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INSPECTION OF STEEL SUBSTRATE SURFACE PREPARATION AND PRIMER APPLICATION		PREPARED BY: <u>Mark Welch</u>		<u>8/19/83</u> DATE	
		APPROVED BY: <u>W. H. Hester</u>		<u>8/19/83</u> DATE	
		APPROVED BY: <u>W. H. Hester for</u> <u>CT Barrett</u>		<u>8/19/83</u> DATE	
1.0	<u>REFERENCES</u>				
1-A	CCP-30, "Coating Steel Substrates Inside Reactor Buildings and Radiation Areas"				
1-B	CCP-30A, "Coating Steel Substrates Inside Reactor Buildings and Radiation Areas"				
1-C	QI-QP-11.4-22, "QC Verification of Protective Coatings Unique Identification Number Transfer"				
1-D	CP-QP-18.0, "Inspection Reports"				
1-E	CP-QP-15.0, "Tagging System"				
2.0	<u>GENERAL</u>				
2.1	PURPOSE AND SCOPE				
	This Instruction shall describe methods utilized by Quality Control in inspection of steel substrate surface preparation and prime coat applications and in accordance with References 1-A and 1-B.				
3.0	<u>INSTRUCTION</u>				
	Visual inspection of painted surfaces as addressed by this instruction shall be made at approximately an arms 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) cell battery flashlight.				
3.1	PRE-BLAST CLEANING OPERATIONS				
3.1.1	<u>Ambient Conditions</u>				
	The inspector shall determine air temperature, surface temperature, relative humidity and dew-point of substrate				

HISTORICAL FILE

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structures. 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 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 the dry and wet bulb temperatures 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). The surface temperature shall be determined by placing a calibrated surface temperature thermometer (Omega - Amprobe Fastemp, Range 10-250°F) in contact with the substrate surface to be blast cleaned. The thermometer probe shall remain in contact with the surface until the temperature reading stabilizes.

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

3.1.2 Abrasive Acceptability

The Inspector shall obtain a sample of the abrasive to be used from each work area. The abrasive shall be verified to be dry by feel. All grease, oil and deleterious material is unacceptable.

Particle size must be sufficient to achieve 1 mil surface profile minimum.

3.1.3 Blast Equipment Acceptability

The inspector shall perform the following inspections/tests to determine acceptability of blast cleaning equipment prior to use:

- a. Verify that water separators are installed in air supply system and that the separators have been drained of accumulated water and drains left partially open.
- b. Air supply contamination shall be checked at the nozzle prior to use by exposing a sheet of white paper or cloth to the blast of air (no sand) for approximately 30 seconds. The paper or cloth shall be examined for evidence of contamination (oil, water, foreign matter, etc.). No evidence of contamination is acceptable.

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3.1.4 Solvent Cleaning (If Chemical Contamination Present)

If oil, grease, or other chemical contamination is present, verify that solvent cleaning (in accordance with SSPC-SP-1) is performed and that all chemical contamination is removed prior to blast cleaning steel surfaces.

3.2 POST BLAST CLEANING OPERATIONS

3.2.1 Blast Cleanup

The inspector shall visually check the blasted substrate surface.

The surface shall be brushed or vacuumed 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.

3.2.2 Blasted or Power Tooled Surface Acceptability

The inspector shall perform the following inspections to determine acceptability of the blast cleaned or power tooled surface:

- a. 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: If coating removal is required from an area or item which has been coated in accordance with this instruction, shadows or tight residues of primer which may remain in the profile of the previously prepared substrate is acceptable.

- b. Removal of Sharp Projections -- A reinspection for sharp projections that were not blended (rounded) during blast cleaning or power tooling shall be performed.

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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.

Sharp projections are not acceptable.

Protrusions and peaks shall be ground to a rounded contour.

NOTE: Any mechanical surface preparation other than sandblasting or hand or power tooling of sharp edges or weld spatter will require a visual welding inspector's acceptance of the work performed.

- c. 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 equivalent.

The anchor pattern depth for a blasted surface shall be a minimum of 1.0 mils.

Surfaces that have been power tooled with "3M Clean-N-Strip", 80 grit and coarser "flapper wheels", sanding discs, "roto peans" or equivalent, provide acceptable surface profile.

No maximum profile will be specified, providing that correct millage and surface uniformity requirements can be obtained after primer application.

3.2.3 Unique Number Identification

After blasting power tool and prior to prime coat application, QC shall verify that construction has identified each piece with a unique number in accordance with References 1-A and 1-B. The QC Inspector shall maintain a Protective Coatings Unique Identification Number Log, Attachment 1 for all protective coatings application on all steel designated for use in the Reactor Building. Subsequent subdivision of coated steel in the field or shop shall be witnessed by QC in accordance with Reference 1-C.

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.

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B. Liner plate is excluded from QP numbers.

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

3.3 PRIMER PRE-APPLICATION INSPECTIONS

3.3.1 Ambient Conditions

Immediately prior to primer application, the QC Inspector shall determine air temperature, surface temperature, relative humidity. The primer application shall not begin unless the surface temperature is a minimum of 5° above the dew point. 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).

Normal conditions of ambient and surface temperatures shall be as follows:

	<u>Ambient Temp. (°F)</u>	<u>Surface Temp. (°F)</u>
Dimetecote 6	40-120	40-130
CarboZinc II	40-95	40-110

In no case shall Carboline and Ameron limits be exceeded (0-130°F ambient and 0-200°F surface temperatures). Coating materials (if thinned) shall be thinned in accordance with Reference 1-A or 1-B.

Humidity values may vary from 10% to 95%; however, primer shall not be applied to a wet or damp surface.

3.3.2 Substrate Surface Acceptability

The Inspector shall visually reinspect the sandblasted or powertooled surface of the substrate just prior to primer application for evidence of contamination (oil, grease, markings, rust, etc.) All contamination must be removed prior to priming.

If rust forms after Blasting or Power Tooling, the surface shall be "Shower Blasted" or "Re-furbished" before priming. Under no case will a prepared surface be exposed for more than 24 hours before priming.

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3.3.3 Air Supply Acceptability

The Inspector shall inspect the air supply system for pressure pots and spray guns for suitable filters/traps/separators. A trap, filter, or separator shall be installed in air system to pressure pot and spray gun. The effectiveness of these items shall be verified by exposing a sheet of white paper or cloth to the blast of air for approximately 30 seconds. The paper or cloth shall be examined for evidence of contamination (oil, water, foreign matter, etc.). No evidence of contamination is acceptable.

3.3.4 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.

