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INSPECTION OF STEEL SUBSTRATE PRIMER REPAIR AND SEAL AND FINISH COAT APPLICATION AND REPAIR	PREPARED BY: <u>Jack Dunbar</u>	<u>5-4-84</u> DATE
	APPROVED BY: <u>[Signature]</u>	<u>5-4-84</u> DATE
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1.0 REFERENCES

- 1-A QI-QP-11.4-1, "Inspection of Steel Substrate Surface Preparation and Primer Application and Repair"
- 1-B CCP-30, "Coating Steel Substrates Inside Reactor Buildings and Radiation Areas"
- 1-C CCP-30A, "Coating Steel Substrates Inside Reactor Buildings and Radiation Areas"
- 1-D CP-QP-18.0, "Inspection Reports"
- 1-E QI-QP-11.4-22, "QC Verification of Protective Coatings Unique Identification Number Verification"
- 1-F CP-QP-15.0, "Tagging System"
- 1-G CP-QP-16.0, "Nonconformances"
- 1-H Gibbs & Hill Specification 2323-AS-31, "Protective Coatings", latest revision

2.0 GENERAL

2.1 PURPOSE AND SCOPE

The purpose of this instruction is to outline methods utilized by Quality Control personnel in inspection of primer repair and seal and finish coat application and repair in the safety related areas of Unit 2 and the paint shop.

3.0 INSTRUCTION

Visual inspection of surfaces as addressed by this instruction shall be made at approximately an arms length or

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30" in distance from the surface being inspected where possible. 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, refer to Attachment 6.

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

3.1 INSPECTION OF PRIMER

3.1.1 Primer Inspections Prior to Application of Seal or Finish Coat

- a) QC shall verify that construction has identified each piece with a unique number in accordance with References 1-A, 1-B and 1-C. The QC Inspector shall maintain a Protective Coating Unique Identification Number Log for all protective coatings application on all steel designated for use in the Reactor Building. Subsequent subdivision of coating steel in the field or shop shall be witnessed by QC in accordance with Reference 1-E.

NOTE:

A. Unique number may be assigned to a lot of material to be prime coated at the same time. For example, six pieces steel to be coated at same time may all have same unique number.

B. Liner plate is excluded from QP numbers.

Equipment which is identified with permanent plant identification number need not be identified with a Protective Coatings unique identification number.

- b) For all prime coated items which do not have adequate documentation, the Inspector shall perform an Adhesion test. A calibrated Elcometer 106 Adhesion Tester shall be used to verify that the minimum acceptable tensile of adhesion to the steel substrate has been attained. Each test shall consist of three individual dollies tested. Adhesion test shall be performed per QI-QP-11.4-23, Sec. 3.2.

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Criteria: The minimum acceptable strength per dolly shall be 250 psi. If any one of the three dollies should test below the minimum acceptable strength, the condition shall be recorded on a nonconformance report in accordance with Sec. 3.11.

- c) Verify the primer has cured sufficiently for the finish coating (as determined by use of the coin test for D-6 and CZ-11). Cure to finish coat of Carboline 191 shall be the same as time to recoat for Phenoline 305, stated in Section 3.6.1.
- d) Perform a visual inspection of the primed surface in accordance with the following:
1. Runs/sags - Runs/sags 7.0 mils for CZ-11, 5.5 mils for D-6, and 7.0 mils for Carboline 191 or less thick (DFT) which show no evidence of mudcracking or loss of adhesion are acceptable. Refer to Section 3.2.1 for repair of unacceptable runs/sags.
 2. Dry Spray - Must be removed before overcoating.
 3. Contamination - Unacceptable.
Oil and grease - unacceptable
 4. Skips/damaged areas/gross discontinuities such as holidays or voids - unacceptable.
 5. Orange peel - Moderate amounts are acceptable. Other than moderate amounts; repair per Sec. 3.2.3.
 6. Bubbling - unacceptable (does not apply to D-6 or CZ-11).
- e) The inspector shall perform a DFT inspection of the cured primer film. A calibrated 0-25 Elcometer Inspector DFT gage Model III/1E, or equivalent, shall be used. Separate spot measurements (See Note 1) spaced evenly over the structure or item (See Note 2) shall be taken. Since the magnetic gage is sensitive to geometric discontinuities in the steel, measurements less than 1 inch from the edge or a hole should be avoided where possible. (See Note 3)

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Dry Film Thickness shall be as follows:

	Min. (mils)	Max. (mils)
Carboline 191 spot test	1.6	7.0
CZ-11 spot test	1.5	7.0
D6 spot test	1.5	5.5
D6 average DFT	2.0	5.0
CZ-11 average DFT	2.0	6.0
Carboline 191 average DFT	2.0	6.0

NOTE 1: A spot measurement is a series of three gage readings in the same general area. The probe 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.

In the event that any spot is found to be outside of the acceptable thickness range, three additional spots shall be taken at approximately 6 inches from the failing spot and spaced radially at approximately 120 degree intervals to determine the extent of the unacceptable area. Dimensions and locations of unacceptable areas and results of additional testing shall be documented on the IR. Unacceptable areas shall be repaired per Sec. 3.2.3 or 3.2.4 as applicable.

NOTE 2: Five spot tests shall be taken on each item for every 100 square feet of coated surface. For areas or items 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

NOTE 3: Items with appreciable surface curvature and other geometrical discontinuities, such as handrails, gratings, stairs, sway struts, checkerplate, etc., shall be exempt from dry

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film thickness measurement. For piping, struts, spring canisters, etc., appreciable curvature will be considered as less than 4" in diameter.

