

BROWN & ROOT, INC. CPSES	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	3	12/06/83	1 of 13

TITLE: COATING STEEL SUBSTRATES INSIDE REACTOR BUILDING & RADIATION AREAS	ORIGINATOR	<u>John A. Kelly</u>	<u>12/2/83</u> Date
	REVIEWED BY:	<u>W. K. Carpenter CT B&R</u> QA/QC	<u>12/5/83</u> Date
	APPROVED BY:	<u>DA Zamboni</u> CONSTRUCTION PROJECT MGR	<u>12-6-83</u> Date

0.1	<u>TABLE OF CONTENTS</u>
1.0	<u>INTRODUCTION</u>
1.1	PURPOSE
1.2	SCOPE
1.3	GENERAL DISCUSSION
2.0	<u>DEFINITIONS OF TERMS, ABBREVOATOPMS 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 COATING MATERIALS
3.6	SPECIAL COATING PROCEDURE
3.7	TOUCH-UP & FINISH 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

VOID



BROWN & ROOT, INC. CPSES	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	3	12/06/83	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 containmnet 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 Dimetcote 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 buidlings and radiation areas sceduled 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 Dimetcote 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 numbers 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

2.1 TERMS

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



BROWN & ROOT, INC. CPSES	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	3	12/06/83	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 products as consistent with Carboline's 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 Brown & Root 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 Site Safety Department to establish the frequency of monitoring 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. 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.



BROWN & ROOT, INC. CPSES	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	3	12/06/83	4 of 13

3.4 DOCUMENTATION

- 3.4.1 Records shall be maintained on Attachments 1 and 2 listed in Section 5.1. After completion, 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 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° - 110°F. Infrequent dips in air temperature in storage areas as low as 32°F for up to 24 hours are 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, it shall be transferred from the controlled area to a designated temporary storage area or area of intended use in the field. Due to limited shelf-life of coating materials, this shall be done on a "first-in", "first-out" basis. After materials have been partially used from an individual container, the said container cannot be resealed and returned to "Q" storage area for later use. Containers opened and partially distributed from the "Q" paint storage area may be resealed and the remaining contents used for "Q" painting. With the exception of thinners, the contents from partially used containers shall not be reused after a period of 7 days 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 Site Coating Engineer. The following information shall be completed on each procedure.



BROWN & ROOT, INC. CPSES	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	3	12/06/83	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 FINISH COATING OF VENDOR APPLIED COATINGS

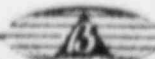
3.7.1 Prior to touch-up of primer or application of topcoat an adhesion test shall be performed by the Brown & Root QC Department. If results are acceptable, work may proceed in accordance with sections 4.4.2.2 through 4.4.2.9.

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

4.1.1 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 a surface cleanliness equal to SSPC-SP-10-63, "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 recleaned before prime 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
	CCP-30A	3	12/06/83	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 the edge of cleaned area and prime. When applying seal or finish coat on either of above method 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 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 light residue of prime 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-SP-10 or SSPC-SP-6.

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 inorganic zinc 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 tool areas should be kept to a minimum however no size limitation is imposed provided 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	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	3	12/06/83	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 $\pm 2\%$ 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 to quarts of thinner per gallon of Phenoline 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 material 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.
2. Humidity values vary from 0 to 95% however, coating shall not be applied to a wet or damp surface.



BROWN & ROOT, INC. CPSES	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	3	12/06/83	8 of 13

3. Thickness of prime coat shall be a minimum dry film of 2 mils and a maximum of 5 mils. Minimum soft 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 material may be applied using a 50% overlap with each pass while holding a 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 Dimetecote 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 Dimetecote 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.
- 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 mudcracking will not be repaired. If coating surface is satisfactory after abrading, then Carbo-lines 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 mudcracking to the metal surface as visible to the unaided eye.



BROWN & ROOT, INC. CPSES	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	3	12/06/83	9 of 13

- 4.4.1.4 Brush touch-up painting shall be done on the prime coat in accordance with the following:
- Prime Coat:
1. Dimetcote 6 application instruction R 11-78. Max. allowable touchup - 144 square inches.
 2. Dimetcote 6 Product bulletin R 6-79.
- 4.4.1.5 Repair of Contamination - Contamination 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 a 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 state 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 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", temperatures 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.



BROWN & ROOT, INC. CPSES	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	3	12/06/83	10 of 13

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 to 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 to 59	12 days
36 hours	60 to 74	8 days
18 hours	75 to 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 of cure at or above 75°F.

5. Tack free shall be defined as the extent of cure at which foreign contaminants will not adhere to the coating.
 6. The total coating system shall have an average 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 and sags will be abraded until the DFT of the Phenoline 305 is within 1.9 to 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, topcoat will be considered acceptable. Refer to Section 4.4.2.1(4) for cure to recoat time.
- 4.4.2.3 Repair of Contamination - Contamination 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.
- 4.4.2.4 Repair of Pinholes and Discontinuities - Loose particles shall be removed by brushing or vacuum. The entire area shall 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.)



BROWN & ROOT, INC. CPSES	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	3	12/06/83	11 of 13

- 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 doesnot extend to primer; Dimetcote 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 :
1. Carboline Application Instruction (Phenoline 305) Bulletine 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 the finish coated surface is contaminated with rust stains or minute metallic particles, the surface shall be solvent wiped 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 Defects - (Minor defects are defined as an area, either circular or linear, in which a $\frac{1}{2}$ " 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 area and clean any exposed steel to ensure contaminant free surface. Solvent wipe the surrounding 305 finish with Carboline's Phenoline 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.
- 4.4.2.9 Repair of Phenoline 305 Topcoat and/or Dimetcote 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, by machine or hand, the damaged area. Power tool or hand abrading must be very thorough in order to prepare the surface for Dimetcote 6 touch-up. The surface shall not be polished by wire brushing or other means.



BROWN & ROOT, INC. CPSES	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	3	12/06/83	12 of 13

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 1½ 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 state 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	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	3	12/06/83	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 Instruction",
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
5. Gibbs & Hill Specification 2323-AS-31,
"Protective Coatings", latest revision
6. Gibbs & Hill Specification 2323-MS-101,
"Equipment Erection", latest revision
7. Gibbs & Hill Specification 2323-MS-43B,
"Nuclear Piping", latest revision
8. Gibbs & Hill Specification 2323-MS-44B,
"Non-Nuclear Piping"
9. Gibbs & Hill Specification 2323-MS-100,
"Piping Erection"
10. 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	3	12/06/83	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	3	12/06/83	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	3	12/06/83	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.



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	ARMS INDEXED DATE	PAGE
	CCP-30 A	1	11/11/81	1 of 13
TITLE: COATING STEEL SUBSTRATES INSIDE REACTOR BUILDINGS AND RADIATION AREAS	ORIGINATOR:	<i>M. G. Geller</i>	11-6-81 DATE	
	REVIEWED BY:	<i>C. T. Geller</i> QA/QC	11-10-81 DATE	
	APPROVED BY:	<i>D. F. Geller</i> CONSTRUCTION PROJECT MANAGER	11/11/81 DATE	

0.1	<u>TABLE OF CONTENTS</u>
1.0	<u>INTRODUCTION</u>
1.1	PURPOSE
1.2	SCOPE
1.3	GENERAL DISCUSSION

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

DCN #1
DCN #2
DCN 3
DCN 4
DCN 5

VOID



ARMS
INDEXED

JOB 35-1195
Comanche Peak Steam Electric Station

DATE

Sheet 1 of 2

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 5

This notice applies to Construction Procedure No. 35-1195-CCP-30A Revision 1.

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 6 of 13

Reason for change: Additional requirement

Reviewed by:

Mark Well 5/10/82
Originator Date

11/4/83
Brown & Root Quality Assurance Date

Reviewed by:

Approved by:

[Signature] 5/11/82
TUGCO Quality Assurance Date

D.C. Hankins 5-11-82
Construction Project Manager Date

5/11/82
Effective Date



ARMS
INDEXED

JOB 35-1195
Comanche Peak Steam Electric Station

DATE

Sheet 1 of 2

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 4

This notice applies to Construction Procedure No. 35-1195- CCP-30A Revision 1.

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 5 of 13

Reason for change: Additional requirements

Reviewed by:

Robert M. Dorein 2-16-82
Originator Date

N/A 2/16/82
Brown & Root Quality Assurance Date

Reviewed by:

Approved by:

R. A. Cunningham 2/17/82
TUGCO Quality Assurance Date

D. C. Zimber 2-17-82
Construction Project Manager Date

2/17/82
Effective Date



ARMS
INDEXED

JOB 35-1195
Comanche Peak Steam Electric Station

DATE:

Sheet 1 of 3

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 3

This notice applies to Construction Procedure No. 35-1195-CCP-30A Revision 1.

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

Change the procedure as follows:

Replace the following pages with the attached:

Page 9 of 13
Page 10 of 13

Reason for change: Additional requirements

This change approved by:

Reviewed by:

Mark Wells 1-23-82 NARAD 1-25-82
Originator Date Brown & Root Quality Assurance Date

Reviewed by:

Approved by:

R.A. Crumley 1-25-82
TUGCO Quality Assurance Date

Charles Serupa 1-26-82 1/26/82
Construction Project Manager Date Effective Date



ARMS
INDEXED

JOB 35-1195
Comanche Peak Steam Electric Station

DATE:

Sheet 1 of 3

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 2

This notice applies to Construction Procedure No. 35-1195-CCP-30A Revision 1.