3.3.5 Mixing Operations

3.3.5.1 Coating Materials Identification

The 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

DIMETCOTE

Carbo Zinc 11 base (gray or green)

Dimetcote 6 base

Carbo Zinc filler

Dimetcote filler

Carboline #21 or 33 Thinner

Amercoat #65 or 101
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 has a shelf life of 12 months. Carbo Zinc filler and Dimetcote 6 base and filler have a shelf life of 24 months.

3.3.5.2 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.

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3.3.5.3 Thinning Operation

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

3.3.5.4 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 3. The inspector performing the pre-application inspection shall record the information from the Paint Mixing Slip on the Inspection Report, Attachment 2. The Paint Mixing Slip need not be retained.

3.4 PRIMER APPLICATION INSPECTION

3.4.1 Surveillance of Primer Application

During application operations, the QC Inspector shall verify that the pressure pot is continuously agitated. The QC Inspector shall also verify that the hose length does not exceed 75 feet, and that the coating has not exceeded pot life per Reference 1-A or 1-B.

3.5 INSPECTION REPORTS

All inspections required by Sections 3.1 through 3.4 shall be documented on an IR, Attachment 2, in accordance with Reference 1-D.

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

3.6 MAPPING OF LARGE AREAS

For large areas 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 which time, the completed map shall be transmitted to the Permanent Plant Records Vault.

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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 requiring only touch-up need not be mapped.

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

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

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ATTACHMENT 1

PROTECTIVE COATINGS
UNIQUE IDENTIFICATION NUMBER LOG

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ATTACHMENT 2

COMANCHE PEAK STEAM ELECTRIC STATION

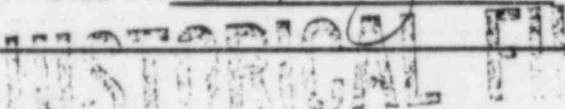
INSPECTION REPORT

ITEM DESCRIPTION PROTECTIVE COATINGS		CERTIFICATION NO.	SYSTEM/STRUCTURE DESIGNATION	
SPONSOR AS-31	REV.	REF. TO DOC. & REV. & CHANGE NO. QI-QP-11.4-1 Rev.	MEASURE OR TEST EQUIP. CERT. NO.	
<input type="checkbox"/> IN PROCESS INSPECTION	<input checked="" type="checkbox"/> PRE-INSTALLATION VERIFICATION	<input type="checkbox"/> INSTALLATION INSPECTION	<input type="checkbox"/> FINAL INSPECTION	<input type="checkbox"/> PRETEST 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		DATE	QC SIGNATURE
1.	Ambient conditions checked per Para. 3.1.1 and recorded below: DATE: _____			
	TIME: _____ WET BULB TEMP: _____ DRY BULB TEMP: _____			
	RELATIVE HUMIDITY: _____ DEW POINT: _____ SURF. TEMP: _____			
2.	Abrasive acceptable per Para. 3.1.2.			
3.	Separators installed, drained, and drains left partially open.			
4.	Air supply free of contamination.			
5.	Verify that solvent cleaning performed prior to blasting in accordance with para. 3.1.4.			
6.	Blasted surface and profile:			
	a. Blasted surface and surrounding areas cleaned per Para. 3.2.1			
	b. Surface free of foreign matter including grease and oil. 3.2.2.a			
	c. Sharp (non-rounded) projections removed. 3.2.2.b			
	d. Anchor pattern depth 1.0 mil. minimum. 3.2.2.c			
7.	Unique Number stamped on plate (Record Unique Number in Block 3 above.)			
8.	Ambient conditions checked per Para. 3.1.1. prior to primer application and record below. DATE: _____			
	TIME: _____ WET BULB TEMP: _____ DRY BULB TEMP: _____			
	RELATIVE HUMIDITY: _____ DEW POINT: _____ SURF. TEMP: _____			
9.	Substrate surface free of contaminants and less than 24 hours elapsed since blasting.			
10.	Trap, filter or separator installed per Para. 3.3.3.			
11.	Air supply free of contamination.			
(CONTINUED ON SHEET 2 of 2)				

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ATTACHMENT 3

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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INSPECTION OF STEEL SUBSTRATE SURFACE PREPARATION AND PRIMER APPLICATION	PREPARED BY: <u>Harry O. Williams</u>		<u>8/9/83</u> DATE	
	APPROVED BY: <u>C. F. Hoot</u>		<u>8/9/83</u> DATE	
	APPROVED BY: <u>C. F. Hoot</u>		<u>8/9/83</u> DATE	
	<div style="text-align: center;">  </div>			
1.0 <u>REFERENCES</u> 1-A CCP-30, "Coating Steel Substrates Inside Reactor Buildings and Radiation Areas" 1-B CCP-30A, "Coating Steel Substrates Inside Reactor Buildings and Radiation Areas" 1-C QI-QP-11.4-22, "QC Verification of Protective Coatings Unique Identification Number Transfer" 1-D CP-QP-18.0, "Inspection Reports" 1-E CP-QP-15.0, "Tagging System"				
2.0 <u>GENERAL</u>				
2.1 <u>PURPOSE AND SCOPE</u>	<div style="text-align: right; font-size: 1.2em; font-weight: bold;">FOR INFORMATION ONLY</div>			
	This Instruction shall describe methods utilized by Quality Control in inspection of steel substrate surface preparation and prime coat applications and in accordance with References 1-A and 1-B.			
3.0 <u>INSTRUCTION</u>				
	Visual inspection of painted surfaces as addressed by this instruction shall be made at approximately an arms 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) cell battery flashlight.			
3.1 <u>PRE-BLAST CLEANING OPERATIONS</u>				
3.1.1 <u>Ambient Conditions</u>				
	The inspector shall determine air temperature, surface temperature, relative humidity and dew-point of substrate			

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structures. 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 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 the dry and wet bulb temperatures 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). The surface temperature shall be determined by placing a calibrated surface temperature thermometer (Omega - Amprobe Fastemp, Range 10-250°F) in contact with the substrate surface to be blast cleaned. The thermometer probe shall remain in contact with the surface until the temperature reading stabilizes.

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

3.1.2 Abrasive Acceptability

The Inspector shall obtain a sample of the abrasive to be used from each work area. The abrasive shall be verified to be dry by feel. All grease, oil and deleterious material is unacceptable.

Particle size must be sufficient to achieve 1 mil surface profile minimum.

3.1.3 Blast Equipment Acceptability

The inspector shall perform the following inspections/tests to determine acceptability of blast cleaning equipment prior to use:

- a. Verify that water separators are installed in air supply system and that the separators have been drained of accumulated water and drains left partially open.
- b. Air supply contamination shall be checked at the nozzle prior to use by exposing a sheet of white paper or cloth to the blast of air (no sand) for approximately 30 seconds. The paper or cloth shall be examined for evidence of contamination (oil, water, foreign matter, etc.). No evidence of contamination is acceptable.

