

JOB 35-1195

COMANCHE PEAK STEAM ELECTRIC STATION

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 4

Notice applicable to Construction Procedure No. 35-1195- CCP-30A Rev. 2.

This change will be incorporated in the next revision of the procedure.

Change the procedure as follows:

Please replace the following page(s) with the attached:

Page 12 of 13

Reviewed by:

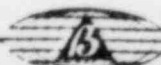
Mark Wells 10/13/87 N/A L. L. Hamata 10/12/83
Originator Date Brown & Root Quality Assurance Date

Approved by:

R. W. Kuschner 10/17/83
TUGCO Quality Assurance Date

D. J. Frankum 10/17/83
Construction Project Manager Date

October 17, 1983
Effective Date



JOB 35-1195

COMANCHE PEAK STEAM ELECTRIC STATION

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 3

Notice applicable to Construction Procedure No. 35-1195- CCP-30A Rev. 2.

This change will be incorporated in the next revision of the procedure.

Change the procedure as follows:

Please replace the following pages with the attached:

Page 12 of 13

Page 13 of 13

Attachment 3: Page 1 of 1

** Page 13 accompanies this DCN to show paragraphal movement only.

Reviewed by:

Mark Wells 9/21/83
Originator Date

N. L. ... 9/21/83
Brown & Root Quality Assurance Date

Approved by:

W. L. ... 9/22/83
TUGCO Quality Assurance Date

... 9/22/83
Construction Project Manager Date

September 22, 1983
Effective Date



JOB 35-1195
Comanche Peak Steam Electric Station

Sheet 1 of 2

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 2

This notice applies to Construction Procedure No. 35-1195- CCP-30A Revision 2.

This change will be incorporated in the next revision of the procedure.

Change the procedure as follows:

Replace the following page with the attached:

Page 11 of 13

Reason for change: Additional requirement.

Reviewed by:

Mark Wells 1-11-83 N/A Root H. Dixon 1-12-83
Originator Date / Brown & Root Quality Assurance Date

Reviewed by:

C.T. Rands 1/14/83
TUGCO Quality Assurance Date

Approved by:

DC. Franklin 1-17-82 1/17/83
Construction Project Manager Date Effective Date



JOB 35-1195
Comanche Peak Steam Electric Station

Sheet 1 of 2

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 1

This notice applies to Construction Procedure No. 35-1195-CCP-30A Revision 2.

This change will be incorporated in the next revision of the procedure.

Change the procedure as follows:

Replace the following page with the attached:

Page 11 of 13

Reason for change: Change in requirement.

Reviewed by:

Mark Wells 12-17-82
Originator Date

NT CPE
Brown & Root Quality Assurance Date

Reviewed by:

Approved by:

C. F. R. M. S. H. 12/18/82
TUGCO Quality Assurance Date

D. J. S. 12-22-82
Construction Project Manager Date

12/21/82
Effective Date



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	1 of 13

TITLE: COATING STEEL SUBSTRATES INSIDE REACTOR BUILDING & RADIATION AREAS	ORIGINATOR:	<u>Mark Wells</u>	<u>9/17/82</u> DATE
	REVIEWED BY:	<u>[Signature]</u> B&R/CA TUGCO/CA	<u>9/16/82</u> DATE
	APPROVED BY	<u>[Signature]</u> CONSTRUCTION PROJECT MANAGER	<u>9-17-82</u> DATE

VOID

0.1	<u>TABLE OF CONTENTS</u>	DCN 1 #6
1.0	<u>INTRODUCTION</u>	DCN 2
1.1	PURPOSE	#3
1.2	SCOPE	#4
1.3	GENERAL DISCUSSION	#5
2.0	<u>DEFINITIONS OF TERMS, ABBREVIATIONS AND SYMBOLS</u>	
2.1	TERMS	
2.2	ABBREVIATIONS	
2.3	SYMBOLS	
3.0	<u>SPECIAL ITEMS AND OPERATIONS</u>	
3.1	QUALIFICATION OF PERSONNEL	
3.2	SAFETY REQUIREMENTS	
3.3	INSTRUMENTS AND THEIR USE	
3.4	DOCUMENTATION	
3.5	RECEIVING, STORING AND DISPENSING OF VENDOR APPLIED COATINGS	
3.6	SPECIAL COATING PROCEDURE	
3.7	TOUCH-UP & COATING OF VENDOR APPLIED COATINGS	
4.0	<u>PROCEDURE FOR COATING</u>	
4.1	PREPARATION OF SUBSTRATES AND COATING MATERIALS	
4.2	SURFACE PREPARATION FOR FINISH COAT	
4.3	PREPARATION OF COATING MATERIALS	
4.4	APPLICATION OF PRIME AND FINISH COATING	
4.5	FINAL ACCEPTANCE TESTING	
4.6	HOLD POINTS	
5.0	<u>SUPPORTING INFORMATION</u>	
5.1	ATTACHMENTS	
5.2	REFERENCES	