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 10 of 13

Page 11 of 13

Reason for change: CHANGE IN REQUIREMENT

This change approved by:

Reviewed by:

Mark Wells 11-19-81
Originator Date

N/A DOC 11/19/81
Brown & Root Quality Assurance Date

Reviewed by:

C.T. Rames 11/18/81
TUGCO Quality Assurance Date

D.C. [Signature] 11/19/81
Construction Project Manager Date

11/19/81
Effective Date



ARMS
INDEXED

DATE

JOB 35-1195
Comanche Peak Steam Electric Station

Sheet 1 of 3

Construction Procedure
DOCUMENT CHANGE NOTICE NUMBER 1

This notice applies to Construction Procedure No. 35-1195-CCP-30A Revision 1.
This change will be incorporated in the next revision of the procedure.

Change the procedure as follows:

Replace the following pages with the attached:
Page 9 of 13
Page 12 of 13

Reason for change: Additional requirements

This change approved by:

Reviewed by:

Mark Wells 11-13-81
Originator Date

N/A 11/16/81
Brown & Root Quality Assurance Date

Reviewed by:

C. T. Jones 11/16/81
TUGCO Quality Assurance Date

D. Frankum 11/17/81
Construction Project Manager Date

11/18/81
Effective Date



BROWN & ROOT, INC. CPSES		PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
JOB 35-1195		CCP-30A	1	11/11/81	2 of 13
1.0	<u>INTRODUCTION</u>				
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 Dimetcote 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	<p>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 Dimetcote 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.</p> <p>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.</p>				
2.0	<u>DEFINITIONS OF TERMS, ABBREVIATIONS AND SYMBOLS</u>				
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	1	11/11/81	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	1	11/11/81	4 of 13
<p>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.</p>				
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	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
JOB 35-1195	CCP-30A	1	11/11/81	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	<u>PROCEDURE FOR COATING</u>			
4.1	<p>PREPARATION OF SUBSTRATES AND COATING MATERIALS</p> <p>Surface Preparation for Primer - Final surface preparation shall not begin unless the temperature of the surface to be blasted and/or power tooled is 50°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".</p> <p>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:</p>			



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-3QA	1	11/11/81	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 not removed by others shall be removed by Painting Personnel in accordance with SSPC-SP-2, and SP-3. In areas where grinding and needle scaling is required, this will be witnessed by a Brown & Root QC Representative. If it is determined that surface defects are severe enough to require later repair, then 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.

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 and grease. This shall be accomplished by use of a manufacturer recommended cleanser or cleansing method on areas that have been seal-coated. On areas where the Dimetecote 6 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 be equivalent to a near white blast SP-10 specification with no size limitation as long as the millage requirements are obtained.

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



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	1	11/11/81	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	1	11/11/81	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		PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
JOB 35-1195		CCP-30A	1	11/11/81	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 Carboline 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. Dimetcote 6 application instruction R 11-78. Max. allowable touchup - 144 square inches. 2. Dimetcote 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 4.4.2.9 respectively.				
4.4.1.6	Treatment of Rust Stains - Remove residue, though not necessarily the stain, with bristle brush and water with Carboline #33 thinner 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 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	1	11/11/81	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 JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	1	11/11/81	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 ½" 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 grind any exposed steel to a bright finish. Solvent wipe the surrounding 305 finish with Carboline 305 thinner or xylol. Spray or brush apply Phenoline 305 finish at four mils nominal DFT over the damaged area, overlap at least one inch onto the surrounding 305 finish.			



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	1	11/11/81	12 of 13
4.4.2.9	Repair of Phenoline 305 Topcoat and/or Dimetcote 6 Primer Major Defects - (Major defects are defined as an area, either circular or linear, in which a ½" diameter circle could be inscribed at any point or along the entire length.) Spot blast or abrade, by machine or hand, the damaged area. Power tool or hand abrading must be very thorough in order to prepare the surface for Dimetcote 6 touch-up. The profile shall be equivalent to a near white SP-10 Specification. 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 interfacing the 305/CZ11 system and the 305/D6 system, the interface of the two primers shall be no greater than 1½" in width.			
4.5	FINAL ACCEPTANCE TESTING			
4.5.1	Following completion of total coating system, a final acceptance test shall be performed. Brown & Root Paint Superintendent shall maintain a log of all final acceptance tested areas.			
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.			
5.0	<u>SUPPORTING INFORMATION</u>			
5.1	ATTACHMENTS			
	1. Painter Qualification Record			
	2. Special Coating Procedure			
	3. Pot Life Phenoline 305			



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	1	11/11/81	13 of 13

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	1	11/11/81	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	1	11/11/81	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-3QA	1	11/11/81	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 hr	24 hrs

Pot life for coatings thinned up to but not including max. amount of thinner allowed, use pot life for unthinned material.



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	1	11/11/81	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 Carboline's 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 4.4.2.9 respectively.

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

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 may be given an initial coat of 1-2 mils finish coating thinned by using two quarts Phenoline Thinner per each gallon kit Phenoline 305. The material shall be 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 and repaired. The following application parameters shall govern:



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	1	11/11/81	12 of 13

4.4.2.9

Repair of Phenoline 305 Topcoat and/or Dimetcote 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 inscribed at any point or along the entire length.) Spot blast or abrade, by machine or hand, the damaged area. Power tool or hand abrading must be very thorough in order to prepare the surface for Dimetcote 6 touch-up. The profile shall be equivalent to a near white SP-10 Specification. The surface shall not be polished by wire brushing or other means.

5

FINAL ACCEPTANCE TESTING

4.5.1

Following completion of total coating system, a final acceptance test shall be performed. Brown and Root Paint Superintendent shall maintain a log of all final acceptance tested areas.

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.

5.0

SUPPORTING INFORMATION

5.1

ATTACHMENTS

1.

Painter Qualification Record

2.

Special Coating Procedure

3.

Pot Life Phenoline 305

VOID

Void Page Per DEN #2

BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	1	11/11/81	10 of 13

1. The permissible range of surface and ambient temperature shall be 50°F - 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. Thickness of coating shall have a minimum of 2.5 mils and a maximum of 5.5 mils. Minimum and maximum spot test values shall be 1.9 and 6.5 mils respectively.
4. 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.
5. 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+	2 days

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

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



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	1	11/11/81	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 4.4.2.5) for recoating time.)			
4.4.2.5	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; Dimetcote 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 $\frac{1}{2}$ " 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 grind any exposed steel to a bright finish. Solvent wipe the surrounding 305 finish with Carboline 305 thinner or xylol. Spray or brush apply Phenoline 305 finish at four mils nominal DFT over the damaged area, overlap at least one inch onto the surrounding 305 finish.			



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	1	11/11/81	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 Carboline's 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. 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 4.4.2.9 respectively.

4.4.1.6 Treatment of Rust Stains - Remove residue, though not necessarily the stain, with bristle brush and water with Carboline #33 thinner 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 may be given an initial coat of 1-2 mils finish coating thinned by using two quarts Phenoline Thinner per each gallon kit Phenoline 305. The material shall be 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 and repaired. The following application parameters shall govern:

void Pages 11, 12, 13



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	1	11/11/81	10 of 13

1. The permissible range of surface and ambient temperature shall be 50°F - 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% over-
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 +	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 JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	1	11/11/81	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, and 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.

VOID

TOUCH-UP AND FINISH COATING OF VENDOR APPLIED COATINGS

3. 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 is 50°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:

Void Page Per DCN #4



BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	EFFECTIVE DATE	PAGE
	CCP-30A	1	11/11/81	6 of 13

page per DCN #5

VOID

- 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 not removed by others shall be removed by Painting Personnel in accordance with SSPC-SP-2, and SP-3. In areas where grinding and needle scaling is required, this will be witnessed by a Brown & Root QC Representative. If it is determined that surface defects are severe enough to require later repair, then 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.
- 4.2 SURFACE PREPARATION FOR FINISH COAT
- 4.2.1 Surface preparation for the finish coat shall consist of the removal, if needed, of any oil and grease. This shall be accomplished by use of a manufacturer recommended cleanser or cleansing method on areas that have been seal-coated. On areas where the Dimetecote 6 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 be equivalent to a near white blast SP-10 specification with no size limitation as long as the millage requirements are obtained.
- 4.2.2 The ambient temperature and relative humidity shall be measured to determine the dew point temperature. Phenoline 305 finish coat shall not be applied unless the substrate temperature is more than 5°F above the dew point.