3.2 PRIMER REPAIRS

3.2.1 Sags and Runs

Sags and runs over 7.0 mils DFT for CZ-11, over 5.5 mils for D-6, and over 7.0 mils DFT for Carboline 191 may be abraded by sanding or aluminum screening. Runs/sags which are within the acceptable dry film thickness range and show no evidence of mudcracking or loss of adhesion are acceptable. If surface is unacceptable, remove unsatisfactory coatings. Refer to Sec. 3.2 as applicable.

3.2.2 Primer Touch-up Repair (Primer Damaged to Steel Surface)

The coating inspector shall conduct the following inspections to document primer touch-up repair operations when the damage is to the steel surface and spot sandblasting or power tool abrading is required for surface preparation.

a) Ambient Conditions

The inspector shall determine air temperature, surface temperature, relative humidity and dew-point of substrate structures. A calibrated non-mercury filled dry bulb thermometer or a calibrated temperature recorder (Bristol 4069TH or equivalent) shall be used for air temperature determination. A calibrated non-mercury wet bulb thermometer or a calibrated humidity recorder (Bristol 4069TH or equivalent) shall be used to determine relative humidity. The dew point shall be determined by the difference in dry and wet bulb temperatures using the U.S. Department of Commerce Weather Bureau Psychrometric Tables, WB 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. If the dry bulb thermometer exceeds 100°F, the instrument shall be returned to the calibration lab for recalibration. The surface temperature shall be determined by placing a calibrated surface temperature thermometer (Omega-Amprobe Fastemp, range of 10°-250°F) in contact with the substrate

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surface. The thermometer probe shall remain in contact with the surface until the temperature reading stabilizes.

Final surface preparation shall not begin unless the temperature of the surface is a minimum of 5° above the dew point.

Normal conditions of ambient and surface temperature for application of primer shall be as follows:

	<u>Ambient Temp. (°F)</u>	<u>Surface Temp. (°F)</u>
Dimetcote 6	40-120	40-130
Carbozinc 11	40-95	40-110
Carboline 191	50-120	50-120

Inorganic zinc primers may be applied within an ambient range of 0°F to 130°F and surface temperature range of 0°F to 200°F.

Coating material (if thinned) shall be thinned in accordance with Reference 1-B or 1-C.

For inorganic zincs humidity values may vary from 0 to 95%; however, primer shall not be applied to a wet or damp surface. For Carboline 191 humidity value may vary from 0 to 85%.

The surface temperature shall be a minimum of 5° above the dew point.

- b) Verify abrasive acceptability (if used) by obtaining a sample of the abrasive to be used. The abrasive shall be verified to be dry by feel with no grease, oil or deleterious materials. Verify that proper blast abrasive is used.
- c) Verify acceptability of blast cleaning equipment (if used) prior to use by:
 - 1. Verifying that water separators are installed in the air supply system and that separators have been drained of accumulated water and drains left partially open.

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2. Air supply shall be checked at the nozzle prior to use by exposing a white cloth to the blast of air (no sand) for approximately 30 seconds. The cloth shall be examined for evidence of contamination (oil, water, foreign matter, etc.). No evidence of contamination is acceptable.
- d) Verify that the blasted or power tooled surface has been high pressure air blowdown and/or solvent wiped to the extent required for final surface inspection. The adjacent areas shall be cleaned to the extent necessary to avoid contamination during subsequent coating applications.
- e) Verify acceptability of the blast cleaned or power tooled surfaces by performing the following inspections:
 1. Absence of Foreign Matter -- A visual inspection shall be performed to determine that all oil and grease, dirt, millscale, rust, corrosion products, oxides, paint or other foreign matter have been completely removed from the surface except for light shadows, very slight streaks or slight discolorations caused by rust stains, mill scale, oxides, or slight, tight residues of paint or coating that may remain. At least 95 percent of each square inch of surface area shall be free of all residues, and the remainder shall be limited to light discolorations as mentioned above.

NOTE: For power tooled surfaces, in addition to the 5 percent of tight residue of paint or coating which is permissible, shadows or tightly adhering residues of primer may remain (without limit) in the profile of the previously prepared substrate. 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.

2. Sharp Projections -- An inspection for sharp projections that were not rounded during blast cleaning or power tooling shall be performed. Sharp projections are unacceptable and shall be ground to rounded contour.

Weld splatter on structural steel shall be removed by either grinding or sand blasting. However, if the weld splatter should remain after the above operation, the weld splatter will be acceptable.

3. Anchor Pattern Depth -- The anchor pattern depth of the blasted surface shall be inspected at random locations using a Keane-Tator Surface Profile Comparator (model 373) or approved equal.

The anchor pattern depth for all surfaces shall be a minimum of 1.0 mils.

Surfaces that have been power tooled with "3M Clean-N-Strip", 60 grit and coarser "flapper wheels", provide acceptable surface profile, when properly used over previously blasted and coated surfaces.

For power tooled steel surfaces, the 1 mil minimum profile shall be verified by visual comparison to a standard of known profile or other approved method.

- f) Verify applicator qualifications per Sec. 3.3.1.
- g) Verify air supply acceptability per Sec. 3.3.4.
- h) 1. Coating Materials Identification

An inspector shall inspect the coating material containers prior to mixing contents for product identification and verify that all materials are correct for coating application.