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3.1.4 Solvent Cleaning (If Chemical Contamination Present)

If oil, grease, or other chemical contamination is present, verify that solvent cleaning (in accordance with SSPC-SP-1) is performed and that all chemical contamination is removed prior to blast cleaning steel surfaces.

3.2 POST BLAST CLEANING OPERATIONS

3.2.1 Blast Cleanup

The inspector shall visually check the blasted substrate surface.

The surface shall be brushed or vacuumed 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.

3.2.2 Blasted or Power Tooled Surface Acceptability

The inspector shall perform the following inspections to determine acceptability of the blast cleaned or power tooled surface:

- a. 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: If coating removal is required from an area or item which has been coated in accordance with this instruction, shadows or tight residues of primer which may remain in the profile of the previously prepared substrate is acceptable.

- b. Removal of Sharp Projections -- A reinspection for sharp projections that were not blended (rounded) during blast cleaning or power tooling shall be performed.

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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.

Sharp projections are not acceptable.

Protrusions and peaks shall be ground to a rounded contour.

NOTE: Any mechanical surface preparation other than sandblasting or hand or power tooling of sharp edges or weld spatter will require a visual welding inspector's acceptance of the work performed.

- c. Anchor Pattern Depth -- The anchor pattern depth of the blasted or power tooled surface shall be inspected at random locations using a Keane-Tator Surface Profile Comparator (model 373) or equivalent. A power tooled surface shall be inspected with use of either a roughness gage and/or equivalent.

The anchor pattern depth for a blasted or power tooled surface shall be a minimum of 1.0 mils.

No maximum profile will be specified, providing that correct millage and surface uniformity requirements can be obtained after primer application.

3.2.3 Unique Number Identification

After blasting power tool and prior to prime coat application, QC shall verify that construction has identified each piece with a unique number in accordance with References 1-A and 1-B. The QC Inspector shall maintain a Protective Coatings Unique Identification Number Log, Attachment 1 for all protective coatings application on all steel designated for use in the Reactor Building. Subsequent subdivision of coated steel in the field or shop shall be witnessed by QC in accordance with Reference 1-C.

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.

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B. Liner plate is excluded from QP numbers.

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

3.3 PRIMER PRE-APPLICATION INSPECTIONS

3.3.1 Ambient Conditions

Immediately prior to primer application, the QC Inspector shall determine air temperature, surface temperature, relative humidity. The primer application shall not begin unless the surface temperature is a minimum of 5° above the dew point. 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).

Normal conditions of ambient and surface temperatures shall be as follows:

	<u>Ambient Temp. (°F)</u>	<u>Surface Temp. (°F)</u>
Dimetcote 6	40-120	40-130
CarboZinc II	40-95	40-110

In no case shall Carboline and Ameron limits be exceeded (0-130°F ambient and 0-200°F surface temperatures). Coating materials (if thinned) shall be thinned in accordance with Reference 1-A or 1-B.

Humidity values may vary from 10% to 95%; however, primer shall not be applied to a wet or damp surface.

3.3.2 Substrate Surface Acceptability

The Inspector shall visually reinspect the sandblasted or powertooled surface of the substrate just prior to primer application for evidence of contamination (oil, grease, markings, rust, etc.) All contamination must be removed prior to priming.

If rust forms after Blasting or Power Tooling, the surface shall be "Shower Blasted" or "Re-furbished" before priming. Under no case will a prepared surface be exposed for more than 24 hours before priming.

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3.3.3 Air Supply Acceptability

The Inspector shall inspect the air supply system for pressure pots and spray guns for suitable filters/traps/separators. A trap, filter, or separator shall be installed in air system to pressure pot and spray gun. The effectiveness of these items shall be verified by exposing a sheet of white paper or cloth to the blast of air for approximately 30 seconds. The paper or cloth shall be examined for evidence of contamination (oil, water, foreign matter, etc.). No evidence of contamination is acceptable.

3.3.4 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.

3.3.5 Mixing Operations

3.3.5.1 Coating Materials Identification

The 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

DIMETCOTE

Carbo Zinc 11 base (gray or green)

Dimetcote 6 base

Carbo Zinc filler

Dimetcote filler

Carboline #21 or 33 Thinner

Amercoat #65 or 101
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 has a shelf life of 12 months. Carbo Zinc filler and Dimetcote 6 base and filler have a shelf life of 24 months.

3.3.5.2 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.

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3.3.5.3 Thinning Operation

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

- 3.3.5.4 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 3. The inspector performing the pre-application inspection shall record the information from the Paint Mixing Slip on the Inspection Report, Attachment 2. The Paint Mixing Slip need not be retained.

3.4 PRIMER APPLICATION INSPECTION

3.4.1 Surveillance of Primer Application

During application operations, the QC Inspector shall verify that the pressure pot is continuously agitated. The QC Inspector shall also verify that the hose length does not exceed 75 feet, and that the coating has not exceeded pot life per Reference 1-A or 1-B.

3.5 INSPECTION REPORTS

All inspections required by Sections 3.1 through 3.4 shall be documented on an IR, Attachment 2, in accordance with Reference 1-D.

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

3.6 MAPPING OF LARGE AREAS

For large areas 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 which time, the completed map shall be transmitted to the Permanent Plant Records Vault.

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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 requiring only touch-up need not be mapped.

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

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

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ATTACHMENT 2

COMANCHE PEAK STEAM ELECTRIC STATION

SHEET 1 OF 2
No.