VOID

VOID

VOID



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	2 of 13

1.0 INTRODUCTION

1.1 PURPOSE

- 1.1.1 The purpose of this procedure is to establish an alternate prime coat system utilizing existing topcoat system. Coatings shall be applied to the containment liners and radiation areas in accordance with specification, drawing, and manufacturer's requirements. This procedure may also be used for coating any steel substrate inside the reactor buildings scheduled to receive primer or Dimetecote 6 and Phenoline 305 finish coat manufactured by Ameron and Carboline respectively.

1.2 SCOPE

- 1.2.1 The scope of this procedure covers the surface preparation and coating of Unit 1 and 2 steel substrates inside the reactor buildings and radiation areas scheduled to receive protective coatings.

1.3 GENERAL DISCUSSION

- 1.3.1 All coating materials covered by this procedure shall be as manufactured by Carboline Corporation of St. Louis, Missouri or Ameron Protective Coatings Division, Brea, California. The coating system will consist of a prime coat of Dimetecote 6 by Ameron with a finish coat of Phenoline 305 by Carboline. In order to protect the prime coat from prolonged exposure, a seal coat consisting of approximately one mil of Phenoline 305, thinned in accordance with Section 4.4.2.4, may be applied over the prime coat. Surface preparation of the seal coat prior to finish coating, shall consist of solvent wiping if exposed longer than 30 days. Finish coating shall be applied when convenient prior to completion of the building --- or, prior to placement of concrete, equipment, or obstructions which would make finish coating impossible.

In order to maintain traceability on protective coatings applied to shop coated steel cited for installation in the Reactor Building, these items shall be steel stamped with a unique coating code number. The code number shall be assigned by QC Paint and applied by craft personnel. Upon division of materials, this unique number will be transferred along with all other unique identifying numbers.

2.0 DEFINITIONS OF TERMS, ABBREVIATIONS AND SYMBOLS

2.1 TERMS

- 2.1.1 Substrate - The uncoated surface to which a coating is applied.



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	3 of 13

2.2 ABBREVIATIONS

2.2.1 (NONE)

2.3 SYMBOLS

2.3.1 (NONE)

3.0 SPECIAL ITEMS AND OPERATIONS

3.1 QUALIFICATION OF PERSONNEL

3.1.1 Coating application personnel shall be qualified per previous experience and practical application. In addition, each painter shall have been instructed by the Paint Superintendent or his representative in the use of the product as consistent with carboline's and Ameron training procedures, which includes both classroom instruction and a field application demonstration. This shall be verified by completing a form similar to Attachment 1. This form shall be executed by the B&R Paint Superintendent or his representative. A coating manufacturer's representative will be available for technical supervision upon initial painting effort. Applicators performing work to Attachment 2 shall be qualified for "Q" coatings, when applicable.

3.2 SAFETY REQUIREMENTS

3.2.1 All appropriate health, safety, and fire protection requirements pertaining to surface preparation and coating application shall be followed. It shall be the responsibility of the Safety Department Representative who will be present to establish the frequency of monitoring of the coating work.

3.3 INSTRUMENTS AND THEIR USE

3.3.1 The painting Foreman and General Foreman shall have access to and be familiar with the use of all instruments necessary to insure efficiency of coating applications. This shall include surface profile comparators, holiday detectors, thermometers, and wet and dry film gauges. Viscosity measuring devices will not be used.



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	4 of 13

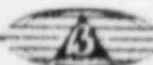
Wet film gauges will be randomly used during coating application as an aid to field personnel on Phenoline 305 only. Readings will be limited to the minimum necessary to control coating thickness.

3.4 DOCUMENTATION

- 3.4.1 Records shall be maintained on Attachments 1 and 2 listed in Section 5.1. After completions, each form shall be forwarded to the Brown & Root Document Control Center for filing and distribution to the various parties as listed on the distribution sheet.