October 17, 1979

REVISION 0

ARMS
INDEXED

DATE:

VOID

JOB 35-1195

COMANCHE PEAK STEAM ELECTRIC STATION

ALTERNATE
CONSTRUCTION PROCEDURE

35-1195-CCP-30-A

VOID

COATING STEEL SUBSTRATES INSIDE REACTOR BUILDING
AND RADIATION AREAS

APPROVED BY:

APPROVED BY:

J. H. Wagner 11-1-79
Date

U. D. Douglas 11-7-79
Date

J. H. Wagner

U. D. Douglas

Project Chief Engineer

Construction Project Manager

PREPARED BY:

REVIEWED BY:

G. D. MacPhail 10-29-79
Date

J. P. Clarke, III. 11/15/79
Date

G. D. MacPhail

J. P. Clarke, III.

Civil Engineer

Quality Assurance

BROWN & ROOT, INC.
HOUSTON, TEXAS



TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
1.	INTRODUCTION	3
1.1	PURPOSE	3
1.2	SCOPE.....	3
1.3	GENERAL DISCUSSION	3
2.	DEFINITIONS OF TERMS, ABBREVIATIONS AND SYMBOLS	3
2.1	TERMS	3
2.2	ABBREVIATIONS	4
2.3	SYMBOLS	4
3.	SPECIAL ITEMS AND OPERATIONS	4
3.1	QUALIFICATION OF PERSONNEL	4
3.2	SAFETY REQUIREMENTS	4
3.3	INSTRUMENTS AND THEIR USE	4
3.4	DOCUMENTATION	5
3.5	RECEIVING, STORING AND DISPENSING OF COATING MATERIALS	5
3.6	SPECIAL COATING PROCEDURE	6
3.7	TOUCH-UP & FINISH COATING OF VENDOR APPLIED COATINGS	6
4.	PROCEDURE FOR COATING	6
4.1	PREPARATION OF SUBSTRATES AND COATING MATERIALS.....	6
4.2	SURFACE PREPARATION FOR FINISH COAT	7
4.3	PREPARATION OF COATING MATERIALS	8
4.4	APPLICATION OF PRIME AND FINISH COATING	8
4.5	FINAL ACCEPTANCE TESTING	13
4.6	HOLD POINTS	13
5.	SUPPORTING INFORMATION	13
5.1	ATTACHMENTS	13
5.2	REFERENCES	14



1. 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 Dimetcote 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 Dimetcote 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.

2. DEFINITIONS OF TERMS, ABBREVIATIONS AND SYMBOLS

2.1 TERMS

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



2.2 ABBREVIATIONS

2.2.1 (NONE)

2.3 SYMBOLS

2.3.1 (NONE)

3. 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. 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 all attachments 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, STORING 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 ACP-3. 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. 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.

3.6.2 Each procedure shall be given an 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.), QA Manager 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. PROCEDURE FOR COATING

4.1 PREPARATION OF SUBSTRATES AND COATING MATERIALS

4.1.1 Surface Preparation for Primer - Under normal conditions, surface preparation shall not begin unless the temperature of the surface to be blasted 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-SP10, "Near White Blast Cleaning", hand, or power tool grinding and scaling to achieve 1-2 mil profile. After sand blasting, hand or power tool grinding and scaling, the surface to be primed shall be air blasted and/or solvent wiped to remove all sand and foreign materials. This shall be done until the surface is clean and will 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 placement. If rust forms after blast cleaning, the surface shall be "shower blast" cleaned before painting. Under no case will a blast cleaned surface be exposed for more than 24 hours prior to priming. When applying coatings that will be joined together by a later coating operation, the interface shall be constructed as follows: Overblast the steel to near white metal approximately 12" - 18" beyond the point which will receive primer. Drop back approximately 12" - 18" on the primer when applying the seal-coat.

- 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 SP-3. In areas where grinding and needle scaling is required, this will be witnessed by a Brown & Root QC Representative. If it is determined that surface defects are severe enough to require later repair, then the area to be repaired will be blocked out and spot painted at a later date. All edges, protrusions, and peaks shall be ground smooth to a rounded contour; as a guide 1/8 inch radius of the contour may be used.
- 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 use of a manufacturer recommended cleanser or cleansing method on areas that have been seal-coated. On areas where the Dimetcote 6 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 be equivalent to a near white blast SP-10 specification with no size limitation as long as the millage requirements are obtained.
 - 4.2.2 The ambient temperature and relative humidity should be measured to determine the dew point temperature. Phenoline 305 finish coat should not be applied unless the substrate temperature is more than 5° F above the dew point.



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.
- 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 up to the maximum amount permitted by the latest revision of Carboline Publication Number 473, (except recoating mixes - refer to Section 4.4.1.4).

4.4 APPLICATION OF PRIME AND FINISH COATING

- 4.4.1 Prime Coat: (Ameron Dimetcote 6)
- 4.4.1.1 Coating material shall be applied using conventional spray equipment with agitated pressure pots having a maximum hose length of 75 feet. Care must be taken to assure that air and material pressures are adjusted to compensate the additional length of hose from 50' to 75' in length. The primer shall be allowed to dry as much as possible ($\frac{1}{2}$ hr. min. @ 70° F, 50% R.H.) 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.



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 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. Coating material 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 temperature and relative humidity conditions:

<u>TEMPERATURE WITH OVER 50% R.H.</u>	<u>Curing Time Before Topcoating</u>
0°F.	7 days
40°F.	24 hours
60°F.	24 hours
80°F.	24 hours
100°F.	12 hours

If required, the cure of Dimetecote 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 Dimetecote 6 Primer - Surface shall be free of all oil, grease or other contaminants. A wash down with Trisodium Phosphate (T.S.P.) or detergent, using a stiff bristle brush, followed by flushing with fresh water is required. Allow surface to dry before recoating. Do not solvent wipe the surface to remove grease or oils as a final cleaning.



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 instructions 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 and recoated as outlined in Section 4.4.1.2.

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

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 may be given an initial coat of 1-2 mils finish coating thinned by using two quarts Phenoline Thinner per each gallon kit Phenoline 305. The material shall be allowed to dry as much as possible 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 and repaired. The following application parameters shall govern:



1. The permissible range of surface and ambient temperature shall be 50 - 120 degrees F. However, when surface temperatures are outside the range of 60 - 85 degrees F. or ambient temperature outside 65 - 85 degrees F., it is permissible to use up to two quarts of Phenoline Thinner per gallon kit of Phenoline 305. The amount of thinner used under these conditions (1-1/2 pints-2 quarts) shall be that which gives the best workable mix under the given temperature conditions, i.e., usually advantageous to use more thinner at lower temperature.
 2. Minimum and maximum values of relative humidity shall be 0% and 85% respectively.
 3. Thickness of coating shall be minimum of 2.5 mils and a maximum of 5.5 mils. Minimum and maximum spot test values shall be 1.9 and 6.5 mils respectively.
 4. Coating material shall be applied using a 50% overlap with each pass while holding the gun 8-10 inches from the surface.
 5. Recoating time of Phenoline 305 is 12 hours at 90 degrees F. or 18 hours at 75 degrees F. and 50% R.H. Phenoline 305 thinned at two quarts Phenoline Thinner per gallon kit may be recoated after four hours. After 30 days it shall be solvent wiped prior to recoating with Phenoline 305 Thinner.
 6. Tack free time at 75 degrees and 50% R.H. is 9 hours.
 7. Full cure is achieved in 7 days at 75 degrees F. and 50% R.H.
- 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. Area will be recoated as outlined in the Repair of Pinholes and Discontinuities (Section 4.4.2.4).
- 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. Recoating shall not be performed until 18 hours @ 75 degrees F. or 12 hours @ 90 degrees F. have elapsed.



- 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 4.4.2.3 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 (Aercoat 12 cleaner, Phenoline Thinner #305 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 approximately 2 inches.
- 4.4.2.6 Brush touch-up painting shall be done on the finish coat in accordance with the following:
1. Carboline Application Instructions (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 and overcoating with a coat of Phenoline 305 prepared in accordance with Section 4.4.2.4.
- 4.4.2.8 Repair of Topcoat/D-6 Minor Defect - (Minor defects are defined as an area, either circular or linear, in which a $\frac{1}{2}$ " 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 area and grind any exposed steel to a bright finish. Solvent wipe the surrounding 305 finish with Carboline Surface Preparation I. Spray or brush apply Phenoline 305 finish at Four mils nominal D.F.T. over the damaged area, overlap at least one inch onto the surrounding 305 finish.



- 4.4.2.9 Repair of Phendine 305 Topcoat/Dimetcote 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, by machine or hand, the damaged area. Power tool or hand abrading must be very thorough in order to prepare the surface for Dimetcote 6 touch-up. The profile shall be equivalent to a near white SP-10 Specification. The surface shall not be polished by wire brushing or other means.

4.5 FINAL ACCEPTANCE TESTING

- 4.5.1 After coating system cure, final inspection, and resolution of all discrepancies is completed, the QC Inspector shall document the final acceptance by completing and signing the final acceptance record and will transmit a copy of this record 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.