INSPECTION REPORT

ITEM DESCRIPTION PROTECTIVE COATING		CERTIFICATION NO.	SYSTEM / STRUCTURE DESIGNATION	
SPEC. NO. AS-31	REV.	REF. TO SPEC. & REV. & CHANGE NO. QI-QP-11.4-1, Rev.	MEASURE OR TEST EQUIP. IDENT. NO.	
<input type="checkbox"/> IN PROCESS INSPECTION	<input checked="" type="checkbox"/> PRE-INSTALLATION VERIFICATION	<input type="checkbox"/> INSTALLATION INSPECTION	<input type="checkbox"/> FINAL INSPECTION	<input type="checkbox"/> PRE-TEST INSPECTION
UNSP. RESULTS				
<input type="checkbox"/> INSPECTION COMPLETED, ALL APPLICABLE ITEMS SATISFACTORY				
<input type="checkbox"/> INSPECTION COMPLETED, UNSATISFACTORY ITEMS LISTED BELOW				
ITEM NO.	INSPECTION ATTRIBUTES			QC INSPECTOR
			DATE	SIGNATURE
1.	Ambient conditions checked per Para. 3.1.1 and recorded below: DATE:			
	TIME:	WET BULB TEMP.:	DRY BULB TEMP.:	
	RELATIVE HUMIDITY:	DEW POINT:	SURF. TEMP.:	
2.	Abrasive acceptable per Para. 3.1.2.			
3.	Separators installed, drained, and drains left partially open.			
4.	Air supply free of contamination.			
5.	Verify that solvent cleaning performed prior to blasting in accordance with Para. 3.1.4.			
6.	Blasted surface and profile:			
	a. Blasted surface & surrounding areas cleaned per Para. 3.2.1			
	b. Surface free of foreign matter including grease and oil.			
	c. Sharp (non-rounded) projections removed.			
	d. Anchor pattern depth 1.0 mil. minimum.			
7.	Unique Number stamped on piece (Record Unique Number in Block 3 above.)			
8.	Ambient conditions checked per Para. 3.1.1 prior to primer application and record below: DATE:			
	TIME:	WET BULB TEMP.:	DRY BULB TEMP.:	
	RELATIVE HUMIDITY:	DEW POINT:	SURF. TEMP.:	
9.	Substrate surface free of contaminants and less than 24 hours elapsed since blasting.			
10.	Trap, filter or separator installed per Para. 3.3.3.			
11.	Air supply free of contamination.			
(Continued on Sheet 2...)				

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ATTACHMENT 3

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: _____

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER QI-QP-11.4-1	REVISION 11	ISSUE DATE JUL 05 1983	PAGE 1 of 12
INSPECTION OF STEEL SUBSTRATE SURFACE PREPARATION AND PRIMER APPLICATION	PREPARED BY: <u>Harry C. Williams</u> <u>6/27/83</u> DATE APPROVED BY: <u>W. E. Lutz</u> <u>7/1/83</u> DATE APPROVED BY: <u>CT Hearn</u> <u>7/5/83</u> DATE			
<div style="display: flex; justify-content: space-between;"> <div> <p>1.0 <u>REFERENCES</u></p> <p>1-A CCP-30, "Coating Steel Substrates Inside Reactor Buildings and Radiation Areas"</p> <p>1-B CCP-30A, "Coating Steel Substrates Inside Reactor Buildings and Radiation Areas"</p> <p>1-C QI-QP-11.4-22, "QC Verification of Protective Coatings Unique Identification Number Transfer"</p> <p>1-D CP-QP-18.0, "Inspection Reports"</p> <p>1-E CP-QP-15.0, "Tagging System"</p> <p>2.0 <u>GENERAL</u></p> <p>2.1 <u>PURPOSE AND SCOPE</u></p> <p>This Instruction shall describe methods utilized by Quality Control in inspection of steel substrate surface preparation and prime coat applications and in accordance with References 1-A and 1-B.</p> <p>3.0 <u>INSTRUCTION</u></p> <p>3.1 <u>PRE-BLAST CLEANING OPERATIONS</u></p> <p>3.1.1 <u>Ambient Conditions</u></p> <p>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 4069 TH or equivalent) shall be used for air temperature determination. A calibrated non-mercury 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 the dry and wet bulb temperatures using the</p> </div> <div style="text-align: center;"> <h1 style="margin: 0;">HISTORICAL FILE</h1> <h2 style="margin: 0;">FOR INFORMATION ONLY</h2> </div> </div>				

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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). The surface temperature shall be determined by placing a calibrated surface temperature thermometer (Omega - Amprobe Fastemp, Range 10-250°F) in contact with the substrate surface to be blast cleaned. The thermometer probe shall remain in contact with the surface until the temperature reading stabilizes.

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

3.1.2 Abrasive Acceptability

The Inspector shall obtain a sample of the abrasive to be used from each work area. The abrasive shall be verified to be dry by feel. All grease, oil and deleterious material is unacceptable.

Particle size must be sufficient to achieve 1 mil surface profile minimum.

3.1.3 Blast Equipment Acceptability

The inspector shall perform the following inspections/tests to determine acceptability of blast cleaning equipment prior to use:

- a. Verify that water separators are installed in air supply system and that the separators have been drained of accumulated water and drains left partially open.
- b. Air supply contamination shall be checked at the nozzle prior to use by exposing a sheet of white paper or cloth to the blast of air (no sand) for approximately 30 seconds. The paper or cloth shall be examined for evidence of contamination (oil, water, foreign matter, etc.). No evidence of contamination is acceptable.

3.1.4 Solvent Cleaning (If Chemical Contamination Present)

If oil, grease, or other chemical contamination is present, verify that solvent cleaning (in accordance with SPC-SP-1) is performed and that all chemical contamination is removed prior to blast cleaning steel surfaces.

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3.2 POST BLAST CLEANING OPERATIONS

3.2.1 Blast Cleanup

The inspector shall visually check the blasted substrate surface.

The surface shall be brushed or vacuumed 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.

3.2.2 Blasted or Power Tooled Surface Acceptability

The inspector shall perform the following inspections to determine acceptability of the blast cleaned or power tooled surface:

- a. 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: If coating removal is required from an area or item which has been coated in accordance with this instruction, shadows or tight residues of primer which may remain in the profile of the previously prepared substrate is acceptable.

- b. Removal of Sharp Projections -- A reinspection for sharp projections that were not blended (rounded) during blast cleaning or power tooling shall be performed.

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.

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sharp projections are not acceptable.

Protrusions and peaks shall be ground to a rounded contour.

NOTE: Any mechanical surface preparation other than sandblasting or hand or power tooling of sharp edges or weld spatter will require a visual welding inspector's acceptance of the work performed.

- c. Anchor Pattern Depth -- The anchor pattern depth of the blasted or power tooled surface shall be inspected at random locations using a Keane-Tator Surface Profile Comparator (model 373) or equivalent. A power tooled surface shall be inspected with use of either a roughness gage and/or equivalent.

The anchor pattern depth for a blasted or power tooled surface shall be a minimum of 1.0 mils.

No maximum profile will be specified, providing that correct millage and surface uniformity requirements can be obtained after primer application.

3.2.3 Unique Number Identification

After blasting power tool and prior to prime coat application, QC shall verify that construction has identified each piece with a unique number in accordance with References 1-A and 1-B. The QC Inspector shall maintain a Protective Coatings Unique Identification Number Log, Attachment 1 for all protective coatings application on all steel designated for use in the Reactor Building. Subsequent subdivision of coated steel in the field or shop shall be witnessed by QC in accordance with Reference 1-C.

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 a permanent plant identification number need not be identified with a

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
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Protective Coatings unique Identification Number. The term "Equipment" is not to include pipe hangers, cable tray hangers, conduit supports, or structural steel. They will all have Protective Coating unique Identification Numbers assigned.