3.5 RECEIVING, STORAGE AND DISPENSING OF COATING MATERIALS

- 3.5.1 Receiving and Storage - Upon receipt of a shipment of coating materials, the B&R QC Representative accepting shipment shall be responsible for completing all necessary receiving inspection documentation. General receiving procedures shall be done in accordance with Brown & Root Construction Procedure CP-CPM 8.1. It shall then be segregated from Non-"Q" materials and stored in the paint storage building where temperatures will be maintained between 45°F - 110°F. Infrequent dips in air temperature in storage areas as low as 32°F for up to 24 hours is acceptable. Temporary storage may be required at the receiving warehouse due to receiving or other problems.
- 3.5.2 Dispensing - When coating materials are needed in the field, they shall be transferred from the controlled storage area to temporary storage in the field; due to limited shelf-life this shall be done on a "first-in", "first-out" basis. After materials have been partially used from an individual container, the same container cannot be resealed and returned to "Q" storage area. Containers opened and partially used in the "Q" paint storage area may be resealed and the contents used for later "Q" painting. With the exception of thinners, the contents from partially used containers will not be reused after a period of one week has elapsed from date of initial opening.
- ### 3.6 SPECIAL COATING PROCEDURE
- 3.6.1 When items require special coating not covered under the content of this document, the appropriate Project Engineer (Mechanical, Civil, Electrical) shall complete Attachment 2 and transmit it to the Paint Superintendent. A log of all procedures from Attachment 2 shall be maintained by the Project Mechanical Engineer. The following information shall be filled out on each procedure.



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	5 of 13

- 3.6.2 Each procedure shall be given a unique number. The scope will describe the working limits of the procedure with detailed work requirements being listed under the requirements section. The approvals section shall have signatures of the following: Project Discipline Engineer (Mechanical, Civil, etc.), TUGCO Quality Engineering if coating of item is safety related, TUSI representative when required, Engineer who prepared document, and a revision number and date. Upon completion of the document, distribution shall be made to all holders of this procedure.
- 3.7 TOUCH-UP AND FINISH COATING OF VENDOR APPLIED COATINGS
- 3.7.1 Prior to touch-up of primer or application of topcoat, an adhesion test shall be performed by the Brown & Root QC Department. If results are acceptable, work may proceed in accordance with sections 4.4.2.2 through 4.4.2.9.
- 3.7.2 The QC Inspector or his representative shall notify the responsible area engineer and/or the Paint Superintendent as soon as possible after receipt of a non-conforming item in need of paint repair to allow time for Attachment 2 preparation and a planned schedule for repair.
- 4.0 PROCEDURE FOR COATING
- 4.1 PREPARATION OF SUBSTRATES AND COATING MATERIALS
- Surface Preparation for Primer - Final surface preparation shall not begin unless the temperature of the surface to be blasted and/or power tooled is 5°F above the dew point. If needed, the surface to be primed shall then be cleaned of any heavy oil or grease deposits in accordance with SSPC-SP-1-63 "Solvent Cleaning".
- Small amounts of grease or oil deposits may be removed by blast operations. The surface shall then be cleaned by blast, hand or power tool operations to achieve an equivalent of SSPC-SP10-63, "near white" blast cleaning. Although 1-3 mil. surface profile is preferred, a minimum of 1 mil. profile is required. After the above surface preparation, the surface to be primed shall be air blasted and/or solvent wiped to remove dust, sand or foreign contaminants from the surface. Air blasting shall not be performed where air-borne contaminants could adhere to tacky paint. Sufficient time shall be provided to allow suspended particles to settle before beginning primer application. If rust forms after surface preparation, the rusted area shall be re-cleaned before primer application. Under no case shall a blast, hand, or power tool cleaned surface be exposed for more than 24 hours prior to priming without additional cleaning of the surface. When applying coatings that will be joined together by a later coating operation, the interface shall be constructed as follows:



BROWN & ROOT, INC. CPSES	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
JOB 35-1195	CCP-30A	2	9/20/82	6 of 13

- a. Blasting using no border tape - Overblast the steel to near white metal approximately 12" - 18" beyond the point which will receive primer. Hold back approximately 12" - 18" from edge of blasted area when applying primer.
- b. Blast, hand or power tool cleaning using border tape - Clean the steel to near white metal approximately 3" - 6" beyond the point which will receive primer. Place border tape approximately 1" in from edge of cleaned area and prime. When applying seal or finish coat on either of above methods hold back approximately 12" - 18" from edge of primer.

4.1.2 Removal of weld spatter and other minor surface imperfections (not to exceed .031" for containment liners) - If needed, weld spatter omitted by others will be removed by Painting Personnel in accordance with SSPC-SP-2 and SSPC-SP-3. If it is determined that surface defects are severe enough to require later repair, the area to be repaired will be blocked out and spot painted at a later date. All protrusions and peaks shall be ground to a rounded contour.