5. SUPPORTING INFORMATION

5.1 ATTACHMENTS

1. Painter Qualification Record
2. Special Coating Procedure

(CONTINUED ON NEXT PAGE)



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
5. ANSI N101.2,
"Protective Coatings (Paints) for Light Water Nuclear
Reactor Containment Facilities"
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



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



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: _____



CPSES NRC TRT
SSER - COATINGS 4
WORK PACKAGE
VOL XII OF XIII

CCP-30A

FOIA-85-59

A/62

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	1 of 32

INSPECTION OF CONCRETE SUBSTRATE SURFACE PREPARATION AND COATINGS APPLICATION AND REPAIR	PREPARED BY: <u>Fred Dunham</u> APPROVED BY: <u>[Signature]</u> APPROVED BY: <u>[Signature]</u>	7-10-84 DATE 7-10-84 DATE 7-10-84 DATE
---	---	---

FOR INFORMATION ONLY

1.0 REFERENCES

1-A Gibbs and Hill Specification 2323-AS-31, "Protective Coatings"

1-B QI-QP-11.4-28, "Protective Coatings Inspection Travelers"

1-C CP-QP-16.0, "Nonconformances"

2.0 GENERAL

2.1 PURPOSE AND SCOPE

This instruction shall describe the methods used by Quality Control personnel while performing inspections of application of coatings on a concrete substrate inside the Reactor Containment Building, Unit 1.

3.0 INSTRUCTIONS

Visual inspection of surfaces as addressed by this instruction shall be made at approximately an arm's length from the surface being inspected. The area of inspection shall be adequately lighted during the inspection activity. Adequate lighting is defined as the minimum light produced by a two (2) D-cell battery flashlight.

Visual aids fabricated on site and approved by Quality Assurance and Engineering may be used by Inspectors as an aid in the performance of their inspections.

For definitions reference Attachment 6.

If a conflict arises between the requirements of this procedure and the requirements of the site specification, Ref. 1-A, the requirements of the site specification shall prevail.

Read 7/11/84 @ CA

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	SSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	2 of 32

3.1 SURFACE PREPARATION

Under normal conditions, the concrete surface shall be allowed to cure a minimum of 28 days prior to application of protective coatings. However, if the coatings are to be applied to pour backs, grouting, or patching to which NUTEC 10 has been applied as a curing compound, coating application may be performed after a minimum of 6 days has elapsed from NUTEC 10 application time. Repaired abandoned Hilti bolt holes, tie holes, unacceptable spalled concrete, grout under base plates which have 3 square feet or less of exposed grouted surface to be coated, may be coated if Nutec 10 is applied as a curing compound and the Nutec 10 has cured in accordance with Section 3.1.1.7. Abandoned Hilti Bolt holes and tie holes may be coated after initial setting of the patch if no curing membrane is used. If other curing methods are utilized for cosmetic patches or grout under base plates as stated above, coating shall not proceed until 7 days cure has elapsed.

3.1.1 Application of NUTEC 10 Curing Compound (if applicable)

- 3.1.1.1 The QC Inspector shall verify that the green concrete has been cleaned.
- 3.1.1.2 The QC Inspector shall verify the coating applicator is qualified per Section 3.3.5.
- 3.1.1.3 The QC Inspector shall verify that NUTEC 10 is not applied under inclement conditions and that the surface temperatures are above 50°F. Ambient conditions shall be verified per Section 3.3.1. Areas of visible moisture or standing water are unacceptable (Reference Attachment 6).
- 3.1.1.4 NUTEC 10 shall be mixed per Paragraph 3.2. The NUTEC 10 has a pot life of (1) one hour at 75°F. If the NUTEC 10 gives the appearance of crawling and does not penetrate the concrete, the material shall be removed from the concrete by solvent and a clean cloth. All the expired material shall be discarded.
- 3.1.1.5 Pot life above is the recommended time and should be utilized as a guideline for coating time, actual pot life is determined by the applicability of the coating. This applies to thinned and unthinned coatings.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	3 of 32

3.1.1.6 Nutec 10 may be applied by spray, brush, or roller. If spray application is used, the QC Inspector shall verify that the NUTEC 10 air supply shall be in accordance with Section 3.3.3.

3.1.1.7 Cure times for Nutec 10 is as follows:

ST - 50°F - 69°F -- 72 hours
70°F - 89°F -- 24 hours
90°F and above 18 hours

3.1.2 Preblast Cleaning Operations

Prior to surface preparation, the QC inspector shall visually examine the surface to be water blasted for heavy deposits of oil and grease. Any heavy oil or grease deposits shall be removed.

The QC inspector shall also verify that any detrimental surface irregularities such as projections, fins or ridges are removed.

NOTE: The preblast visual inspection is required only when surface preparation is by one of the following methods:

- a. Water blasting
- b. Water blasting with sand injection
- c. Dry sandblasting
- d. Bush hammering

3.1.3 Methods of Surface Preparation

Water blasting, water blasting with sand injection, acid etching, sand blasting, and power tooling are all acceptable methods of surface preparation. If NUTEC 10 curing membrane has been applied and gives a "glossy" appearance, the NUTEC 10 shall be abraded to remove the glossy appearance.

If chemical cleaning is performed on the concrete substrate, the QC Inspector shall verify that the surface is flushed clean with water.

3.1.4 Post Surface Preparation Operations

After surface preparation, the QC inspector shall visually examine the surface to verify the following:

- a) The surface shall be free of construction dust, laitance, and loose deposits, and all adjacent areas cleaned to avoid contamination.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	4 of 32

- b) All holes greater than 1/2 inch in depth or greater than 2" diameter and cracks greater than 1/32" width are repaired prior to surfacer application.
- c) All sharp projections removed.
- d) Markings (ink, pencil, chalk, felt tip marker, etc.) solvent wiped.
- e) Marking paint removed.
- f) Objects protruding from surface are ground or cut smooth until object is flush.
- g) All loosely adhering embedded objects are removed.
- h) Embedded steel objects less than 4 square inches shall be power tool roughened and solvent wiped.
- i) Metal objects larger than 4 square inches are primed.
- j) Surface is free of grease, oil, and nonapproved curing membranes.

3.2 MIXING OPERATIONS

3.2.1 Materials

A QC inspector shall verify on Attachment 5 that the shelf life has not expired.

3.2.2 Mixing/Thinning

An inspector shall witness all mixing/thinning operations Per Attachment 7. Induction times for finish mixes are shown in Attachment 2.

3.3 SURFACER APPLICATION

The coating system will consist of a surfacer Nutec 11S, touch-up with Nutec 11 surfacer as required and a finish coat of Nutec 1201. In areas where the concrete surface to be coated exhibits only minor amounts of "bug holes" and surface imperfections, Nutec 11 and Nutec 1201 may be used without the use of Nutec 11S as primary surfacer.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1994	5 of 32

3.3.1 Ambient Conditions

The inspector shall monitor the ambient conditions being recorded on the Environmental Log (Attachment 4) at the "paint distribution point" inside Reactor Unit I. A calibrated non-mercury filled dry bulb thermometer or a calibrated temperature recorder (Bristol 4069 TH or equivalent) shall be used for air temperature determination. A calibrated non-mercury filled wet bulb thermometer or a calibrated humidity recorder (Bristol 4069 TH or equivalent) shall be used to determine relative humidity. The dew point shall be determined by the difference in dry and wet bulb temperature using the U.S. Department of Commerce Weather Bureau Psychrometric Tables, W.B. No. 235. When dry bulb readings are greater than 100°F, the dew point and relative humidity should be determined using the 100°F reading (note in Remarks Section). The surface temperature shall be determined by placing a calibrated Range 0-250°F thermometer or equivalent in contact with the surface to be coated. The thermometer probe shall remain in contact with the surface until the temperature reading stabilizes.

Minimum and maximum values of surface and ambient temperatures shall be 50°F and 100°F respectively. Infrequent dips in temperature to 40°F is permissible during application and/or cure; however, the elapsed time the temperature is below 50°F shall be added to the cure time. Application of the coating shall not begin unless the surface temperature is 5°F above the dew point.

Humidity may vary as high as 100%; however, free standing water shall be removed. Coating application over a damp surface is permissible. Under no conditions shall NUTEC 11S or Nutec 11 be applied to a surface containing free standing water. (Reference Attachment 6).

3.3.1.1 Documentation of Environmental Conditions

- a. The Inspector assigned to the "paint distribution point" in the Reactor Building shall, as a minimum, take a complete set of readings (air temperature, relative humidity, dew point and surface temperature) on each floor elevation at least three (3) times each shift (preferably, the beginning, mid point, and just prior to the end of each shift). More readings may be taken when necessary (i.e., noticeable change in air temperature, request by field inspector to take readings in a specific area, etc.).

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	6 of 32

b. The Inspector at the "paint distribution point" shall document these readings on Attachment 4 as follows:

1. The Inspector shall fill in the applicable information as delineated on the form, except for the "Report No.". (The Report No. will be filled in by the Paper Flow Group when they assign numbers, prior to transmitting to the QA vault.)

2. Upon completion of the shift, the inspector shall turn all of the Environmental Log Sheets for that shift into the lead inspector(s).

c. The lead inspector(s) shall review the log sheets for completeness and correctness, sign and date the "QC Review" block, obtain copies for QC reference and transmit the originals to the Paper Flow Group.

d. If at any time the inspector determines readings which do not comply with the parameters set forth in this procedure, he shall proceed in the following manner:

1. Immediately take an additional set of readings in the immediate area of the first set of unacceptable readings and record them on the Environmental Log.

2. If the additional set of readings are acceptable, take a third set of readings for referee purposes and record them. If the referee set of readings are acceptable, then the area in question is acceptable but should be closely monitored with readings as necessary.

3. If the additional set of readings is unacceptable and/or the referee set of readings is unacceptable, the inspector is to notify the coatings inspectors in the areas affected so that coating work may be stopped at that time. Coating work shall not continue until the ambient conditions resume an acceptable status.