3.3 PRIMER PRE-APPLICATION INSPECTIONS

3.3.1 Ambient Conditions

Immediately prior to primer application, the QC Inspector shall determine air temperature, surface temperature, relative humidity. The primer application shall not begin unless the surface temperature is a minimum of 5° above the dew point. 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).

Normal conditions of ambient and surface temperatures shall be as follows:

	<u>Ambient Temp. (°F)</u>	<u>Surface Temp. (°F)</u>
Dimetcote 6	40-120	40-130
CarboZinc II	40-95	40-110

In no case shall Carboline and Ameron limits be exceeded (0-130°F ambient and 0-200°F surface temperatures). Coating materials (if thinned) shall be thinned in accordance with Reference 1-A or 1-B.

Humidity values may vary from 10% to 95%; however, primer shall not be applied to a wet or damp surface.

3.3.2 Substrate Surface Acceptability

The Inspector shall visually reinspect the sandblasted or powertooled surface of the substrate just prior to primer application for evidence of contamination (oil, grease, markings, rust, etc.) All contamination must be removed prior to priming.

If rust forms after Blasting or Power Tooling, the surface shall be "Shower Blasted" or "Re-furbished" before priming. Under no case will a prepared surface be exposed for more than 24 hours before priming.

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3.3.3 Air Supply Acceptability

The Inspector shall inspect the air supply system for pressure pots and spray guns for suitable filters/traps/separators. A trap, filter, or separator shall be installed in air system to pressure pot and spray gun. The effectiveness of these items shall be verified by exposing a sheet of white paper or cloth to the blast of air for approximately 30 seconds. The paper or cloth shall be examined for evidence of contamination (oil, water, foreign matter, etc.). No evidence of contamination is acceptable.

3.3.4 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.

3.3.5 Mixing Operations

3.3.5.1 Coating Materials Identification

The 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

DIMETCOTE

Carbo Zinc 11 base (gray or green)

Dimetcote 6 base

Carbo Zinc filler

Dimetcote filler

Carboline #21 or 33 Thinner

Amercoat #65 or 101
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 has a shelf life of 12 months. Carbo Zinc filler and Dimetcote 6 base and filler have a shelf life of 24 months.

3.3.5.2 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.

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3.3.5.3 Thinning Operation

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

- 3.3.5.4 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 3. The inspector performing the pre-application inspection shall record the information from the Paint Mixing Slip on the Inspection Report, Attachment 2. The Paint Mixing Slip need not be retained.

3.4 PRIMER APPLICATION INSPECTION

3.4.1 Surveillance of Primer Application

During application operations, the QC Inspector shall verify that the pressure pot is continuously agitated. The QC Inspector shall also verify that the hose length does not exceed 75 feet, and that the coating has not exceeded pot life per Reference 1-A or 1-B.

3.5 INSPECTION REPORTS

All inspections required by Sections 3.1 through 3.4 shall be documented on an IR, Attachment 2, in accordance with Reference 1-D.

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

3.6 MAPPING OF LARGE AREAS

For large areas 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 which time, the completed map shall be transmitted to the Permanent Plant Records Vault.

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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 requiring only touch-up need not be mapped.

NOTE:4

The following parameters, as necessary, should be considered for description of areas on the on the sketch.

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

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NUMBER

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ATTACHMENT 2

COMANCHE PEAK STEAM ELECTRIC STATION

INSPECTION REPORT

SHEET 1 OF 2

ITEM DESCRIPTION PROTECTIVE COATINGS		CERTIFICATION NO.	SYSTEM / STRUCTURE DESIGNATION	
SPEC. NO. AS-31	REV. 1	REF. D.C. SPEC. & REV. & CHANGE NO. QI-QP-11.4-1, Rev.	MEASURE OR TEST EQUIP. IDENT. NO.	
<input type="checkbox"/> IN PROCESS INSPECTION	<input checked="" type="checkbox"/> PRE-INSTALLATION VERIFICATION	<input type="checkbox"/> INSTALLATION INSPECTION	<input type="checkbox"/> FINAL INSPECTION	<input type="checkbox"/> PRE-TEST INSPECTION
INSR. RESULTS				
<input type="checkbox"/> INSPECTION COMPLETED, ALL APPLICABLE ITEMS SATISFACTORY				
<input type="checkbox"/> INSPECTION COMPLETED, UNSATISFACTORY ITEMS LISTED BELOW				
QC INSPECTOR			DATE	
ITEM NO.	INSPECTION ATTRIBUTES		SAT	DATE
1.	Ambient conditions checked per Para. 3.1.1 and recorded below: DATE:			
	TIME: WET BULB TEMP.: DRY BULB TEMP.:			
	RELATIVE HUMIDITY: DEW POINT: SURF. TEMP.:			
2.	Abrasive acceptable per Para. 3.1.2.			
3.	Separators installed, drained, and drains left partially open.			
4.	Air supply free of contamination.			
5.	Verify that solvent cleaning performed prior to blasting in accordance with Para. 3.1.4.			
6.	Blasted surface and profile:			
	a. Blasted surface & surrounding areas cleaned per Para. 3.2.1			
	b. Surface free of foreign matter including grease and oil.			
	c. Sharp (non-rounded) projections removed.			
	d. Anchor pattern depth 1.0 mil. minimum.			
7.	Unique Number stamped on piece (Record Unique Number in Block 3 above.)			
8.	Ambient conditions checked per Para. 3.1.1 prior to primer application and record below: DATE:			
	TIME: WET BULB TEMP.: DRY BULB TEMP.:			
	RELATIVE HUMIDITY: DEW POINT: SURF. TEMP.:			
9.	Substrate surface free of contaminants and less than 24 hours elapsed since blasting.			
10.	Trap, filter or separator installed per Para. 3.3.3.			
11.	Air supply free of contamination.			
(Continued on Sheet 2...)				

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ATTACHMENT 3

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: _____

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER QI-QP-11.4-1	REVISION 10	ISSUE DATE MAR 01 1983	PAGE 1 of 12
INSPECTION OF STEEL SUBSTRATE SURFACE PREPARATION AND PRIMER APPLICATION	PREPARED BY: <u>Cherry Williams</u> <u>2/2/83</u> DATE APPROVED BY: <u>W. E. Holt</u> <u>2/2/83</u> DATE APPROVED BY: <u>C. T. [Signature]</u> <u>3/1/83</u> DATE			

1.0 REFERENCES

- 1-A CCP-30, "Coating Steel Substrates Inside Reactor Buildings and Radiation Areas"
- 1-B CCP-30A, "Coating Steel Substrates Inside Reactor Buildings and Radiation Areas"
- 1-C QI-QP-11.4-22, "QC Verification of Protective Coatings Unique Identification Number Transfer"
- 1-D CP-QP-18.0, "Inspection Reports"

2.0 GENERAL

2.1 PURPOSE AND SCOPE

This instruction shall describe methods utilized by Quality Control in inspection of steel substrate surface preparation and prime coat applications and in accordance with References 1-A and 1-B.