Approved materials are:

CZ-11

Carbo Zinc base
Carbo Zinc filler
Carboline #21 or #33 Thinner

Dimetcote-6

Dimetcote 6 base
Dimetcote filler
Amercoat #65 or #101 thinner

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Carboline 191

Carboline 191 primer
Carboline 191 catalyst
Carboline #15 thinner

He shall also verify that each component container is identified by batch number and that the shelf life has not expired. Carbo Zinc 11 base and Carboline 191 has a shelf life of 12 months. Carbo Zinc filler and Dimetcote 6 base and filler have a shelf life of 24 months.

2. Mixing Operations

An inspector shall witness each mixing/thinning operation. The inspector shall verify that mixing operations are performed in accordance with Reference 1-A and 1-B.

3. Thinning Operation

An inspector shall verify that primer thinning complies with thinning requirements established in References 1-A and 1-B.

4. When coating materials are mixed/thinned in locations other than the field, the inspector verifying the mixing operation shall fill out the Paint Mixing Slip, Attachment 5. The inspector performing the pre-application inspection shall record the information from the Paint Mixing Slip on the Inspection Report, Attachment 3. The Paint Mixing Slip need not be retained.

- i) Verify that primer is applied and pot life is not exceeded in accordance with Attachment 7.

NOTE 1: (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 inspecting coating interface the interface of the coating or systems shall be a maximum of 1½ inch in width. Within the interface area, overlapping of any materials or systems is acceptable.

When inorganic zinc is applied at an interface, the cured inorganic zinc shall be screened or abraded prior to application of next coat.

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NOTE 2: Monitoring of Primer Application

During application operations of D-6 and CZ-11, the QC Inspector shall monitor that the pressure pot is continuously agitated. CZ-11 and D-6 shall not be brush applied to areas larger than 1 sq. ft.

During application of Carboline 191, the inspector will monitor to assure that no fisheyes appear in the applied coating. If detected, the inspector shall inform the paint foreman of their presence and that they should be removed while coating is still wet, surface cleaned with solvent and coating reapplied.

The inspector shall monitor pot life in accordance with Attachment 7.

Verify that hose length is less than 75 feet.

3.2.3 Primer Touch-up Repair (Primer Damage Does Not Extend to Steel Surface)

The coating inspector shall conduct the following inspections for primer touch-up repair operations when the damage is within the primer coat and sandblasting to the steel substrate is not required.

- a) Verify surface is abraded lightly then wiped clean
- b) Verify primer is applied in accordance with Section 3.2.2 (a) and (f) through (i).

3.2.4 Repair of Primer by Recoating

The coating inspector shall conduct the following inspections for primer recoating repair. Only two (2) overcoats shall be applied.

- a) Verify that the surface has been solvent cleaned or cleansed in accordance with Reference 1-B and 1-C. A clean white cloth shall be used to check primed surface cleanliness. Contamination is unacceptable and require further cleaning.

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- b) Perform inspections (a) and (f) through (i) in Sec. 3.2.2.
- c) Minor defects (mechanical damage such as construction damage or exposing substrate during surface preparation operations, etc.) perform inspections in Sec. 3.7.2.
- d) Major defects (mechanical damage such as construction damage or exposing substrate during surface preparation operations, etc.) perform inspections in Sec. 3.2.2.

3.2.5 Complete Primer Repair (Primer Damage to Steel Surface Extends Over Entire Item)

The coating inspector shall conduct the following inspections to document primer repair when the damage is to the steel surface and requires surface preparation to steel substrate over entire item:

- a) Verify ambient conditions per Sec. 3.2.2(a) prior to surface preparation.
- b) Perform inspections in Sec. 3.2.2.

3.2.6 Documentation of Primer Repair Inspections

All inspections required by Sec. 3.2 shall be documented on an IR, Attachment 3, in accordance with Reference 1-D. The completed IR shall be forwarded to the PPRV for retention.

NOTE 1: If the repair is on an item which is fabricated out of several pieces of steel bearing different QP numbers, all QP numbers will be recorded in the "Remarks" section of the IR.

NOTE 2: All items within the scope of each inspection which are determined by the Inspector to be satisfactory may be documented on a single IR.

NOTE 3: A reject tag will be applied to any unsat area, with the inspection report, inspector's name and phone extension listed per Reference 1-F.

3.3 FINISH COAT PRE-APPLICATION INSPECTIONS

The QC inspector shall verify the following items prior to applying coatings:

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3.3.1 Coating Applicator Qualifications

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

3.3.2 Ambient Conditions

The inspector shall determine air temperature, surface temperature, relative humidity and dew point of substrate structures. A calibrated non-mercury filled dry bulb thermometer or a calibrated temperature recorder (Bristol 4069TH or equivalent) shall be used for air temperature determination. A calibrated non-mercury wet bulb thermometer or a calibrated humidity recorder (Bristol 4069TH or equivalent) shall be used to determine relative humidity. The dew point shall be determined by the difference in dry and wet bulb temperatures using the U.S. Department of Commerce Weather Bureau Psychometric Tables, WB No. 235. When dry bulb readings are greater than 100°F, the dew point and relative humidity should be determined by using the 100°F reading. If the dry bulb thermometer exceeds 100°F, the instrument shall be returned to the calibration lab for recalibration. The surface temperature shall be determined by placing a calibrated surface temperature thermometer (Omega-Amprobe Fastemp, range of 10°-250°F) in contact with the substrate surface until the temperature reading stabilizes.