4.1.3 If coating removal is required from an area or item which has previously been coated in accordance with this procedure, shadows or tight residue of primer which may remain in the profile of the previously prepared substrate is acceptable. However, areas with residues of Carboline 191 Primer shall be recoated with Carboline 191 Primer. Areas with residues of inorganic zinc may be coated with either inorganic zinc or Carboline 191 Primer. It is not required that such areas meet the criteria of SSPC-SP10 or SSPC-SP6.

4.2 SURFACE PREPARATION FOR FINISH COAT

4.2.1 Surface preparation for the finish coat shall consist of the removal, if needed, of any oil or grease. This shall be accomplished by the use of a manufacturer recommended cleanser or cleansing method on areas that have been seal-coated. On areas where the Carbo Zinc 11 primer is exposed, oil and grease will be removed by sand blasting, hand, or power tool grinding, and needle scaling and then by solvent wiping the area prior to replacing the primer. Power tool grinding and needle scaling should yield surface cleanliness equal to that of SSPC-SP-10 "near white" blast cleaning. Power tooled areas should be kept to a minimum however no size limitation is imposed providing acceptable surface cleanliness is achieved.

4.2.2 The ambient temperature and relative humidity shall be measured to determine the dew point temperature. Phenoline 305 finish shall not be applied unless the substrate temperature is 5°F or more above the dew point.

BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	7 of 13

4.3 PREPARATION OF COATING MATERIALS

4.3.1 Primer - The primer, Dimetcote 6, is packaged in a two component kit consisting of a base and zinc filler. The base shall be thoroughly mixed first. Zinc filler shall then be added under constant agitation and mixed until free of lumps. Partial mixes shall be mixed by weight in a proportion of 6.4 parts base to 15 parts zinc filler using a suitable scale to achieve a plus or minus 2 percent accuracy. The mixture shall then be strained through a 30-mesh screen. Viscosity shall be controlled by adding thinner as required up to the maximum allowed by the latest revision of Dimetcote 6 application instructions. Primer coat shall be reddish gray. Pot life of Dimetcote 6 shall be 24 hours.

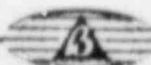
4.3.2 Finish Coat - The finish coat consists of carbolines Phenoline 305, to which is added a catalyst. This shall be thoroughly mixed while combining in a ratio by volume, of four parts Phenoline 305 to one part catalyst; the finish color shall be as required by the governing specification. Viscosity control shall be accomplished by adding thinner as required, but shall not exceed two quarts of thinner per gallon of 305. Pot life for finish coating shall be in accordance with Attachment 3.

4.4 APPLICATION OF PRIME AND FINISH COATING

4.4.1 Prime Coat: (Ameron Dimetcote 6)

4.4.1.1 Coating materials shall be applied using conventional spray equipment with agitated pressure pots having a maximum hose length of 75 feet. The primer shall be allowed to become tack free before start of other construction operations which could create contamination problems. Any runs or sags having a detrimental effect on the coating system shall be removed and repaired. The following application parameters shall also be followed:

1. Normal conditions of ambient and surface temperature shall be 40° - 120°F and 40° - 130°F, respectively; however, primer may be applied within an ambient range of 0° - 130°F and a surface temperature range of 0° - 200°F. Under other than normal conditions, it may be advisable to use more thinner to reduce dry spray. If surface temperature is above 85°F, it is advisable to use between 1 pint and 2 quarts of Amercoat thinner #101 per gallon of Dimetcote 6 to get wet application.



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	8 of 13

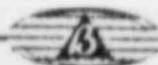
2. Humidity values may vary from 10 to 95% however, coating shall not be applied to a wet or damp surface.
3. Thickness of prime coat shall be a minimum dry film of 2 mils and a maximum of 5 mils. Minimum spot test values shall be 1.5 mils and 5.5 mils respectively.
4. A double regulated pot having an adequate air volume supply shall be used.
5. As a guide, coating materials shall be applied using a 50% overlap with each pass while holding the gun 8-10 inches from the surface. Cross hatch application is permissible.
6. Curing time shall be as follows, depending upon approximate surface temperature and relative humidity conditions:

<u>TEMPERATURE WITH OVER 50% R.H.</u>	<u>Curing Time Before Topcoating</u>
40 - 99°	24 hours
100° and above	12 hours

NOTE: When water curing, below 40°F, and/or below 50% R.H., rely on "coin test" method for determining cure. "Coin Test" is defined as: the coating is sufficiently cured for topcoat when the coating may be burnished rather than removed when rubbed with the flat portion of a coin such as a nickle.