3.0 INSTRUCTION

3.1 PRE-BLAST CLEANING OPERATIONS

3.1.1 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 4069 TH or equivalent) shall be used for air temperature determination. A calibrated non-mercury 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 the dry and wet bulb temperatures using the

HISTORICAL FILE

FOR INFORMATION ONLY

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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). The surface temperature shall be determined by placing a calibrated surface temperature thermometer (Omega - Amprobe Fastemp, Range 10-250°F) in contact with the substrate surface to be blast cleaned. The thermometer probe shall remain in contact with the surface until the temperature reading stabilizes.

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

3.1.2 Abrasive Acceptability

The Inspector shall obtain a sample of the abrasive to be used from each work area. The abrasive shall be verified to be dry by feel. All grease, oil and deleterious material is unacceptable.

Particle size must be sufficient to achieve 1 mil surface profile minimum.

3.1.3 Blast Equipment Acceptability

The inspector shall perform the following inspections/tests to determine acceptability of blast cleaning equipment prior to use:

- a. Verify that water separators are installed in air supply system and that the separators have been drained of accumulated water and drains left partially open.
- b. Air supply contamination shall be checked at the nozzle prior to use by exposing a sheet of white paper or cloth to the blast of air (no sand) for approximately 30 seconds. The paper or cloth shall be examined for evidence of contamination (oil, water, foreign matter, etc.). No evidence of contamination is acceptable.

3.1.4 Solvent Cleaning (If Chemical Contamination Present)

If oil, grease, or other chemical contamination is present, verify that solvent cleaning (in accordance with SSPC-SP-1) is performed and that all chemical contamination is removed prior to blast cleaning steel surfaces.

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3.2 POST BLAST CLEANING OPERATIONS

3.2.1 Blast Cleanup

The inspector shall visually check the blasted substrate surface.

The surface shall be brushed or vacuumed 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.

3.2.2 Blasted or Power Toolled Surface Acceptability

The inspector shall perform the following inspections to determine acceptability of the blast cleaned or power toolled surface:

- a. 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: If coating removal is required from an area or item which has been coated in accordance with this instruction, shadows or tight residues of primer which may remain in the profile of the previously prepared substrate is acceptable.

- b. Removal of Sharp Projections -- A reinspection for sharp projections that were not blended (rounded) during blast cleaning or power tooling shall be performed.

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.

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Sharp projections are not acceptable.

Protrusions and peaks shall be ground to a rounded contour.

NOTE: Any mechanical surface preparation other than sandblasting or hand or power tooling of sharp edges or weld spatter will require a visual welding inspector's acceptance of the work performed.

- c. Anchor Pattern Depth -- The anchor pattern depth of the blasted or power tooled surface shall be inspected at random locations using a Keane-Tator Surface Profile Comparator (model 373) or equivalent. A power tooled surface shall be inspected with use of either a roughness gage and/or equivalent.

The anchor pattern depth for a blasted or power tooled surface shall be a minimum of 1.0 mils.

No maximum profile will be specified, providing that correct millage and surface uniformity requirements can be obtained after primer application.

3.2.3 Unique Number Identification

After blasting power tool and prior to prime coat application, QC shall verify that construction has identified each piece with a unique number in accordance with References 1-A and 1-B. The QC Inspector shall maintain a Protective Coatings Unique Identification Number Log, Attachment 1 for all protective coatings application on all steel designated for use in the Reactor Building. Subsequent subdivision of coated steel in the field or shop shall be witnessed by QC in accordance with Reference 1-C.

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 a permanent plant identification number need not be identified with a

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
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Protective Coatings unique Identification Number. The term "Equipment" is not to include pipe hangers, cable tray hangers, conduit supports, or structural steel. They will all have Protective Coating unique Identification Numbers assigned.

3.3 PRIMER PRE-APPLICATION INSPECTIONS

3.3.1 Ambient Conditions

Immediately prior to primer application, the QC Inspector shall determine air temperature, surface temperature, relative humidity. The primer application shall not begin unless the surface temperature is a minimum of 5° above the dew point. 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).

Normal conditions of ambient and surface temperatures shall be as follows:

	<u>Ambient Temp. (°F)</u>	<u>Surface Temp. (°F)</u>
Dimetecote 6	40-120	40-130
CarboZinc II	40-95	40-110

In no case shall Carboline and Ameron limits be exceeded (0-130°F ambient and 0-200°F surface temperatures). Coating materials (if thinned) shall be thinned in accordance with Reference 1-A or 1-B.

Humidity values may vary from 10% to 95%; however, primer shall not be applied to a wet or damp surface.

3.3.2 Substrate Surface Acceptability

The Inspector shall visually reinspect the sandblasted or powertooled surface of the substrate just prior to primer application for evidence of contamination (oil, grease, markings, rust, etc.) All contamination must be removed prior to priming.

If rust forms after Blasting or Power Tooling, the surface shall be "Shower Blasted" or "Re-furbished" before priming. Under no case will a prepared surface be exposed for more than 24 hours before priming.

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3.3.3 Air Supply Acceptability

The Inspector shall inspect the air supply system for pressure pots and spray guns for suitable filters/traps/separators. A trap, filter, or separator shall be installed in air system to pressure pot and spray gun. The effectiveness of these items shall be verified by exposing a sheet of white paper or cloth to the blast of air for approximately 30 seconds. The paper or cloth shall be examined for evidence of contamination (oil, water, foreign matter, etc.). No evidence of contamination is acceptable.

3.3.4 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.

3.3.5 Mixing Operations

3.3.5.1 Coating Materials Identification

The 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

DIMETCOTE

Carbo Zinc 11 base (gray or green)

Dimetcote 6 base

Carbo Zinc filler

Dimetcote filler

Carboline #21 or 33 Thinner

Amercoat #65 or 101
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 has a shelf life of 12 months. Carbo Zinc filler and Dimetcote 6 base and filler have a shelf life of 24 months.

3.3.5.2 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.

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3.3.5.3 Thinning Operation

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

3.3.5.4 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 3. The inspector performing the pre-application inspection shall record the information from the Paint Mixing Slip on the Inspection Report, Attachment 2. The Paint Mixing Slip need not be retained.

3.4 PRIMER APPLICATION INSPECTION

3.4.1 Surveillance of Primer Application

During application operations, the QC Inspector shall verify that the pressure pot is continuously agitated. The QC Inspector shall also verify that the hose length does not exceed 75 feet, and that the coating has not exceeded pot life per Reference 1-A or 1-B.