4. When unacceptable ambient conditions occur and are verified by Step 3 above, the Inspector shall document it on a Nonconformance Report (NCR) in accordance with Reference 1-C, and adequately identify the affected areas/elevations.

TEXAS UTILITIES GENERATING CO. CPSES	PROCEDURE NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	7 of 32

3.3.2 Surface Acceptability

The QC inspector shall visually examine the substrate surface immediately prior to surfacer application to verify that it is free of contamination (dust, laitance, loose deposits and markings).

3.3.3 Air Supply Acceptability

The inspector shall inspect the air supply system for suitable filters/traps/separators. The effectiveness of these items shall be verified by exposing a piece of white cloth to a blast of air for approximately 30 seconds. The cloth shall show no evidence of moisture, oil or foreign matter when examined.

3.3.4 Pot Life

The QC inspector shall verify that the pot life as shown in Attachment 2 is not exceeded.

3.3.5 Qualification of Applicator(s)

The Inspector shall verify (by Qualification Record or list of qualified applicators from QA file) that the coating applicators on each shift are qualified for safety-related coating work.

3.3.6 Dry Film Thickness

The QC inspector shall determine the DFT of the applied surfacer by taking wet film thickness spot measurements and multiplying each reading by the % volume solids (taking in account any thinner used). A minimum of five (5) separate spot wet film thickness (WFT) measurements (See Note 1) spaced evenly over the coated area shall be taken for every 100 square feet of coated surface. For areas less than 100 square feet, Refer to Note 2 below.

NOTE 1: A spot measurement is a series of three measurements in the same general area. The WFT gage should be moved a short distance for each gage reading. Discard any unusually high or low gage reading that cannot be repeated consistently. Take an average of these three gage readings as one spot measurement.

TEXAS UTILITIES GENERATING CO. CPSES	PROCEDURE NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	8 of 32

NOTE 2: Five spot tests shall be taken for every 100 square feet of coated surface. For areas less than 100 square feet, the following shall apply:

Area Sq. Ft.	No. Spots
100-80	5
80-50	4
50-10	3
10-3	2
3-0	1

Thickness of Nutec 11S may vary between 10 and 35 mils. Nutec 11 may vary between 3 - 20 mils. (See Attachment 3 for method of determining percent volume solids.)

NOTE 3: Tack free times shall be as follows:

Temperature °F	#11	#11S
50 - 59	6 hrs.	8 hrs.
60 - 79	4 hrs.	6 hrs.
80 - 99	2 hrs.	4 hrs.
100	1 hr.	2 hrs.

Temperature °F	Full Cure 11, 11S
50 - 59	10 days
60 - 69	8 days
70 - 79	7 days
80 - 89	6 days
90 - 100	5 days

3.3.7 Monitoring of Surfacer Application

Monitor the surfaces where NUTEC 11S or Nutec 11 is being applied to assure that it is not being applied to a surface containing free standing water. (Application of 11S over a damp surface is permissible.) Reference Attachment 6. Verify that the pot life as stated in Paragraph 3.3.4 is not exceeded.

3.3.8 Surfacer Repair Work

3.3.8.1 Repair of Runs and Sags

Runs and sags which show no evidence of mudcracking shall be abraded flush with the surrounding surface. If after

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	III 11 1984	9 of 32

abrading, surfacer is unsatisfactory due to mudcracking remove unsatisfactory coating to substrate and reapply the surfacer. If after abrading the surfacer is satisfactory, no further repair is necessary.

3.3.8.2 Repair of Contamination

Contamination shall be removed by abrading. If unsatisfactory coating still exists, then the area shall be repaired in accordance with Section 3.3.8.3.

NOTE: Rust stains residue, not necessarily the stain, shall be removed with bristle brush and water or Imperial Thinner #DL-54.

3.3.8.3 Repairs When Touch Up or Recoating is Necessary

For repairs that require either touch up or recoating with NUTEC 11S, NUTEC 11 or NUTEC 1201, the QC inspector shall:

- a) Verify ambient conditions are acceptable per Section 3.3.1.
- b) Verify the surface has been prepared in accordance with Sec. 3.3.8.2 and is free from loose and foreign materials as per Section 3.1.4 and/or Paragraph 3.5.6.
- c) Verify acceptable materials are used, and shelf life is not exceeded.
- d) Verify that NUTEC 11S, NUTEC 11 or NUTEC 1201 is mixed/thinned in accordance with Section 3.2.
- e) Verify pot life is not exceeded per Attachment 2.
- f) Verify qualification of applicator(s) per Section 3.3.5.
- g) Visually inspect per Section 3.4.2.1.
- h) Verify that curing is in accordance with Section 3.4.2.2.
- i) Verify dry film thickness in the repair area is in accordance with the following millage requirements:

NUTEC 11S	10 - 35 mils
NUTEC 11	3 - 20 mils
NUTEC 1201	3 - 16 mils

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	10 of 32

NOTE 1: See Section 3.3.6 and Attachment 3 for DFT calculation using Wet Film Thickness measurement and percent volume solids.

3.3.8.4 In-process repairs shall be documented on the Traveler in accordance with Reference 1-8, (Attachment 1) showing their status and/or completion.

3.4 FINISH COAT PREAPPLICATION

3.4.1 Preapplication Inspection

3.4.1.1 Ambient Conditions

Prior to finish coat application, the QC inspector shall determine ambient conditions in accordance with Section 3.3.1.

3.4.2 Surfacer Post Application Operation

3.4.2.1 Visual Defects Inspection

The inspector shall perform a visual inspection of the surfacer coat NUTEC 11S and NUTEC 11 prior to the finish coat application for the following defects:

- a) Runs and sags which show no evidence of mudcracking shall be abraded down to adjoining coating thickness.
- b) Stains - rust (red) and zinc oxide (white) stains are acceptable provided loose particles are removed from NUTEC 11S or NUTEC 11 surfaces prior to application of finish coat.
- c) Damaged areas, skips, dry spray, holidays, blisters, bubbling, mudcracking, oil and grease, contamination are all unacceptable and shall be removed and repaired in accordance with the applicable subsection of 3.3.8.

NOTE: Hairline cracks appearing in concrete coatings after application are acceptable provided coatings show no loss of adhesion.

3.4.2.2 Surfacer Cure

The inspector shall monitor ambient temperature after the surfacer is applied to determine when cure is adequate for

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	11 of 32

finish coating operations to commence. A calibrated non-mercury filled dry bulb thermometer or a calibrated temperature recorder (Bristol 4069TH or equivalent) shall be used for air temperature determination.

Curing time shall be as follows:

<u>Temperature 0°F</u>	<u>Curing Time Before Topcoating with 1201</u>
50-59	72 hrs.
60-69	48 hrs.
70-79	24 hrs.
80-89	18 hrs.
90-100	12 hrs.

Temperature durations below 50°F will be added to the cure time on an hour for hour basis.

NUTEC 11S may be touched up or recoated with #11 or #11S as soon as the initial coat has dried such that the paint shall not adhere to the thumb when downward pressure is exerted on the paint film while turning a 90° angle. (This does not refer to the two pass application method.)

3.4.3 Mixing Operations

3.4.3.1 Materials

The QC Inspector shall verify on Attachment 5 that shelf has not expired.

3.4.3.2 Mixing/Thinning

An Inspector shall witness all mixing/thinning operations per Attachment 7. Induction times for finish mixes are shown in Attachment 2.

3.5 FINISH COAT APPLICATION

3.5.1 Air Supply Acceptability

The QC inspector shall verify the air supply is acceptable per Section 3.3.3.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	12 of 32

3.5.2 Qualification of Applicator(s)

The Inspector shall verify (by Qualification Record or list of qualified applicators from QA file) that the coating applicators on each shift are qualified for safety-related coating work.

3.5.3 Pot Life

The QC inspector shall verify that the pot life of NUTEC 1201 has not been exceeded. Pot life is shown on Attachment 2.

3.5.4 Dry Film Thickness

The inspector shall determine the DFT of the applied finish coat by taking wet film thickness spot measurements and multiplying each reading by the % volume solids. A minimum of five (5) separate spot wet film thickness (WFT) measurements (See Note 1) spaced evenly over the coated area shall be taken for every 100 square feet of coated surface. For areas less than 100 square feet, refer to Note 2 below.

NOTE 1: A spot measurement is a series of three measurements in the same general area. The WFT gage should be moved a short distance for each gage reading. Discard any unusually high or low gage reading that cannot be repeated consistently. Take an average of these three gage readings as one spot measurement.

NOTE 2: For spot test areas, Ref. Sec. 3.3.6 Note 2.

(See Attachment 3 for method of determining percent volume solids.)

3.5.5 Monitoring of Finish Coat Application

- a. During application of finish coat, the inspector shall monitor the wet film to assure no fish eyes appear. If fish eyes occur, the inspector shall notify the paint foreman of their presence. Fish eyes should be removed while the coating is still wet, previous coat (surfacers) cleaned with solvent and finish coat reapplied.
- b. If applicable, the inspector shall monitor that the hose length does not exceed 75 feet.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	13 of 32

- c. Monitor the cure time for recoat of NUTEC 1201. Recoating time of NUTEC 1201 is 24 hours.