The permissible range of surface and ambient temperature for application of finish coat shall be 50-120°F.

Maximum values of relative humidity shall be 85%.

The surface temperature shall be a minimum of 5°F above the dew point.

3.3.3 Coated Surface Acceptability

The Inspector shall visually reinspect the previously coated surface just prior to finish coat application for evidence of contamination (oil, grease, foreign matter).

Contamination is unacceptable. All contamination must be removed per Reference 1-B or 1-C prior to finish coating.

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3.3.4 Air Supply Acceptability

The Inspector shall inspect the air supply system (pressure pots and spray guns) for the existence of suitable filters/traps/separators.

The effectiveness of these items shall be verified by placing a clean piece of cheesecloth (or white fabric) over the exit of the air lines and allowing air to flow for 30 seconds minimum. The cloth shall show no evidence of moisture, oil or foreign matter when examined.

3.3.5 Finish Coat Mixing Operations

3.3.5.1 Prior to mixing, the inspector shall verify that each component is identified by batch numbers and that the 24 month shelf life has not been exceeded.

3.3.5.2 The inspector shall verify that mixing/thinning operations are performed in accordance with References 1-B and 1-C. Thinning may be done up to two quarts of Phenoline Thinner per gallon of Phenoline 305.

3.3.5.3. When coating materials are mixed/thinned in locations other than the field, the inspector verifying the mixing operation shall fill out the Paint Mixing Slip, Attachment 5. The inspector performing the pre-application inspection shall record the information from the Paint Mixing Slip on the Inspection Report, Attachment 1. The Paint Mixing Slip need not be retained.

3.4 MONITORING OF SEAL OR FINISH COAT APPLICATION

The Inspector shall verify that hose length is less than 75 feet when applicable.

The inspector shall also verify that the seal coat (if present) is solvent wiped with Phenoline 305 thinner or Xylol prior to finish coat application.

The inspector shall monitor to assure that no fish eyes appear in the applied coating. If detected the inspector shall inform the paint foreman of their presence and they should be removed while coating is still wet, surface cleaned with solvent and coating reapplied.

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The inspector shall monitor pot life in accordance with Attachment 7.

3.5 DOCUMENTATION OF PRIMER INSPECTION AND FINISH COAT
PRE-APPLICATION/APPLICATION INSPECTIONS

Results of inspections described in Sec. 3.1, 3.3, and 3.4 shall be documented on an Inspection Report (IR), Attachment 1, in accordance with Reference 1-D. The completed IR shall be forwarded to the PPRV for retention.

NOTE 1: All items within the scope of each inspection which are determined by the Inspector to be satisfactory may be documented on a single IR.

3.6 FINISH COAT FINAL ACCEPTANCE INSPECTION

The inspector shall perform a final acceptance inspection of each finish coated item in accordance with Paragraphs 3.6.1 through 3.6.5. For finish coated containment liner plate surfaces, the final acceptance inspection shall be performed at the completion of the curing period. For all other finish coated items, the final acceptance inspection shall be performed immediately prior to turnover of each area within the containment building and should be coordinated with Area Management. In addition, finish coated containment liner surfaces shall be visually reinspected in accordance with Paragraph 3.6.2 immediately prior to turnover of each containment area.

NOTE 1: (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 inspecting coating interface the interface of the systems shall be a maximum of 1½ inch in width. Within the interface area, overlapping of any materials or systems is acceptable.

When inorganic zinc is applied at an interface, the cured inorganic zinc shall be screened or abraded prior to application of next coat.

NOTE 2: If present, the tie in interface between concrete coatings and steel coatings shall be visually inspected during the finish coat final acceptance of both systems.

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3.6.1 Finish Coat Cure

Final QC inspection may be performed after a minimum topcoat cure of 24 hours and cure to recoat time has been met.

Curing and time to recoat Phenoline 305 shall be as shown below:

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

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

3.6.2 Visual Defects Inspection

The Inspector shall perform a visual inspection of the finish coated surface in accordance with the following:

- a) Runs/sags - Runs or sags in which the DFT of the total coating system is 15.0 mils or less thick, which show no evidence of loss of adhesion or mudcracking, are acceptable. Those which show evidence of mudcracking, loss of adhesion or greater than 15.0 mils shall be repaired in accordance with Sec. 3.7 as applicable.
- b) Skips, damaged areas, holidays, voids, bubbles, and blisters are not acceptable and shall be repaired as per Section 3.7, as applicable.
- c) Pinholes - acceptable to the extent allowed by Sec. 3.6.4 and Attachment 2; areas not acceptable shall be repaired as per Section 3.7.5.
- d) Contamination - unacceptable; areas shall be repaired as per Section 3.7.4.
- e) Dry spray - unacceptable; shall be repaired as per Section 3.7.8. A minor amount of adherent dry spray is acceptable on the final finish coat.
- f) Color and gloss non-uniformity - unacceptable; shall be repaired as per Section 3.7.6.

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g) Orange peel - moderate amount is acceptable, other than moderate amounts to be repaired per Sec. 3.7.7.

NOTE 1: Top coated areas which have been abraded for various reasons (i.e., runs, sags, high millage, contamination etc.) and are within acceptable procedural thickness following repairs, do not require recoating for gloss enhancing.

NOTE 2: For small repair areas such as pinholes, color and gloss uniformity is not required, provided the coating is smooth and continuous.