3.5 INSPECTION REPORTS

All inspections required by Sections 3.1 through 3.4 shall be documented on an IR, Attachment 2, in accordance with Reference 1-D.

3.6 MAPPING OF LARGE AREAS

For large areas 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 which time, the completed map shall be transmitted to the Permanent Plant Records Vault.

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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 requiring only touch-up need not be mapped.

NOTE:4

The following parameters, as necessary, should be considered for description of areas on the on the sketch.

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

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ATTACHMENT 2

COMANCHE PEAK STEAM ELECTRIC STATION

INSPECTION REPORT

SHEET 1 OF 2
NO.

ITEM DESCRIPTION PROTECTIVE COATINGS		CERTIFICATION NO.	SYSTEM / STRUCTURE DESIGNATION	
SPEC. NO. AS-31	REV.	REF. D.C. SPEC. & REV. & CHANGE NO. QI-QP-11.4-1, Rev.	MEASURE OR TEST EQUIP. IDENT. NO.	
<input type="checkbox"/> IN PROCESS INSPECTION	<input checked="" type="checkbox"/> PRE-INSTALLATION VERIFICATION	<input type="checkbox"/> INSTALLATION INSPECTION	<input type="checkbox"/> FINAL INSPECTION	<input type="checkbox"/> PRE-TEST INSPECTION
INSPECTION RESULTS				
<input type="checkbox"/> INSPECTION COMPLETED, ALL APPLICABLE ITEMS SATISFACTORY				
<input type="checkbox"/> INSPECTION COMPLETED, UNSATISFACTORY ITEMS LISTED BELOW				
ITEM NO.	INSPECTION ATTRIBUTES			QC INSPECTOR
				DATE
1.	Ambient conditions checked per Para. 3.1.1 and recorded below: DATE:			
	TIME: WET BULB TEMP.: DRY BULB TEMP.:			
	RELATIVE HUMIDITY: DEW POINT: SURF. TEMP.:			
2.	Abrasive acceptable per Para. 3.1.2.			
3.	Separators installed, drained, and drains left partially open.			
4.	Air supply free of contamination.			
5.	Verify that solvent cleaning performed prior to blasting in accordance with Para. 3.1.4.			
6.	Blasted surface and profile:			
	a. Blasted surface & surrounding areas cleaned per Para. 3.2.1			
	b. Surface free of foreign matter including grease and oil.			
	c. Sharp (non-rounded) projections removed.			
	d. Anchor pattern depth 1.0 mil. minimum.			
7.	Unique Number stamped on piece (Record Unique Number in Block 3 above.)			
8.	Ambient conditions checked per Para. 3.1.1 prior to primer application and record below: DATE:			
	TIME: WET BULB TEMP.: DRY BULB TEMP.:			
	RELATIVE HUMIDITY: DEW POINT: SURF. TEMP.:			
9.	Substrate surface free of contaminants and less than 24 hours elapsed since blasting.			
10.	Trap, filter or separator installed per Para. 3.3.3.			
11.	Air supply free of contamination.			
(Continued on Sheet 2...)				

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ATTACHMENT 3

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: _____

TEXAS UTILITIES GENERATING CO. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
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INSPECTION OF STEEL SUBSTRATE SURFACE PREPARATION AND PRIMER APPLICATION	PREPARED BY:	<i>David Williams</i>	<i>9/7/82</i>	DATE
	APPROVED BY:	<i>M. E. Hutz</i>	<i>9/7/82</i>	DATE
	APPROVED BY:	<i>D. B. C. Scott</i>	<i>9/7/82</i>	DATE

1.0 REFERENCES

- 1-A CCP-30, "Coating Steel Substrates Inside Reactor Buildings and Radiation Areas"
- 1-B CCP-30A, "Coating Steel Substrates Inside Reactor Buildings and Radiation Areas"
- 1-C QI-QP-11.4-22, "QC Verification of Protective Coatings Unique Identification Number Transfer"
- 1-D CP-QP-18.0, "Inspection Reports"

2.0 GENERAL

2.1 PURPOSE AND SCOPE

This Instruction shall describe methods utilized by Quality Control in inspection of steel substrate surface preparation and prime coat applications and in accordance with References 1-A and 1-B.

HISTORICAL FILE

FOR INFORMATION ONLY

3.0 INSTRUCTION

3.1 PRE-BLAST CLEANING OPERATIONS

3.1.1 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 4069 TH or equivalent) shall be used for air temperature determination. A calibrated non-mercury 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 the dry and wet bulb temperatures using the

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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). The surface temperature shall be determined by placing a calibrated surface temperature thermometer (Omega - Amprobe Fastemp, Range 10-250°F) in contact with the substrate surface to be blast cleaned. The thermometer probe shall remain in contact with the surface until the temperature reading stabilizes.

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

3.1.2 Abrasive Acceptability

The Inspector shall obtain a sample of the abrasive to be used from each work area. The abrasive shall be verified to be dry by feel.

Particle size must be sufficient to achieve 1 mil surface profile minimum. All contamination is unacceptable.

3.1.3 Blast Equipment Acceptability

The inspector shall perform the following inspections/tests to determine acceptability of blast cleaning equipment prior to use:

- a. Verify that water separators are installed in air supply system and that the separators have been drained of accumulated water and drains left partially open.
- b. Air supply contamination shall be checked at the nozzle prior to use by exposing a sheet of white paper or cloth to the blast of air (no sand) for approximately 30 seconds. The paper or cloth shall be examined for evidence of contamination (oil, water, foreign matter, etc.). No evidence of contamination is acceptable.

3.1.4 Solvent Cleaning (If Chemical Contamination Present)

If oil, grease, or other chemical contamination is present, verify that solvent cleaning (in accordance with SSPC-SP-1) is performed and that all chemical contamination is removed prior to blast cleaning steel surfaces.

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3.2 POST BLAST CLEANING OPERATIONS

3.2.1 Blast Cleanup

The inspector shall visually check the blasted substrate surface.

The surface shall be brushed or vacuumed 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.

3.2.2 Blasted or Power Tooled Surface Acceptability

The inspector shall perform the following inspections to determine acceptability of the blast cleaned or power tooled surface:

- a. 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: If coating removal is required from an area or item which has been coated in accordance with this instruction, shadows or tight residues of primer which may remain in the profile of the previously prepared substrate is acceptable.

- b. Removal of Sharp Projections -- A reinspection for sharp projections that were not blended (rounded) during blast cleaning or power tooling shall be performed.

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.

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Sharp projections are not acceptable.

Protrusions and peaks shall be ground to a rounded contour.

NOTE: Any mechanical surface preparation other than sandblasting or hand or power tooling of sharp edges or weld spatter will require a visual welding inspector's acceptance of the work performed.