The total DFT of NUTEC 1201, recoat and existing coat shall not exceed 16 mils.

3.5.6 Finish Coat Repairs

For repairs in the NUTEC 1201 Finish Coat, the QC Inspector shall verify the following:

- a) The inspector shall determine the DFT of the existing coated surface (prior to recoating) by either, or one of the two following methods.

- 1) Using the DFT readings acquired during the backfit documentation.
- 2) The scratch test of the NUTEC 1201 finish coat shall be performed using a Mark II Tooke Inspection Gage equipped with a 2x tip. Five separate readings spaced randomly over each finish coated area of 100 square feet shall be taken. For areas less than 100 square feet, Note 2 of Section 3.3.6 shall apply.

- b) Repairs of Runs/Sags

Runs/sags showing evidence of mudcracking shall be removed. Runs or sags which exhibit no other coating defect shall be abraded to the thickness of adjoining coatings.

- 1) Verify that all loose particles and foreign particles are removed from surface.
- 2) Verify that the surface is solvent wiped.
- 3) Perform inspections in Sections 3.2, 3.4.1, 3.5, and 3.6.

- c) Repair of Scratches and/or Damaged Areas

Any scratches or damaged areas shall be abraded until loosely adherent particles are removed. The following minimum coating requirements shall be maintained for damages extending to concrete:

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	14 of 32

Damage 1/2" or less regardless of length - no additional surfacer required prior to topcoat.

Damage greater than 1/2" in width - normal coating system required.

When performing surfacer and/or topcoat repair work, and the damaged area is 2 sq/ in. or less in size, or the damage is a scratch 1/4 in. width or less, regardless of length, substantiating or recording wet film thickness of the damaged area repair shall not be required.

NOTE: Hairline cracks appearing in concrete coatings after application are acceptable provided coatings show no loss of adhesion.

d) Repair of Contamination

The QC inspector shall verify that contamination is removed by abrading and the surface recoated. The inspector shall perform inspections delineated in Sections 3.2, 3.4.1, 3.5 and 3.6.

e) Repair of Pinholes and Small Discontinuities

- 1) Verify all loose particles are removed and area is solvent wiped.
- 2) Pinholes and small discontinuities may be repaired at the time of final inspection without a later reinspection of the repair. The inspections in Section 3.2, 3.4.1, 3.5 and 3.6 still apply.

f) Repair of Dry Spray

Repair of dry spray identifiable by visual inspection defined within this procedure shall be removed. (A minor amount of adherent dry spray is acceptable on the final finish coat.)

- 1) Verify all loose particles are removed.
- 2) Verify coating film thickness is still within allowable range.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	15 of 32

3) If film thickness is not within allowable range perform inspections in Sec. 3.2, 3.4.1, 3.5 and 3.6.

g) Repair of Excessive Orange Peel

- 1) Verify the affected area is abraded and solvent wiped.
- 2) Verify the affected area is refinished and perform the inspections delineated in Section 3.2, 3.4.1, 3.5 and 3.6 if required.

h) Repair of Gloss and Color Nonuniformity

- 1) Verify the affected area is solvent wiped.
- 2) Verify the affected area is recoated without exceeding the maximum film thickness and perform inspections in Sections 3.2, 3.4.1, 3.5 and 3.6.
- 3) Top coated areas which have been abraded for various reasons (i.e., runs, sags, high millage, etc.) and are within acceptable procedural thickness, following repairs, do not require recoating for gloss enhancing.
- 4) For small repair areas such as pinholes, color and gloss uniformity is not required, provided the coating is smooth and continuous.

NOTE 1: If present, the tie in interface between concrete coatings and steel coatings shall be visually inspected during the finish coat final acceptance of both coating systems.

NOTE 2: (If applicable) 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 interface the interface of the coating of systems shall be a maximum of 1½ inch in width. Within the interface area overlapping of any materials or systems is acceptable.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	16 of 32

NOTE 3: Repair and touch-up - For repair and/or touch-up purposes, Nutec #11S or #11 surfacer may be placed over the initial system as required to complete the required repair or touch-up. Roughen the topcoat, if present, by sanding, or stoning prior to applying repair surfacer.

3.5.6.1 In-process repairs shall be documented on the Traveler (Attachment 1) showing their status and/or completion.

3.6 FINISH COAT FINAL ACCEPTANCE INSPECTION PRIOR TO AREA TURNOVER

A final visual inspection in accordance with the following subsections shall be performed on exposed finish coated concrete substrates.

3.6.1 Finish Coat Cure

Prior to performing finish coat final acceptance inspections, the inspector shall verify that the finish coat has cured for the minimum of 24 hours.

3.6.2 Finish Coat Continuity Inspection

The QC Inspector shall visually inspect the continuity of the finish coat. The maximum number of permissible pinholes is shown on Attachment 3. No more than 2 points of discontinuity shall occur within an area having a radius of six inches (using a point of discontinuity as the center of the circle). No more than 40% of the total number of allowable points of discontinuity shall occur within any one area equal to 25% of the total area. The pinholes that are beyond the acceptance of Attachment 3 shall be repaired in accordance with Section 3.5.6.

3.6.3 Visual Examination

The QC inspector shall visually examine the finish coated surface for the following defects:

- a) Runs and sags which show no evidence of mudcracking are acceptable. Unacceptable runs and sags will be repaired in accordance with Section 3.5.6.
- b) At the time of the final inspection, pinholes and small discontinuities may be repaired with no later reinspection required of these areas.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	17 of 32

c) Skips, holidays, color and gloss nonuniformity, excessive orange peel, dry spray, damaged areas, blisters, bubbles, and fish eyes will be repaired in accordance with Section 3.5.6.

d) Contamination is unacceptable. Area must be repaired per Section 3.5.6.

NOTE: Minor repairs limited to 4 square inches or less and requiring finish coat only may be performed at the time of final inspection without later reinspection of the repair. Conditions may exist which will warrant reinspection at the inspector's discretion.

3.7 NONCONFORMANCES

3.7.1 Unacceptable conditions which are not readily repaired or corrected per the approved procedures shall be documented as unsatisfactory on the inspection traveler.

3.7.2 Nonconforming conditions such as coating failure due to loss of adhesion or indeterminate/unacceptable conditions which cannot be repaired or corrected as per existing procedures shall be documented on a Nonconformance Report (NCR) in accordance with Reference 1-C. The NCR number shall be referenced on the inspection traveler, if applicable.

3.8 DOCUMENTATION (REFER TO ATTACHMENT 1)

3.8.1 All inspections required by this procedure shall be recorded in the inspection attributes on the back of the travelers (Attachment 1). Preparation and processing of the traveler shall be per Reference 1-8.

3.8.2 When the inspections required by Sections 3.1 through 3.2.2 have been satisfactorily completed, Step 1 shall be signed and dated by the inspector.

3.8.3 When the inspections required by Sections 3.3 through 3.3.7.2 have been satisfactorily completed, Step 2 (for NUTEC 11S) or Step 4 (for NUTEC 11) shall be signed and dated by the inspector and the other Step marked not applicable (N/A), initialled and dated.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	18 of 32

3.8.4 When the inspections required by Sections 3.3.8 through 3.4.2.2 have been satisfactorily completed, Step 3 (for NUTEC 11S) or Step 5 (for NUTEC 11) shall be signed and dated by the inspector and the other Step marked not applicable (N/A), initialed and dated.

3.8.5 When the inspections required by Sections 3.5 through 3.5.5 have been satisfactorily completed, Step 6 shall be signed and dated by the inspector.

3.8.6 When the inspections required by Sections 3.5.6 through 3.6.3 have been satisfactorily completed, Step 7 shall be signed and dated by the inspector.

3.9 CLARIFICATION

3.9.1 Repair of Mechanical Damage to Completed Items

3.9.2 Areas that have been completed, inspected, accepted and traveler package closed which incur major damage at a later date may be repaired, inspected and documented on Attachment 8, "Concrete Protective Coating Inspection Repair Traveler". Otherwise, the minor areas of mechanical damage, which occur after completion of an area, will be repaired during the final protective coatings walkdown Reference CP-EI-4.0-51.

3.10 INACCESSIBLE/LIMITED ACCESS AREAS

If questions arise concerning inaccessible or limited access areas per (Reference 1-A) nondeleterious embedded foreign material in the final finish coat, the above condition(s) will be evaluated by the Project Civil Engineer or designee. Clarification and acceptance of the above stated condition(s) shall be so denoted by signature of the Engineer with date and comments as required, in the comments section of the applicable step.