3.6.3 Dry Film Thickness (DFT)

The Inspector shall perform a DFT of the cured coating system. A calibrated 0-25 Elcometer Inspector DFT Gage Model III/1E, or equivalent, shall be used. Separate spot measurements (See Note 1) spaced evenly over the structure (See Note 2) shall be taken. Since the magnetic gage is sensitive to geometric discontinuities in the steel, measurements less than 1 inch from an edge or a hole should be avoided where possible. (See Note 3).

The average DFT of the total coating system shall be a minimum of 6.0 mils and a maximum of 13.0 mils. The spot test DFT of the total coating system shall be a minimum of 6.0 mils and a maximum of 15.0 mils.

The finish coated system shall exhibit full "hiding" properties of the primecoat.

NOTE 1: A spot measurement is a series of three measurements in the same general area. The probe 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.

In the event that any spot is found to be outside of the acceptable thickness range, three additional spots shall be taken at approximately 6 inches from the failing spot and spaced radially at approximately 120 degree intervals to determine the extent of the unacceptable area. Dimensions and locations of unacceptable areas and results of additional testing shall be documented on the IR.

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NOTE 2: Five spot tests shall be taken on each item for every 100 square feet of coated surface. For areas or items 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

NOTE 3: Items with appreciable surface curvature and other geometrical discontinuities such as handrails, checkerplate, gratings, stairs, sway struts, etc. shall be exempt from DFT measurement. For piping, struts, spring canisters etc., appreciable curvature will be considered as less than 4" in diameter.

3.6.4 Continuity Inspection

The Inspector shall test the continuity of the cured finish coat on liner plate using a Tinker and Razor Model M1 (67.5 volt) holiday detector. 100% of the finish coated surface area shall be tested.

The applied film should contain only a minor number of points of discontinuity. No more than two points of discontinuity should occur within an area having a radius of 6 inches as measured from a point of discontinuity (pinholes). No more than 40% of the total number of allowable points of discontinuity should occur within any one area equal to 25% of the total area being coated. The total number of pinhole discontinuities allowed is defined in Attachment 2. No gross discontinuities are allowed.

3.6.5 Documentation of Finish Coat/Seal Coat Acceptance Inspections

Results of inspections described in Sections 3.6 shall be documented on an Inspection Report (IR), Attachment 4, in accordance with Reference 1-D. The completed IR shall be forwarded to the PPRV for retention.

NOTE 1: All items within the scope of each inspection per Paragraph 3.6, which are determined by the Inspector to be satisfactory, may be documented on a single IR.

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NOTE 2: A reject tag will be applied to any unsat area, with the inspection report, inspector's name and phone extension listed per Reference 1-F.

3.7 REPAIRS OF FINISH COAT

3.7.1 Repairs of Runs and Sags

The QC inspector shall verify that the area is abraded until the DFT of the total coating system is within 6.0 to 15.0 mils, and examined for mudcracking. If mudcracking is present, remove unsatisfactory coatings and repair per Sec. 3.7.2 or 3.7.3.

3.7.2 Repair of Minor Defects

The QC inspector shall perform the following inspection when repairing minor defects (Reference Attachment 6):

- a) Verify ambient conditions per Sec. 3.2.2(a) prior to surface preparation.
- b) Verify that the area surrounding damaged area is blasted or abraded and any exposed steel is hand abraded, power tooled, or blasted and loosely adherent particles removed.
- c) Verify damaged area is solvent wiped.
- d) Perform inspections described in Sec. 3.2.2, 3.3 and 3.4, as applicable.
- e) Minor defects may be repaired at the time of final inspection without later reinspection of the repair.

3.7.3 Repair of Major Defects

The QC inspector shall perform the following inspection when repairing major defects (Reference Attachment 6):

- a) Verify ambient conditions per Section 3.2.2(a) prior to surface preparation.
- b) Verify area is power tooled or spot blasted and all loosely adherent particles removed.
- c) Verify area is solvent wiped.

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d) Perform inspections in Sec. 3.2 as applicable.

3.7.4 Repair of Contamination

The QC inspector shall verify that contamination is removed and the surface recoated per Sec. 3.3 if removal of contamination results in low film thickness.

3.7.5 Repair of Pinholes

- a) Verify all loose particles are removed and area is solvent wiped.
- b) Perform inspections described in 3.7.2, except pinholes may be repaired at the time of final inspection without a later reinspection of the repair.

3.7.6 Repair of Gloss and Color Nonuniformity

- a) Verify the affected area is abraded and solvent wiped.
- b) Verify the affected area is recoated without exceeding the maximum film thickness and perform inspections in Sections 3.3, 3.4, 3.5 and 3.6.
- c) Top coated areas which have been abraded for various reasons (i.e., runs, sags, high millage, contamination, etc.) and are within acceptable procedural thickness, following repairs, do not require recoating for gloss enhancing.
- d) For small repair areas such as pinholes, color and gloss uniformity is not required, provided the coating is smooth and continuous.

3.7.7 Repair of Excessive Orange Peel

- a) Verify the affected area is abraded and solvent wiped.
- b) Verify the affected area is refinished and perform the inspections delineated in Sections 3.3, 3.4, 3.5 and 3.6.

3.7.8 Repair of Dry Spray

Repair of dry spray identifiable by visual inspection defined within this procedure shall be removed.

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- a) Verify all loose particles are removed.
- b) Verify coating film thickness is still within allowable range.
- c) If film thickness is not within allowable range perform inspections in Sec. 3.3, 3.4, 3.5 and 3.6.

