 34 psia         | Dynamic                |
| 1 hour 15 mins. to 7 days | 215°F-130°F (102°C-51°C) | 34-10 psia      | Dynamic                |

(Note: This is the theoretical curve supplied by Comanche Peak. It was followed as closely as possible with the LOCA apparatus available at Carboline Company. Please refer to the recorder chart (1115-129) for exact conditions of LOCA profile.)

#### 2. Spray Solution

H<sub>2</sub>BO<sub>3</sub> (2000 ppm as Boron) in deionized water.  
pH = 8.5 - 10.0 (NaOH added to adjust pH).

## GRADING PROCEDURE:

The test coupons were evaluated for performance in the following areas:

- 1) Material flaking off
- 2) Delamination between coats and/or peeling

From the Carboline Research & Development Laboratory

The technical data furnished is true and accurate to the best of our knowledge. However, no guarantee of accuracy is given or implied.

**carboline**

300 HANLEY INDUSTRIAL CT. ST. LOUIS, MO 63104



## LABORATORY TEST REPORT

August 11, 1978/Page 3

Testing Project: 01684  
FINAL REPORT

### GRADING PROCEDURE: (Continued)

- 3) Blistering of the topcoat
- 4) Chalking of the coating
- 5) Excessive cracking

Grading procedures specified in Report N101.2 - 1972 of the American National Standards Institute-Protective coatings for Light Water Nuclear Reactor Containment Facilities:

#### 4.5 Methods of Examining and Evaluating the Exposed Test Specimens

The dynamic and/or static elevated temperature-pressure and irradiation test panels shall be evaluated within 2 hours and again after 2 weeks after removal from the test chamber for the following surface defects: flaking, delamination and/or peeling, blistering, and chalking. Defects listed in Subsections 4.5.1 through 4.5.4 shall be dealt with as follows:

4.5.1 Flaking. ASTM D772, Evaluating Degree of Resistance to Flaking (Scaling) of Exterior Paints, Part 21, American Society for Testing and Materials, Philadelphia, Pa. 19103. Flaking shall not be permitted.

4.5.2 Delamination and/or Peeling. Delamination and/or peeling shall not be permitted.

4.5.3 Blistering. Blistering shall be limited to a few, intact blisters, Size No. 4, ASTM D714, Standard Method of Evaluating Degree of Blistering of Paints, Part 21, American Society for Testing and Materials, Philadelphia, Pa. 19103. The number and the size of blisters shall be recorded.

4.5.4 Chalking. ASTM D639, Standard Method of Evaluating Degree of Resistance to Chalking of Exterior Paints, Part 21, American Society for Testing and Materials, Philadelphia, Pa. 19103. Heavy chalking shall not be permitted.

Any other changes in coating properties which are not also associated with the separation, or the release, of coating from the substrate shall not be a cause for rejection.

From the Carboline Research & Development Laboratory

The technical data furnished is true and accurate to the best of our knowledge. However, no guarantee of accuracy is given or implied.

**carboline**  
100 HANCOCK STREET, ST. LOUIS, MO 63104



# LABORATORY TEST REPORT

August 11, 1978/Page 4

Testing Project: 01684  
FINAL REPORT

ANSI N101.2-1972 Criteria  
(As interpreted by Carboline)

## Maximum Degree of Failure Allowable

Flaking ASTM D772

10 (None)

Delamination or Peeling

None

\*Blistering ASTM D714-56

### Blister Size

### Blister Density

\*NOTE: A blister is not  
intact when it has resulted  
in coating being separated  
from the test coupon.

#2  
#4  
#6  
#8

None  
Few  
Medium  
Medium-Dense

Chalking ASTM D659

8 (Light)

NOTE: Flaking, blistering and chalking are all evaluated according to ASTM Standards, with a rating of 10 indicating that no failure was observed in the specific grading area.

From the Carboline Research & Development Laboratory

The technical data furnished is true and accurate to the best of our knowledge. However, no guarantee of accuracy is given or implied.

**carboline**

300 HAWLEY ROAD, HAWLEY, PA 17034

Testing Project: 01684  
FINAL REPORT

RESULTS

6A

August 11, 1955

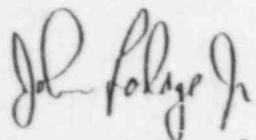
| Panel Identification<br>and<br>Coating System   | Dry<br>Film<br>Thickness          | Flaking | Delamina-<br>tion or<br>Peeling | Blistering     | Chalking | Other<br>Performance<br>Characteristics | Performance<br>Evaluation |
|---|-----------------------------------|---------|---------------------------------|----------------|----------|---|---------------------------|
| 1A <sup>1</sup> 1c Amercoat D-6<br>(Primer Cure 53-88% R.H.)<br>1c Phenoline 305 Finish | 3.5 mils<br>6.5 mils<br>10.0 mils | 10      | None                            | None           | 10       | ----                                    | Acceptable                |
| 1B 1c Amercoat D-6<br>(Primer cure 53-88% R.H.)<br>1c Phenoline 305 Finish              | 3.0 mils<br>6.2 mils<br>9.2 mils  | 10      | None                            | 1/4 Few Intact | 10       | ----                                    | Acceptable                |
| 2A <sup>1</sup> 1c Amercoat D-6<br>(Primer cure 53-88% R.H.)<br>1c Phenoline 305 Finish | 2.8 mils<br>7.7 mils<br>10.5 mils | 10      | None                            | None           | 10       | ----                                    | Acceptable                |
| 2B 1c Amercoat D-6<br>(Primer cure 53-88% R.H.)<br>1c Phenoline 305 Finish              | 2.5 mils<br>6.6 mils<br>11.1 mils | 10      | None                            | 1/4 Few Intact | 10       | ----                                    | Acceptable                |
| 3A <sup>1</sup> 1c Amercoat D-6<br>(Primer cure 100% R.H.)<br>1c Phenoline 305 Finish   | 2.4 mils<br>5.4 mils<br>7.8 mils  | 10      | None                            | None           | 10       | ----                                    | Acceptable                |
| 3B 1c Amercoat D-6<br>(Primer cure 100% R.H.)<br>1c Phenoline 305 Finish                | 3.3 mils<br>4.7 mils<br>8.0 mils  | 10      | None                            | None           | 10       | ----                                    | Acceptable                |
| 4A <sup>1</sup> 1c Amercoat D-6<br>(Primer cure 100% R.H.)<br>1c Phenoline 305 Finish   | 2.6 mils<br>4.7 mils<br>7.3 mils  | 10      | None                            | None           | 10       | ----                                    | Acceptable                |
| 4B 1c Amercoat D-6<br>(Primer cure 100% R.H.)<br>1c Phenoline 305 Finish                | 2.5 mils<br>4.9 mils<br>7.6 mils  | 10      | None                            | None           | 10       | ----                                    | Acceptable                |