If required, the cure of Dimetcote 6 may be accelerated by use of water spray after allowing at least one hour cure after application. This shall be done as often as required using clean water having a ph range of 6 to 8. If used, a filter system will be installed in order to assure proper cleanliness of the curing water.

- 4.4.1.2 Recoating of Dimetcote 6 Primer - Surface shall be free of all oil, grease and other contaminants. (Remove oil or grease per Section 4.2.1) A wash down with Trisodium Phosphate (T.S.P.) or detergent, using a stiff bristle brush, followed by flushing with fresh water is required. Do not solvent wipe the surface as a final cleaning method. If no major defects as defined in Section 4.4.2.9 are present and the primed surface to be recoated is cured and prepared in accordance with this procedure, recoating may be performed.



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	9 of 13

4.4.1.3 Repair of Sags and Runs - Sags or runs in excess of 5.5 mils will be abraded with an aluminum screen or sandpaper to 2.0 to 5.5. mils. Sags or runs 5.5. mils or less which show no evidence of mud-cracking will not be repaired. If coating surface is satisfactory after abrading, then Carbolines finish coat may be applied; however, if coating surface is unsatisfactory, blast, hand abrade or power tool grind to near white metal is required and primer coat re-applied. A satisfactory coating is considered one having no mud-cracking to the metal surface as visible to the unaided eye.

4.4.1.4 Brush touch-up painting shall be done on the prime coat in accordance with the following:

Prime Coat:

1. Dimetecote 6 application instruction R 11-78. Max. allowable touchup - 144 square inches.
2. Dimetecote 6 Product bulletin R 6-79.

4.4.1.5 Repair of Embedded Foreign Particles - Embedded foreign particles shall be removed by abrading. If low millage or major defects result, recoat or repair per section 4.4.1.2 or section 4.4.2.9 respectively.

4.4.1.6 Treatment of Stains - Remove residue, though not necessarily the stain with bristle brush and water or Carboline Thinner #33 or Amercoat #12 cleaner. Allow to dry thoroughly.

4.4.1.7 Coating Interface - Refer to Section 4.4.3.0 for coating interfacing.

4.4.2 Finish Coat; Carboline, Phenoline 305

4.4.2.1 Finish coating shall be applied using conventional, airless, brush or roller. Weld seams, edges and other sharp geometrical discontinuities may receive an initial coat of 1-2 mils finish coating thinned by using two quarts Phenoline Thinner per each gallon kit of Phenoline 305. To aid in continuity at edges, edges may be "striped" with Phenoline unthinned instead of the 50% mixture as stated above. In either "striping" or initial coating of edges, welds, etc., time should be allotted for the coating to harden sufficiently to maintain a "sealing" effect prior to continuing coating operations. The initial coating of edges, striping, etc., as stated above, shall be considered part of the total initial finish coating operation. The material shall be allowed to become tack free before any other construction operations proceed which could create contamination problems by dust or other foreign matter. A continuity check shall be performed in accordance with NACE T-6F-3 Condition "C". No gross discontinuities are acceptable such as holidays, voids, skips, bubbles, and misses. Any runs or sags having a detrimental effect on the coating system shall be removed



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	10 of 13

and repaired. The following application parameters shall govern:

1. The permissible range of surface and ambient temperature for application shall be 50° - 120°F. After the material has become "tack free", temperature may rise above 120°F. Phenoline 305 may be thinned up to 2 quarts of Phenoline Thinner per gallon mix. The ratio of thinner to Phenoline will be that which gives the best workable mix; i.e., usually advantageous to use more thinner at lower temperatures.
2. Minimum and maximum values of relative humidity shall be 0% and 85% respectively.
3. As a guide, coating material shall be applied using a 50% overlap with each pass while holding the gun 8-10 inches from the surface.
4. Curing and time to recoat Phenoline 305 shall be as shown below:

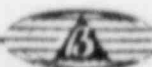
<u>Between Coats</u>	<u>Temperature °F</u>	<u>Final Cure</u>
72 hours	50 - 59	12 days
36 hours	60 - 74	8 days
18 hours	75 - 89	4 days
12 hours	90 and above	2 days

Phenoline thinned at 50% and applied as a seal coat may be recoated after 4 hours cure at or above 75°F.

5. Tack free shall be defined as the extent of cure which foreign contaminants will not adhere to the coating.
6. The total coating system shall have a dry film thickness range of 7-11 mils with a minimum spot check of 7 mils and a maximum spot check of 11.5 mils.