NOTE: A minor amount of adherent dry spray is acceptable on the final finish coat.

3.7.9 Documentation of Repairs

All repairs shall be documented on an Inspection Report, Attachment 1. Repairs involving application of primer will be documented on Attachment 3.

3.8 MAPPING OF LARGE AREAS

For large areas (such as reactor containment liner plate) which have received coatings prior to 10/23/81 (Issuance date of Rev. 5 of this procedure), a unique number shall be assigned to the original inspection checklist. This number will be transferred to the area on a map drawing to provide traceability to the original checklist. For any coatings applied after 10/23/81, the IR number shall be transferred to the area on the map drawing.

The map drawing shall be maintained by the QC Supervisor, or his designee, until the entire surface has been coated. At this time, the completed map shall be transmitted to the Permanent Plant Records Vault.

NOTE 1: Separate maps shall be maintained for the prime, seal and finish coats.

NOTE 2: If the coated area applicable to a given IR is irregular in shape, a sketch should be attached to the IR to indicate the extent of the area inspected.

NOTE 3: Coating repairs requiring recoating shall be mapped, but repairs only requiring touch-up need not be mapped.

NOTE 4: The following parameters (as necessary) should be considered for description of areas on the sketch:

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- a) Bottom and top elevations (vertical and diagonal surfaces) or elevation of surface (horizontal surfaces).
- b) Dimensions in relationship to azimuths, column lines, reactor centerline or other components of known location.
- c) Quadrant, compartment, cavity or room in which inspection is located.
- d) Unit number.
- e) Relation of surface to cardinal directions (i.e., North, South, etc.).

3.9 SPECIAL COATINGS PROCEDURES

Special coatings and instructions set forth in CCP-30-M procedures as applicable under the scope of this procedure, shall be inspected as per the guidelines of this procedure using the criteria established in the special coatings procedures.

3.10 SHOP COATED ITEMS

3.10.1 Items removed from the building for coating at the paint shop shall be the responsibility of the craft department.

3.10.1.1 The craft shall be responsible for identifying each piece by work package number.

3.10.1.2 The craft shall be responsible for returning and installing the shop coated item in the same area it was removed from.

3.10.2 The shop QC Inspector shall inspect the item(s) in accordance with QI-QP-11.4-1 and QI-QP-11.4-5, as applicable, and document his inspections on an Inspection Report (IR) in accordance with those procedures.

3.10.2.1 In addition to the information required by QI-QP-11.4-1 or QI-QP-11.4-5, the shop inspector shall reference the work package number identified on the item(s) on the IR.

3.10.2.2 The IR, upon completion, shall be transmitted to the Paper Flow Group (PFG) for Unit 1 and/or the Interim Records Vault (IRV) for Unit 2 for inclusion in the work package.

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3.10.3 The QC inspector (in the field) shall verify that items prepared/coated in the shop, which are included in the scope of the traveler, have the applicable Inspection Report(s) from the shop included in the work package and correspond with the identification on the item.

3.11 NONCONFORMANCES

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 Reported (NCR) in accordance with CP-QP-16.0. The NCR number shall be referenced on the Inspection Report, if applicable.

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ATTACHMENT 1

COMANCHE PEAK STEAM ELECTRIC STATION
INSPECTION REPORT

SHEET 1 OF 2

ITEM DESCRIPTION PROTECTIVE COATINGS		IDENTIFICATION NO.	SYSTEM/STRUCTURE DESIGNATION	
SPEC. NO. AS-31	REV.	REF. Q.C. DOC. & REV. & CHANGE NO. QI-QP-11.4-5 Rev.	MEASURE OR TEST EQUIP. DESIG. NO.	
<input type="checkbox"/> IN PROCESS INSPECTION	<input type="checkbox"/> PRE-INSTALLATION VERIFICATION	<input type="checkbox"/> INSTALLATION INSPECTION	<input type="checkbox"/> FINAL INSPECTION	<input type="checkbox"/> PRE-TEST INSPECTION
USER RESULTS				
<input type="checkbox"/> INSPECTION COMPLETED, ALL APPLICABLE ITEMS SATISFACTORY		QC INSPECTOR _____ DATE _____		
<input type="checkbox"/> INSPECTION COMPLETED, UNSATISFACTORY ITEMS LISTED BELOW				
ITEM NO.	INSPECTION ATTRIBUTES		SAT	UNSAT
	SEAL COAT	FINISH COAT	DATE	QC SIGNATURE
	ORIGINAL	REPAIR		
1.	RECORD ALL PROTECTIVE COATINGS UNIQUE JP & ID NO.'s: (FOR MULTIPLE ITEMS INDICATE IN "REMARKS WITH CORRESPONDING DFT READINGS FROM ITEM #3) Per Para 3.1.1.a			
2.	VERIFY PRIMER CURE PER PARA. 3.1.1.c			
3.	PERFORM VISUAL INSPECTION OF PRIMED SURFACE PER PARA. 3.1.1.d			
4.	PERFORM DFT OF PRIMER COAT PER PARA. 3.1.1.a (FOR MULTIPLE ITEMS INDICATE MIN. SPOT, MAX. SPOT AND AVER- AGE DFT FOR EACH ITEM IN "REMARKS")			
5.	PERFORM VISUAL INSPECTIONS OF PREVIOUSLY COATED SURFACE PER PARA. 3.3.3			
6.	VERIFY SURFACE PREPARATION ACCEPTABLE PER CCP30 OR CCP30A			
7.	AMBIENT CONDITIONS CHECKED PER PARA. 3.3.2 PRIOR TO COATING APPLICATION RECORD: DATE: _____ TIME: _____ W.B. _____ D.B. _____ S.T. _____ D.P. _____ R.H. _____			
(CONTINUED ON SHEET 2 of 2)				
REMARKS (DWGS, SPECS, ETC.)				
RELATED RCR NO.	<input type="checkbox"/> I.R. CLOSED	DATE	SIGNATURE _____ QC INSPECTOR	