3.11 ATTACHMENTS

3.11.1 Attachment 1, "Concrete Protective Coating Inspection Traveler"

3.11.2 Attachment 2, "Shelf and Pot Life Reference Sheet"

3.11.3 Attachment 3, "Allowed Points of Discontinuity Table" and "DFT Determination"

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	19 of 32

- 3.11.4 Attachment 4, "Environmental Log Sheet"
- 3.11.5 Attachment 5, "Paint Mix Slip"
- 3.11.6 Attachment 6, "Definitions"
- 3.11.7 Attachment 7, "Preparation of Coating Materials"
- 3.11.8 Attachment 7A, "Table for Partial Mixing of NUTEC 11S"
- 3.11.9 Attachment 7B, "Table for Partial Mixes of NUTEC 1201"
- 3.11.10 Attachment 8, "Concrete Protective Coating Repair Traveler"

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	20 of 32

ATTACHMENT 1

CONCRETE PROTECTIVE COATING INSPECTION TRAVELER	
WORK PKG. #	PCI TRAVELER #
ELEVATION:	ITEM # / DESCRIPTION
REF. DWGS.	
PREPARED BY:	DATE
STEP 1	SURFACE PREPARATION INSPECTED AND FOUND ACCEPTABLE PER QI-QP 11.4-27 AND RELEASED FOR NUTEC IIS APPLICATION. INSPECTOR _____ DATE _____ COMMENTS _____
STEP 2	NUTEC IIS SURFACER APPLICATION VERIFIED AND INSPECTED IN ACCORDANCE WITH QI-QP 11.4-27 AND FOUND ACCEPTABLE. INSPECTOR _____ DATE _____ COMMENTS _____
STEP 3	NUTEC IIS SURFACER PREPARATION INSPECTED AND FOUND ACCEPTABLE PER QI-QP 11.4-27 AND RELEASED FOR FURTHER COATING ACTIVITIES. INSPECTOR _____ DATE _____ COMMENTS _____
STEP 4	NUTEC II SURFACER APPLICATION VERIFIED AND INSPECTED IN ACCORDANCE WITH QI-QP 11.4-27 AND FOUND ACCEPTABLE. INSPECTOR _____ DATE _____ COMMENTS _____
STEP 5	NUTEC II SURFACER PREPARATION INSPECTED AND FOUND ACCEPTABLE PER QI-QP 11.4-27 AND RELEASED FOR FURTHER COATING ACTIVITIES. INSPECTOR _____ DATE _____ COMMENTS _____
STEP 6	NUTEC 201 TOPCOAT APPLICATION VERIFIED AND INSPECTED IN ACCORDANCE WITH QI-QP 11.4-27 AND FOUND ACCEPTABLE. INSPECTOR _____ DATE _____ COMMENTS _____
STEP 7	FINISH COAT INSPECTED FOR FINAL ACCEPTANCE AND FOUND ACCEPTABLE IN ACCORDANCE WITH QI-QP 11.4-27 INSPECTOR _____ DATE _____ COMMENTS _____
STEP 8	COMPLETION OF INSPECTION TRAVELER VERIFIED. QC REVIEW _____ DATE _____ COMMENTS _____
NOTES	1) DOCUMENT INSPECTION ATTRIBUTES ON ATTACHED SUPPORTING DOCUMENTATION SHEET(S) 2) DOCUMENT REPAIRS AND ATTRIBUTES, IF REQUIRED, ON ATTACHED SUPPORTING DOCUMENTATION SHEET(S) 3) FOR ENVIRONMENTAL CONDITIONS REFERENCE THE ENVIRONMENTAL LOG. 4) DOCUMENT NUTEC 10 APPLICATION ON ATTACHED SUPPORTING DOCUMENTATION SHEET.

21 of 32

PCI TRAVELER NO

[illegible]

ATTACHMENT 2

SHELF AND POT LIFE REFERENCE SHEET

Material

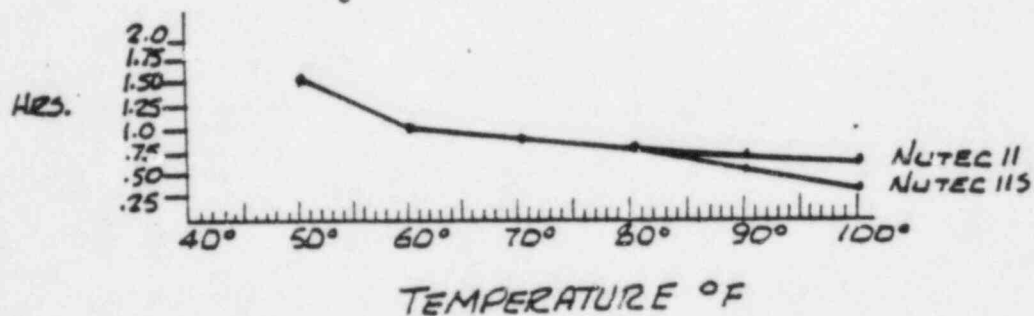
Nutec 11 Base & Curing Agent
Nutec 11S Base & Curing Agent
Nutec 1201 Base & Curing Agent
Thinners and Sand Filler

Shelf Life

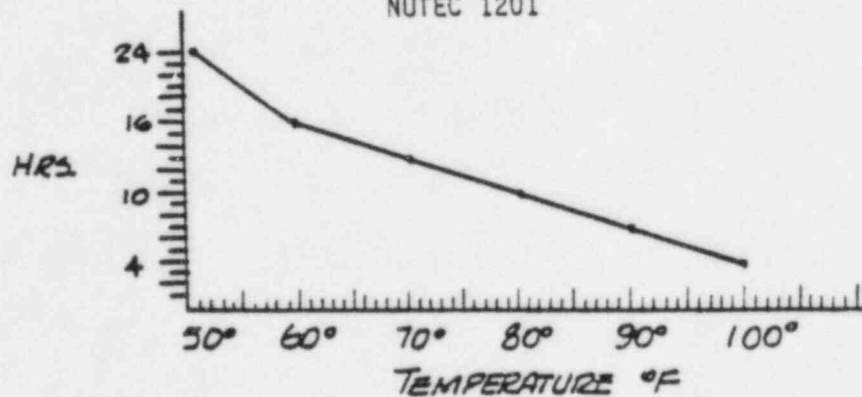
12 months
12 months
12 months
Unlimited

POT LIFE

NUTEC 11 AND NUTEC 11S



NUTEC 1201



INDUCTION TIMES FOR NUTEC 1201

Temp. (°F)

50-59
60-69
70-79
80-90
90-100

45 min.
30 min.
20 min.
10 min.
None

TEXAS UTILITIES GENERATING CO. CPSES	PROCEDURE NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1994	23 of 32

ATTACHMENT. 3

PART I Allowed Points of Discontinuity Table

<u>Surface Area (sq. ft.)</u>	<u>Total Allowable Number of Points of Discontinuity</u>
Up to 10	1
10-50	2
50-100	5
100-500	10
500-1000	15
1000-5000	25

No gross discontinuities are acceptable.

PART II Dry Film Thickness Determination Using Wet Film Thickness Readings and the Percentage (%) Volume Solids

Percent volume solids for unthinned concrete coatings are as follows:

NUTEC 11	-	78%
NUTEC 11S	-	88%
NUTEC 1201	-	54%

EXAMPLE: 11 mils WFT X 54% = 5.94 mils DFT

For thinned mixes:

$$\% \text{ Volume Solids} = \frac{\text{Volume of unthinned coating}}{\text{Volume of unthinned coating} + \text{Volume thinner}} \times \%$$

% Volume Solids (unthinned)

NOTE: In above equation, volume must be expressed in the same unit of measure.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	25 of 32

ATTACHMENT 5

PAINT MIX SLIP

Report No. _____

Bldg. _____

DATE _____ POT LIFE _____ SHIFT _____ TIME _____
MIX NUMBR _____ ELEVATION _____
MATERIAL _____ GAL. MIXED _____
SHELF LIFE ACCEPTABLE: YES _____ NO _____ M&TE #'S _____
DATE & TIME MIXED _____ BASE _____
CURING AGENT _____ FILLER _____ THINNER _____
ACCEPTED BY _____

DATE _____ POT LIFE _____ SHIFT _____ TIME _____
MIX NUMBER _____ ELEVATION _____
MATERIAL _____ GAL. MIXED _____
SHELF LIFE ACCEPTABLE: YES _____ NO _____ M&TE #'S _____
DATE & TIME MIXED _____ BASE _____
CURING AGENT _____ FILLER _____ THINNER _____
ACCEPTED BY _____

DATE _____ POT LIFE _____ SHIFT _____ TIME _____
MIX NUMBER _____ ELEVATION _____
MATERIAL _____ GAL. MIXED _____
SHELF LIFE ACCEPTABLE: YES _____ NO _____ M&TE #'S _____
DATE & TIME MIXED _____ BASE _____
CURING AGENT _____ FILLER _____ THINNER _____
ACCEPTED BY _____

QC REVIEW & ACCEPTANCE _____
signature _____ date _____

TEXAS UTILITIES GENERATING CO. CPSES	PROCEDURE NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	25 of 32

ATTACHMENT 6

DEFINITIONS

Color and Gloss Nonuniformity: A milky haze or mist in the finish of a recently applied coating.

Contaminant: A foreign substance, inadvertently added to a coating or found on the substrate that adversely affects the application, adhesion, curing and/or subsequent performance of the applied coating.

Dry Spray: A dry powdery primer or finish coat readily removed by light sanding with either sandpaper or a wire screen. A minor amount of adherent dry spray is acceptable on the final finish coat.

Feathering: An area that is roughened and tapered to obtain a smooth and continuous surface with an existing damaged coating.

Fisheyes: Small openings ("fish eyes") in wet film exposing old surface or previous coat.