4.4.2.2 Repair of Runs and Sags - Runs or sags will be abraded until the DFT of the Phenoline 305 is within 1.9 - 4.5 mils. If cracks are visible, then runs and sags will be removed to primer by power tool grinding followed by solvent wiping. If no cracking occurs, top coat will be considered acceptable. Refer to Section 4.4.2.1(4) for cure to recoat time.

4.4.2.3 Repair of Embedded Foreign Particles - Foreign particles shall be removed by abrading and then recoated as outlined in the repair of pinholes and discontinuities. Refer to Section 4.4.2.1(4) for recoating times.



BROWN & ROOT, INC. CPSES		PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
JOB 35-1195		CCP-30A	2	9/20/82	11 of 13
4.4.2.4	Repair of Pinholes and Discontinuities - Loose particles shall be removed by brushing or vacuum. The entire area shall then be solvent wiped using Phenoline 305 Thinner and recoated using thinned down Phenoline 305 consisting of two quarts Phenoline Thinner per each gallon kit of Phenoline 305 applied at approximately 1-2 mils DFT. (See Section 4.4.2.1(4) for recoating time.)				
4.4.2.5	Repair of Scratches and Damaged Areas - Any scratches or damaged areas will be abraded until loosely adherent particles are removed. The area will then be solvent wiped (Amercoat 12 cleaner for primer, Phenoline Thinner#305 or xylol for topcoat), and repaired with appropriate coating, i.e., Phenoline 305 if damage does not extend to primer; Dimetecote 6 and Phenoline 305 if primer is damaged (if area is considered a major defect). Thickness shall be as required for the pertinent coating. If damage extends to metal and is considered a major defect (Refer to Section 4.4.2.9), damaged area will be blasted, hand or machine ground until bare metal is exposed. All edges of existing coating around perimeter of cleaned area shall be feathered back a sufficient amount to ensure a smooth blend with existing coating.				
4.4.2.6	Brush touch-up painting shall be done on the finish coat in accordance with the following: <ol style="list-style-type: none"> 1. Carboline Application Instruction (Phenoline 305) Bulletin 775. 2. Carboline Product Data Sheet (Phenoline 305 Primer and Finish) Bulletin 473. Brush touch-up and complete application is allowed with no area restrictions. 				
4.4.2.7	Treatment of Rust Stains - If surface is contaminated with rust stains or minute metallic particles, then surface shall be prepared by solvent wiping with Phenoline 305 Thinner or xylol and overcoating with a coat of Phenoline 305 prepared in accordance with Section 4.4.2.4.				
4.4.2.8	Repair of Topcoat and/or D-6 Minor Defect - (Minor defects are defined as an area, either circular or linear, in which a $\frac{1}{8}$ " diameter circle could not be completely inscribed at any point along the entire length.) Blast or abrade, by machine or hand, the Phenoline 305 finish surrounding the damaged areas and clean any exposed steel to ensure contaminant free surface. Solvent wipe the surrounding 305 finish with Carboline 305 thinner or xylol. Spray or brush Phenoline 305 finish at approximately 4 mil DFT over the damaged area. Overlap onto the surrounding coating a sufficient amount to insure a smooth and continuous topcoat system.				



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	12 of 13

4.4.2.9 Repair of Phenoline 305 Topcoat and/or Dimetecote 6 Primer Major Defects - (Major defects are defined as an area, either circular or linear, in which a $\frac{1}{2}$ " diameter circle could be completely inscribed at any point or along the entire length.) Spot blast or abrade, machine or hand, the damaged area. Power tool or hand abrading must be very thorough in order to prepare the surface for Dimetecote 6 touch-up. The surface shall not be polished by wire brushing or other means.

4.4.3.0 Coating Interface - At coating interface for finish and/or primer coat, the existing coating shall be "feathered back" a sufficient distance to ensure a smooth final coating system. When performing coating interfacing the interface of the coatings or systems shall be a maximum of approximately $1\frac{1}{2}$ inch in width. Within the interface area, overlapping of any materials or systems is acceptable.

4.4.3.1 Cure of Minor Topcoat Repair - Minor defects, as defined in Section 4.4.2.8, which are noted in the topcoat and repaired, may be inspected for final acceptance after cure to recoat time as stated in Section 4.4.2.1(4) has been satisfied. Full cure to topcoat repairs shall be satisfied prior to placement into service.

4.5 FINAL ACCEPTANCE TESTING

4.5.1 Final acceptance inspection may be performed after a minimum topcoat cure of 24 hours and cure for recoat time as stated in section 4.4.2.1 paragraph 4 is satisfied.