TEXAS UTILITIES GENERATING CO. CPSFS	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
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ATTACHMENT 1 (Continued)

COMANCHE PEAK STEAM ELECTRIC STATION
INSPECTION REPORT
(SUPPLEMENTAL) QI-QP-11.4-5, R. _____
Sheet 2 of 2

FOR FULL HEADINGS, SEE SHEET 1 NO.

ITEM NO.	INSPECTION ATTRIBUTES	SAT	UNSAT	DATE	QC
					SIGNATURE
8.	VERIFY QUALIFICATION OF APPLICATOR(S) PER PARA. 3.3.1. LIST:				
9.	APPLICATION METHOD: SPRAY BRUSH				
10.	VERIFY AIR SUPPLY ACCEPTABLE PER PARA. 3.3.4				
11.	VERIFY HOSE LENGTH IS LESS THAN 75 FT.				
12.	VERIFY MIXING OPERATIONS ARE PER CCP-30 OR CCP-30A AND PARA. 3.3.5.				
13.	COATING MATERIAL PRODUCT IDENTIFICATION: RECORD BATCH NUMBERS: PART A: PART B: THINNER: TIME MIXED: DATE:				
14.	VERIFY POT LIFE AS STATED IN CCP-30 AND CCP-30A IS NOT EX- CEEDED PER PARA. 3.4.				

REMARKS: (DWGS, SPECS, ETC.)

RELATED NCR NO. _____ I.R. CLOSED DATE _____ SIGNATURE _____
QC INSPECTOR _____

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ATTACHMENT 2

TOTAL NUMBER OF ALLOWABLE POINTS OF DISCONTINUITY

SURFACE AREA BEING COATED (SQ. FT.)	COND. "C" COMMERCIALY CONTINUOUS
10	5
10-50	10
50-100	20
100-500	30
500-1000	50
1000-5000	75

Gross Discontinuities - None Allowed.

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
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ATTACHMENT 3

COMANCHE PEAK STEAM ELECTRIC STATION

INSPECTION REPORT

ITEM DESCRIPTION PROTECTIVE COATINGS		IDENTIFICATION NO.	SYSTEM/STRUCTURE DESIGNATION	
SPEC. NO. AS-31	REV.	REF. TO SPEC. & REV. & CHANGE NO. QI-QP-11.4-5 Rev.	MEASURE OR TEST EQUIP. IDENT. NO.	
<input type="checkbox"/> IN PROCESS INSPECTION	<input type="checkbox"/> PRE-INSTALLATION VERIFICATION	<input type="checkbox"/> INSTALLATION INSPECTION	<input type="checkbox"/> FINAL INSPECTION	<input type="checkbox"/> PRE-TEST INSPECTION
INSPECTION RESULTS		QC INSPECTOR _____ DATE _____		
<input type="checkbox"/> INSPECTION COMPLETED, ALL APPLICABLE ITEMS SATISFACTORY				
<input type="checkbox"/> INSPECTION COMPLETED, UNSATISFACTORY ITEMS LISTED BELOW				
ITEM NO.	INSPECTION ATTRIBUTES		DATE	QC SIGNATURE
1.	For repair of sags and runs outside the acceptable DFT range, perform DFT of Primer Coat in areas which have been sanded or screened per Para. 3.2.1. (For multiple items, indicate Min. Spot, Max. Spot and Average DFT with corresponding QP & ID No's for each item in "Remarks".)			
	RECORD: Minimum Spot Test:			
	Maximum Spot Test:			
	Average DFT:			
2.	Abrasive acceptable per Para. 3.2.2.b.			
3.	Separators installed, drained and drains left partially open.			
4.	Air supply free of contamination.			
5.	Blasted or power-tooled surface and profile:			
	a. Surface and surrounding areas cleaned per Para. 3.2.2.d.			
	b. Surface free of foreign matter incl. grease & oil.			
	c. Sharp (non-rounded) projections removed.			
	d. Anchor pattern depth 1.0 mil. minimum 3.2.2.e.3.			
	e. Surface lightly abraded per Para. 3.2.3.			
	f. Surface wiped clean per Para. 3.2.3 or 3.2.4 (Repairs Only)			
6.	Unique number stamped on piece(s). Record Unique Number(s) in "Remarks" below.			
7.	Ambient conditions checked per Para. 3.3.2 prior to primer application and record below:			
	DATE:	TIME:	WET BULB TEMP:	
	DRY BULB TEMP:	RELATIVE HUMIDITY:		
	DEW POINT:	SURFACE TEMP:		
8.	Substrate surface free of contaminants.			