Free Standing Water: May be identified by:

- a. Reduced viscosity of the surfacer during application, and excessive sagging from bug holes.
- b. Wet rings around bug holes.
- c. Visible signs of surface water.
- d. Running hand over the surface resulting in moisture on the hand.
- e. Product instability resulting in white streaks.
- f. Failure of the surfacer to adhere to the substrate during the squeegeeing or troweling process.

Full Hiding: The coating provides sufficient coverage so that the preceding coat is not readily visible with an unaided eye.

Holiday: A pinhole, skip, discontinuity or void in coating film.

Laitance: A fine, whitish accumulation on concrete surfaces. It consists mainly of cement particles that were carried by water rising to the surface of freshly placed concrete. The resulting concrete surface is unsuitable for proper adhesion or bond of subsequent fillers or protective coatings.

Monitor: Conformance verification by physically observing a task being performed on a periodic or random basis.

TEXAS UTILITIES GENERATING CO. CPSES	PROCEDURE NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	27 of 32

Mudcracking: Irregular cracking as in a dried mud puddle.

Orange Peel: Dents in the surface resembling orange skin. A moderate amount is acceptable.

Over Spray: A deflected spray mist that settles on dry or partially dry coated surfaces.

Pinholes: Minor discontinuities in coating which expose primer or substrate.

Verify: Confirm or make certain.

Visual: To examine with an unaided eye (correctional eye glasses or contact lens are acceptable).

TEXAS UTILITIES GENERATING CO. CPSES	PROCEDURE NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	28 of 32

ATTACHMENT 7

PREPARATION OF COATING MATERIALS

Surfacer Coat

The surfacer, NUTEC 11S, is packaged in a three component kit consisting of a base, curing agent, and filler. The base and curing agent shall be thoroughly mixed first. If necessary, box the mixture to assure that all the base and cure has been used. The filler shall then be slowly added under constant agitation and mixed until a smooth blend is achieved. The patching material, NUTEC 11, is prepared the same way. Partial mixes for NUTEC 11S shall be in accordance with Attachment 7A. No provision is given for partial mixes of NUTEC 11.

Finish Coat

The finish coat, NUTEC 1201, is a two component epoxy topcoat consisting of a base and cure. These shall be thoroughly mixed under constant agitation until a homogenous blend is achieved. Partial mixes of NUTEC 1201 shall be in accordance with Attachment 7B. Minimum induction times shall be as per Attachment 2.

SEALER/CURING COMPOUND

The sealer/curing compound, NUTEC 10, is normally a two component material consisting of a base and a curing agent. If applying to surfaces below 60° F, a third component accelerator may be used. Slowly mix by power agitation or by hand the entire volume of the cure component with the entire volume of the base component. If an accelerator is used, add the premeasured portion to the base-cure mixture and agitate slowly. Avoid rapid agitation which may result in air entrapment. Thinning may be performed by adding from 10-40% by volume #DL-56 solvent. Do not vary mixing proportions.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	29 of 32

ATTACHMENT 7A

TABLE FOR PARTIAL MIXING OF NUTEC 11s

NUTEC 11s									
	BASE		CURE		FILLER		PERMISSIBLE THINNER		
	lbs.	oz.	lbs.	oz.	lbs.	oz.	pts.	oz.	
0 Gal. - 1 Qt.		10.6	0	6.3	3	0	0	1.6	
0 Gal. - 2 Qt.	1	5.1	0	12.6	6	0	0	3.2	
0 Gal. - 3 Qt.	1	15.7	1	3	9	0	0	4.8	
1 Gal. - 0 Qt.	2	10.2	1	9.3	12	0	0	6.4	
1 Gal. - 1 Qt.	3	4.8	1	15.6	15	0	0	8	
1 Gal. - 2 Qt.	3	15.4	2	5.9	18	0	0	9.6	
1 Gal. - 3 Qt.	4	9.9	2	12.2	21	0	0	11.2	
2 Gal. - 0 Qt.	5	4.5	3	2.6	24	0	0	12.8	
2 Gal. - 1 Qt.	5	15.0	3	3.3	27	0	0	14.4	
2 Gal. - 2 Qt.	6	9.6	3	15.2	30	0	0	16	
2 Gal. - 3 Qt.	7	4.2	4	5.5	33	0	1	1.6	
3 Gal. - 0 Qt.	7	14.7	4	11.8	36	0	1	3.2	
3 Gal. - 1 Qt.	8	9.3	5	2.2	39	0	1	4.8	
3 Gal. - 2 Qt.	9	3.8	5	8.5	42	0	1	6.4	
3 Gal. - 3 Qt.	9	14	5	14.8	45	0	1	8	
4 Gal. - 0 Qt.	10	9	5	5.1	48	0	1	9.6	
4 Gal. - 1 Qt.	11	3.5	6	11.4	51	0	1	11.2	
4 Gal. - 2 Qt.	11	14.1	7	1.8	54	0	1	12.8	
4 Gal. - 3 Qt.	12	3.6	7	8.1	57	0	1	14.4	
5 Gal. - 0 Qt.	13	3.2	7	14.4	60	0	2	0	

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	30 of 32

ATTACHMENT 7B

TABLE FOR PARTIAL MIXES OF NUTEC #1201

Gal.	Qts.	Base		Cure		Maximum Permissible Thinner	
		lbs.	oz.	lbs.	oz.	qts.	oz.
0	1	2	9.6	0	5.4	0	9.6
0	2	5	3.2	0	12.8	0	19.2
0	3	5	14.4	1	3.2	0	28.8
1	0	10	8	1	8	1	6.4
1	1	13	1.6	1	14.4	1	16
1	2	15	11.2	2	4.8	1	25.6
1	3	18	4.8	2	11.2	2	3.2
2	0	20	14.4	3	1.6	2	12.8
2	1	23	3	3	3	2	22.4
2	2	26	3.2	3	14.4	3	0
2	3	23	12.8	4	3.2	3	9.6
3	0	31	6.4	4	9.6	3	19.2
3	1	34	0	5	0	3	28.8
3	2	36	9.6	5	6.4	4	6.4
3	3	39	3.2	5	12.8	4	16
4	0	41	12.8	6	3.2	4	25.6
4	1	44	8	6	8	5	3.2
4	2	47	0	6	14.4	5	12.8
4	3	49	11.2	7	14.4	5	22.4
5	0	52	4.8	7	11.2	6	0

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	31 of 32

ATTACHMENT 8

CONCRETE PROTECTIVE COATING INSPECTION REPAIR TRAVELER	
WORK PKG. #	SUPPLEMENTAL TO PCI TRAVELER #
ELEVATION	ITEM # / DESCRIPTION
REF. DWGS.	
PREPARED BY:	DATE SHT. OF
STEP 1	SURFACE PREPARATION INSPECTED AND FOUND ACCEPTABLE PER QI-QP 11.4-27 AND RELEASED FOR NUTEC II'S APPLICATION. INSPECTOR _____ DATE _____ COMMENTS _____
STEP 2	NUTEC II'S SURFACER APPLICATION VERIFIED AND INSPECTED IN ACCORDANCE WITH QI-QP 11.4-27 AND FOUND ACCEPTABLE. INSPECTOR _____ DATE _____ COMMENTS _____
STEP 3	NUTEC II'S SURFACER PREPARATION INSPECTED AND FOUND ACCEPTABLE PER QI-QP 11.4-27 AND RELEASED FOR FURTHER COATING ACTIVITIES. INSPECTOR _____ DATE _____ COMMENTS _____
STEP 4	NUTEC II SURFACER APPLICATION VERIFIED AND INSPECTED IN ACCORDANCE WITH QI-QP 11.4-27 AND FOUND ACCEPTABLE. INSPECTOR _____ DATE _____ COMMENTS _____
STEP 5	NUTEC II SURFACER PREPARATION INSPECTED AND FOUND ACCEPTABLE PER QI-QP 11.4-27 AND RELEASED FOR FURTHER COATING ACTIVITIES. INSPECTOR _____ DATE _____ COMMENTS _____
STEP 6	NUTEC QCI TOPCOAT APPLICATION VERIFIED AND INSPECTED IN ACCORDANCE WITH QI-QP 11.4-27 AND FOUND ACCEPTABLE. INSPECTOR _____ DATE _____ COMMENTS _____
STEP 7	FINISH COAT INSPECTED FOR FINAL ACCEPTANCE AND FOUND ACCEPTABLE IN ACCORDANCE WITH QI-QP 11.4-27 INSPECTOR _____ DATE _____ COMMENTS _____
STEP 8	COMPLETION OF INSPECTION TRAVELER VERIFIED. QC REVIEW _____ DATE _____ COMMENTS _____
NOTES	1) DOCUMENT INSPECTION ATTRIBUTES ON ATTACHED SUPPORTING DOCUMENTATION SHEET(S) 2) DOCUMENT REPAIRS AND ATTRIBUTES, IF REQUIRED, ON ATTACHED SUPPORTING DOCUMENTATION SHEET(S) 3) FOR ENVIRONMENTAL CONDITIONS REFERENCE THE ENVIRONMENTAL LOG. 4) DOCUMENT NUTEC II APPLICATION ON ATTACHED SUPPORTING DOCUMENTATION SHEET.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QP-11.4-27	6	JUL 11 1984	32 of 32

ATTACHMENT 8 (Continued)

[illegible]