Touch up of minor defects, as described in section 4.4.2.8 of this procedure may be done at time of final inspection without later reinspection of the repair.

After final inspection and resolution of all discrepancies are completed the QC inspector shall document the final acceptance by completing and signing the final acceptance record. A copy will then be transmitted to the B&R Paint Superintendent as soon as possible after final acceptance is made.

4.6 HOLD POINTS

4.6.1 Onsite receipt of coating materials.

4.6.2 Substrates before and following surface preparation

4.6.3 Mixing and preparation of coating material for application.

4.6.4 Film characteristics after drying and curing.

4.6.5 Control of ambient conditions and surface temperatures during all phases of the coating work.

BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	13 of 13

5.0 SUPPORTING INFORMATION

5.1 ATTACHMENTS

1. Painter Qualification Record
2. Special Coating Procedure
3. Pot Life Phenoline 305

5.2 REFERENCES

1. Gibbs & Hill Specification 2323-SS-14,
"Containment Steel Liner", Latest Revision
2. Steel Structures Paint Council, Volume 2, Second Edition
3. Carboline Corporation "Application Instructions",
October 76-N Revision, and 473, Latest Revision
4. Ameron Protective Coating Division Dimetecote 6
"Application Instructions". R 11-78, Dimetecote 6
Production Bulletin R 6-79
6. Gibbs & Hill Specification 2323-AS-31,
"Protective Coatings", Latest Revision
7. Gibbs & Hill Specification 2323-MS-101,
"Equipment Erection", Latest Revision
8. Gibbs & Hill Specification 2323-MS-43B,
"Nuclear Piping", Latest Revision
9. Gibbs & Hill Specification 2323-MS-44B,
"Non-Nuclear Piping"
10. Gibbs & Hill Specification 2323-MS-100,
"Piping Erection"
11. Gibbs & Hill Specification 2323-SS-17,
"Miscellaneous Steel", Latest Revision

BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	1 of 2

ATTACHMENT 1

BROWN & ROOT, INC.
COMANCHE PEAK STEAM ELECTRIC STATION

Painter Qualification Record

GENERAL DATA

Date _____ Report Number _____

TECHNICAL DATA

Name of Painter _____

Summary of Field Experience _____

Experience with Following Product Types _____

Application Test for Specified Substrate _____

Additional Qualifications (School) _____

Signature _____
Applicator's Field Supervisor

Distribution: Painting Supt.
Q.C. Department
Tugco QA Vault (Original) _____



BROWN & ROOT, INC.
CPSES

JOB 35-1195

PROCEDURE
NUMBER

REVISION

EFFECTIVE
DATE

PAGE

CCP-30A

2

9/20/82

2 of 2

ATTACHMENT 2

"Q" Coating _____

Sheet _____ of _____
Procedure # _____

"Non-Q" Coating _____

Rev. _____ Date _____

SPECIAL COATING PROCEDURE NO. _____

SCOPE _____

REQUIREMENTS:

REFERENCE DOCUMENTS

APPROVALS

PDE _____

QA/QC _____

TUSI _____

ENGINEER _____

REV. _____ DATE: _____



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	2	9/20/82	1 of 1

ATTACHMENT 3

POT LIFE PHENOLINE 305

<u>TEMPERATURE (°F)</u>	<u>UNTHINNED</u>	<u>THINNED-50%</u>
50-54	10 hrs	24 hrs
55-59	7 hrs	24 hrs
60-64	4½ hrs	24 hrs
65-69	3½ hrs	24 hrs
70-74	2 hrs	24 hrs
75-79	1½ hrs	24 hrs
80-84	1½ hrs	24 hrs
85-89	1½ hrs	24 hrs
90-95	1 hrs	24 hrs

Pot life stated above for unthinned coatings are the recommended times and should be utilized as a guideline for coating usage time, however, actual pot life may be longer. For unthinned coatings or coatings thinned 50% or less, actual pot life is determined by the applicability of the coating.

TEXAS UTILITIES GENERATING COMPANY

SKYWAY TOWER * 400 NORTH OLIVE STREET, L.B. #1 * DALLAS, TEXAS 75201

March 29, 1984

Drs. L. R. Abramson and D. Lurie
Applied Statistics Branch
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Doctors:

Attached please find a complete copy of the information you requested regarding the results of the protective coatings backfit inspection program. All estimates are conservative, i.e., they have been estimated in such a manner as to result in a larger amount of coatings on the exempt log than necessary.