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ATTACHMENT 3 (Sheet 2)

COMANCHE PEAK STEAM ELECTRIC STATION QI-QP-11.4-5, Rev. _____
INSPECTION REPORT Sheet ___ of ___

(SUPPLEMENTAL)

ITEM NO.	INSPECTION ATTRIBUTES	J	SAT	UNSAT	DATE	Q.C.
						SIGNATURE
9.	Trap, filter or separator installed per para. 3.3.4.					
10.	Air supply free of contamination.					
11.	Qualification of applicator. (List Applicators:)					
12.	Verify Mixing Operations per para. 3.2.2.h.					
13.	Coating Material Product Identification:					
	a. Base Lot No.:					
	b. Filler Lot No.:					
	c. Catalyst:					
	d. Thinner Lot No:					
	e. Time Mixed:					
14.	Pressure pot agitated. (if applicable)					
15.	Pot life not exceeded.					
16.	Hose less than 75 feet.					
REMARKS: (DWGS, SPECS, ETC.)						

RELATED NCR NO	I.R. CLOSED <input type="checkbox"/>	DATE	SIGNATURE
			QC INSPECTOR

ATTACHMENT 4

COMANCHE PEAK STEAM ELECTRIC STATION
INSPECTION REPORT

ITEM DESCRIPTION PROTECTIVE COATINGS		IDENTIFICATION NO.		SYSTEM / STRUCTURE DESIGNATION		SHEET 1 OF 1
SPEC. NO. AS-31	REV.	REF. Q.C. DOC. & REV. & CHANGE NO. QI-QP-11.4-5, Rev.	MEASURE OR TEST EQUIP. DEST. NO.			
<input type="checkbox"/> IN PROCESS INSPECTION	<input type="checkbox"/> PRE INSTALLATION VERIFICATION	<input type="checkbox"/> INSTALLATION INSPECTION	<input type="checkbox"/> FINAL INSPECTION	<input type="checkbox"/> PRE-TEST INSPECTION		
INSR RESULTS		QC INSPECTOR		DATE		
<input type="checkbox"/> INSPECTION COMPLETED, ALL APPLICABLE ITEMS SATISFACTORY		<input type="checkbox"/> INSPECTION COMPLETED, UNSATISFACTORY ITEMS LISTED BELOW				
ITEM NO.	INSPECTION ATTRIBUTES			SAT	UNSAT	DATE
FINISH COAT FINAL ACCEPTANCE						
1.	Verify curing is per CCP-30 or 30A and para. 3.6.1					
2.	Perform visual inspection of coated surface per para. 3.6.2.					
3.	Perform DFT on coated surface as per para. 3.6.3 (For multiple items indicate min. spot, max. spot and average DFT with corresponding QP & ID no.'s for each item in "Remarks".) Coating System Soot Test Minimum: Coating System Spot Test Maximum: Average DFT Coating System:					
4.	Perform continuity inspection per para. 3.6.4.					
REMARKS (DWGS, SPECS, ETC.)						
RELATED NCR NO.	I.R. CLOSED <input type="checkbox"/>		DATE	SIGNATURE		
				QC INSPECTOR		

TEXAS UTILITIES GENERATING CO. CPSSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
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ATTACHMENT 5

PAINT MIXING SLIP	
	DATE: _____
BLDG. _____	ELEV. _____
COATING: _____	COLOR. _____
TIME MIXED: _____	TEMP. _____
BATCH #	BASE (A) _____
	CAT./FLR (B) _____
	THINNER (C) _____
	GAL. _____
M&TE #'s _____	
INSP _____	DATE: _____

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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 coating.

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

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.

Major Defect: Defined as an area, either circular or linear, in which a 1/2" diameter circle could be inscribed at any point or along the entire length which may extend to substrate.

Minor Defect: Defined as an area, either circular or linear, in which a 1/2" diameter circle could not be completely inscribed at any point along the entire length which may extend to substrate.

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

Mudcracking: Irregular cracking as in a dried mud puddle (applicable to inorganic zinc primers).

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

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

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ATTACHMENT 6 (Cont.)

Seal Coat: Finish coat applied at approximately 1 mil DFT over primer to protect prime coat.

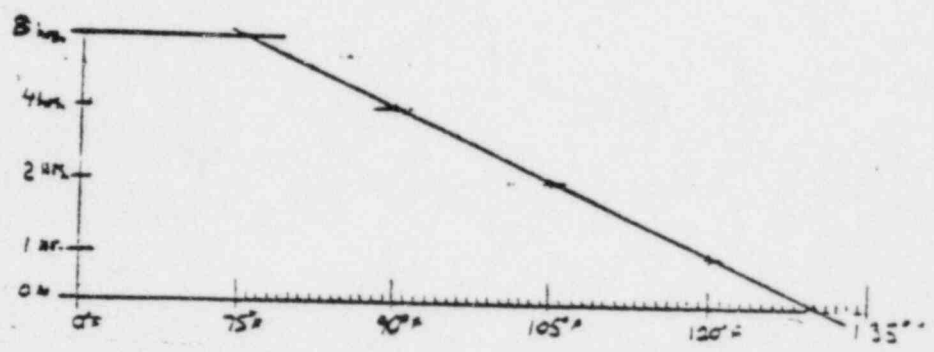
Verify: Confirm or make certain.

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

ATTACHMENT 7

POT LIFE REFERENCE SHEET

Normal Pot life - CZ-11
8 Hours Pot Life



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

POT LIFE - DIMETCOTE 6

Pot life for dimetcote 6, thinned or unthinned, shall be 24 hours.

POT LIFE PHENOLINE 305 & CARBOLINE 191

TEMPERATURE (°F)	UNTHINNED	THINNED 50%
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.