- c. Anchor Pattern Depth -- The anchor pattern depth of the blasted or power tooled surface shall be inspected at random locations using a Keane-Tator Surface Profile Comparator (model 373) or equivalent. A power tooled surface shall be inspected with use of either a roughness gage and/or equivalent.

The anchor pattern depth for a blasted or power tooled surface shall be a minimum of 1.0 mils.

No maximum profile will be specified, providing that correct millage and surface uniformity requirements can be obtained after primer application.

3.2.3 Unique Number Identification

After blasting power tool and prior to prime coat application, QC shall verify that construction has identified each piece with a unique number in accordance with References 1-A and 1-B. The QC Inspector shall maintain a Protective Coatings Unique Identification Number Log, Attachment 1 for all protective coatings application on all steel designated for use in the Reactor Building. Subsequent subdivision of coated steel in the field or shop shall be witnessed by QC in accordance with Reference 1-C.

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 a permanent plant identification number need not be identified with a

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Protective Coatings unique Identification Number. The term "Equipment" is not to include pipe hangers, cable tray hangers, conduit supports, or structural steel. They will all have Protective Coating unique Identification Numbers assigned.

3.3 PRIMER PRE-APPLICATION INSPECTIONS

3.3.1 Ambient Conditions

Immediately prior to primer application, the QC Inspector shall determine air temperature, surface temperature, relative humidity. The primer application shall not begin unless the surface temperature is a minimum of 5° above the dew point. 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).

Normal conditions of ambient and surface temperatures shall be as follows:

	<u>Ambient Temp. (°F)</u>	<u>Surface Temp. (°F)</u>
Dimetcote 6	40-120	40-130
CarboZinc II	40-95	40-110

In no case shall Carboline and Ameron limits be exceeded (0-130°F ambient and 0-200°F surface temperatures). Coating materials (if thinned) shall be thinned in accordance with Reference 1-A or 1-B.

Humidity values may vary from 10% to 95%; however, primer shall not be applied to a wet or damp surface.

3.3.2 Substrate Surface Acceptability

The Inspector shall visually reinspect the sandblasted or powertooled surface of the substrate just prior to primer application for evidence of contamination (oil, grease, markings, rust, etc.) All contamination must be removed prior to priming.

If rust forms after Blasting or Power Tooling, the surface shall be "Shower Blasted" or "Re-furbished" before priming. Under no case will a prepared surface be exposed for more than 24 hours before priming.

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3.3.3 Air Supply Acceptability

The Inspector shall inspect the air supply system for pressure pots and spray guns for suitable filters/traps/separators. A trap, filter, or separator shall be installed in air system to pressure pot and spray gun. The effectiveness of these items shall be verified by exposing a sheet of white paper or cloth to the blast of air for approximately 30 seconds. The paper or cloth shall be examined for evidence of contamination (oil, water, foreign matter, etc.). No evidence of contamination is acceptable.

3.3.4 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.

3.3.5 Mixing Operations

3.3.5.1 Coating Materials Identification

The 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

DIMETCOTE

Carbo Zinc 11 base (gray or green)

Dimetcote 6 base

Carbo Zinc filler

Dimetcote filler

Carboline #21 or 33 Thinner

Amercoat #65 or 101
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 has a shelf life of 12 months. Carbo Zinc filler and Dimetcote 6 base and filler have a shelf life of 24 months.

3.3.5.2 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.

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3.3.5.3 Thinning Operation

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

3.4 PRIMER APPLICATION INSPECTION

3.4.1 Surveillance of Primer Application

During application operations, the QC Inspector shall verify that the pressure pot is continuously agitated. The QC Inspector shall also verify that the hose length does not exceed 75 feet, and that the coating has not exceeded pot life per Reference 1-A of 1-B.

3.5 INSPECTION REPORTS

All inspections required by Sections 3.1 through 3.4 shall be documented on an IR, Attachment 2, in accordance with Reference 1-D.

3.6 MAPPING OF LARGE AREAS

For large areas 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 which 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 requiring only touch-up need not be mapped.

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NOTE:4

The following parameters, as necessary, should be considered for description of areas on the sketch.

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

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ATTACHMENT 2

COMANCHE PEAK STEAM ELECTRIC STATION

INSPECTION REPORT

SHEET 1 OF 2
No.

ITEM DESCRIPTION PROTECTIVE COATINGS		CERTIFICATION NO. 21	SYSTEM / STRUCTURE DESIGNATION	
SPEC. NO. AS-31	REV. 1	REF. TO SPEC. & REV. & CHANGE NO. QI-QP-11.4-1, Rev.	MEASURE OR TEST EQUIP. IDENT. NO.	
<input type="checkbox"/> IN PROCESS INSPECTION	<input checked="" type="checkbox"/> PRE-INSTALLATION VERIFICATION	<input type="checkbox"/> INSTALLATION INSPECTION	<input type="checkbox"/> FINAL INSPECTION	<input type="checkbox"/> PRE-TEST INSPECTION
INSPECTION RESULTS				
<input type="checkbox"/> INSPECTION COMPLETED, ALL APPLICABLE ITEMS SATISFACTORY				
<input type="checkbox"/> INSPECTION COMPLETED, UNSATISFACTORY ITEMS LISTED BELOW				
ITEM NO.	INSPECTION ATTRIBUTES			QC INSPECTOR
				DATE
1.	Ambient conditions checked per Para. 3.1.1 and recorded below: DATE:			
	TIME:	WET BULB TEMP.:	DRY BULB TEMP.:	
	RELATIVE HUMIDITY:	DEW POINT:	SURF. TEMP.:	
2.	Abrasive acceptable per Para. 3.1.2.			
3.	Separators installed, drained, and drains left partially open.			
4.	Air supply free of contamination.			
5.	Verify that solvent cleaning performed prior to blasting in accordance with Para. 3.1.4.			
6.	Blasted surface and profile:			
	a. Blasted surface & surrounding areas cleaned per Para. 3.2.1			
	b. Surface free of foreign matter including grease and oil.			
	c. Sharp (non-rounded) projections removed.			
	d. Anchor pattern depth 1.0 mil. minimum.			
7.	Unique Number stamped on piece (Record Unique Number in Block 3 above.)			
8.	Ambient conditions checked per Para. 3.1.1 prior to primer application and record below: DATE:			
	TIME:	WET BULB TEMP.:	DRY BULB TEMP.:	
	RELATIVE HUMIDITY:	DEW POINT:	SURF. TEMP.:	
9.	Substrate surface free of contaminants and less than 24 hours elapsed since blasting.			
10.	Trap, filter or separator installed per Para. 3.3.3.			
11.	Air supply free of contamination.			
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