If you have any questions, I may be contacted at (817) 897-2981, Ext. 327 or (214) 979-8865.


L. M. Bielfeldt
Quality Engineering Supervisor

LMB/b11
Attachment

~~8511056295~~

FURTHER DATA REQUIREMENTS
FOR ANALYSIS OF PROTECTIVE COATING
BACKFIT INSPECTION PROGRAM

I. Concrete (Units 1 and 2)

- A. Total size (estimate): 570,000 sq. ft.
B. Total # adhesion tests: 2822
C. Total # adhesion test failures: 1
D. Total # recorded dft readings: 11,000
E. Total # recorded dft readings failed: 122
F. Evaluation of size of defective areas: see Attachment A
*G. Total 3 test areas w/both adhesion & dft failures: Not available

95% V
4.74
2822
0.0017 = .0021

II. Steel Liner (Units 1 and 2)

- A. Total size (estimate): 290,000 sq. ft.
B. Total # adhesion tests: 1622
C. Total # adhesion test failures: 6
D. Total # recorded dft readings: 6680
E. Total # recorded dft readings failed: 137
F. Evaluation of size of defective areas: see Attachment A
*G. Total # test areas w/both adhesion & dft failures: Not available

0.0015 + 1622
6680

III. Miscellaneous Steel : Pipe Supports (Unit 1)

- A. Average size (estimate): 15 sq. ft.
B. Total # items in backfit scope (estimate): 4520
C. Total # items tested (in sample): 230
D. Total # items with adhesion failure(s) only: 5

5/230 = .0217

* optional

- E. Total # items with dft failure(s) only: 17
F. Total # items with adhesion and dft failures: 0

failed 1

IV. Miscellaneous Steel : Cable Tray Supports (Unit 1)

- A. Average size (estimate): 11 sq. ft.
B. Total # items in backfit scope (estimate): 755
C. Total # items tested (in sample): 297
D. Total # items with adhesion failure(s) only: 2
E. Total # items with dft failure(s) only: 34
F. Total # items with adhesion and dft failures: 1

DFT failed 21/45

V. Miscellaneous Steel : Conduit Supports (Unit 1)

- A. Average size (estimate): 8 sq. ft.
B. total # items in backfit scope (estimate): 4812
C. Total # items tested: 225
D. Total # items with adhesion failure(s) only: 1
E. Total # items with dft failure(s) only: 10
F. Total # items with adhesion and dft failures: 0

failed 9/10

VI. Miscellaneous Steel : Other (Unit 1)

- A. Average size (estimate): Not available. Total estimated area = 46,670 sq. ft.
B. Total # items in backfit scope (estimate): Not available
C. Total # items tested: 765
D. Total # items with adhesion failure(s) only: 9
E. total # items with dft failure(s) only: 65
F. Total # items with adhesion and dft failures: 2

0118 - 100

failed 1

07/22/04

ATTACHMENT A

I. Concrete

- F. The adhesion failure was isolated to an area of 400 square feet.

The dft failures were isolated to total areas of 2201 sq. ft. for low millage and 141 sq. ft. for high millage.

II. Steel Liner

- F. The adhesion failures were isolated to a total area of 24 square feet.

The dft failures were isolated to total areas of 1316 sq. ft. for low millage and 1139 sq. ft. for high millage.

TEXAS UTILITIES GENERATING COMPANY

P O BOX 1002 GLEN ROSE TEXAS 76043

April 17, 1984

Drs. L. R. Abramson and D. Lurie
Applied Statistics Branch
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Doctors:

Per your request, the concrete and steel liner data have been changed to reflect Unit 1 results only (see attached). As I stated in our phone conversation on April 2, all of the information which I have provided to you has been for primer only.

If you have any questions, I may be contacted at (817) 897-2981, Ext. 327 or (214) 979-8865.

Lisa Bielfeldt *lu*
L. M. Bielfeldt
Quality Engineering Supervisor

LMB/b11
Attachment

Dupe 8311050297

PROTECTIVE COATING BACKFIT INSPECTION PROGRAM

UNIT 1 PRIMER

I. Concrete

- A. Total size (estimate): 285,000 sq. ft. *see letter from 10/1/80*
B. Total number adhesion tests: 1691
C. Total number adhesion test failures: 0
D. Total number recorded dft readings: 4623
E. Total number recorded dft readings failed: 101

II. Steel Liner

- A. Total size (estimate): 145,000 sq. ft.
B. Total number adhesion tests: 405
C. Total number adhesion test failures: 2
D. Total number recorded dft readings: 1494
E. Total number recorded dft readings failed: 105