August 11, 1978/Page 6

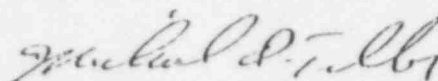
Testing Project: 01684  
FINAL REPORT

RESULTS

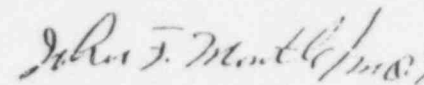
| Panel Identification<br>and<br>Coating System   | Dry<br>Film<br>Thickness | Flaking | Delamina-<br>tion or<br>Peeling | Blistering  | Chalking   | Other<br>Performance<br>Characteristics | Performanc<br>Evaluation |
|---|--------------------------|---------|---------------------------------|-------------|------------|---|--------------------------|
| Acceptable Performance<br>ANSI N101.2-1972, Section 4.5,<br>As Interpreted by Carboline |                          | 10      | None                            | #4F to #8HD | #8 (Light) | *Panel suspended in the vapor<br>phase  |                          |



John J. Ladage, Jr.  
Developmental Chemist  
Testing Department



Michael D. Teller  
Supervisor  
Research & Development



John F. Montle  
Vice President  
Research & Development

/b j  
XC: JFM/CJW/DWH/PDL/HDT

REC'D FROM TUGCO (TOLSON) 29 AUG 80 @ 1330 WCH

PA 6680

TEXAS UTILITIES SERVICES INC.

OFFICE MEMORANDUM

To J. R. Ainsworth

Glen Rose, Texas September 30, 1980

Subject

COMANCHE PEAK STEAM ELECTRIC STATION  
DBA TESTS RESULTS FOR PROTECTIVE COATINGS

DATE

ARMS  
INDEXED

Please find attached copies of DBA test results on various  
protective coating systems used at CPSES.  
If we may be of further assistance, please advise.

JOB NO. 35-1195

RECEIVED  
OCT 2 1980  
RECEIVED

*Richard M. Kissinger*  
Richard M. Kissinger  
Project Civil Engineer

RMK:MW:dt  
cc: ARMS OL, 1A

B & R DCC DIST.

|                     |      |
|---------------------|------|
| PROJECT MGR.        |      |
| PROJECT ENGR.       |      |
| QA MGR.             | 1    |
| PROJECT CONT. ENGR. | 1    |
| TUGCO QA            |      |
| PROJECT GEN. MGR.   |      |
| ARMS                | 10/2 |
| CPPE                | 10/2 |

AREA CODE 314  
844-1000

VBR-14022

**carboline.**

CABLE-CARBOCO-ST. LOUIS  
TELEX 44-7032

**PROTECTIVE COATINGS**

**FOR CORROSION RESISTANCE • WATERPROOFING • FIRE PROTECTION • ROOFING**

August 15, 1980

Mr. Don Sutton  
Commanche Peak Nuclear  
Power Station  
% Brown & Root, Inc.  
P. O. Box 1001  
Glen Rose, TX 76043

JOE NO. 35-1195

**R** **RECEIVED** **D**  
AUG 26 1980  
**RECEIVED**

Dear Don:

Pursuant to our conversation, enclosed is Carboline Testing Project Report 01355C. This report provides LOCA test results on Phenoline 305 Primer/Phenoline 305 Finish.

Because Phenoline 305 Primer and Finish are identical except for pigmentation, it is our contention that this data is also suitable for LOCA test qualification of Phenoline 305 Finish direct to steel for touch-up. This logic is the same as that used to justify testing finish coats in one color only rather than every color which may be used on Class I project steel, which is accepted throughout the industry.

Please let us know if additional information is needed.

Very truly yours,

*Dan W. McBride*

Dan W. McBride  
Power Industry Manager

lrb:503  
cc: Mr. Charles Rushing

B & R DCC DIST.

|                     |     |
|---------------------|-----|
| PROJECT MGR.        |     |
| PROJECT ENGR.       |     |
| QA MGR.             | 1   |
| PROJECT CONT. ENGR. | 1/A |
| TUGCO QA            |     |
| PROJECT GEN. MGR.   |     |
| ARMS                | 1/A |
| <i>Don Sutton</i>   | 1/A |
| VBR                 | 1/A |

CARBOLINE COMPANY • 350 HANLEY INDUSTRIAL COURT • ST. LOUIS, MISSOURI 63144