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REINSPECTION OF PROTECTIVE COATINGS ON CONCRETE SUBSTRATES FOR WHICH DOCUMENTATION IS MISSING OR DISCREPANT	PREPARED BY: <u>Harry Williams</u>	<u>7/13/83</u>
	APPROVED BY: <u>W. E. [Signature]</u>	<u>7/13/83</u>
	APPROVED BY: <u>C. P. [Signature]</u>	<u>7/14/83</u>
		DATE

FOR INFORMATION ONLY

1.0 REFERENCES

- 1-A Nonconformance Report Numbers C-81-01613 and C-81-01823
- 1-B CP-QP-18.0, "Inspection Reports"
- 1-C CCP-40, "Protective Coating of Concrete Surfaces"
- 1-D QI-QP-11.4-10, "Inspection of Concrete Substrate Surface Preparation and Coatings Application and Repair"
- 1-E CP-QP-15.0, "Tagging System"

RESTRICTED FILE

2.0 GENERAL

2.1 PURPOSE AND SCOPE

This instruction shall describe methods to be utilized by Quality Control in the measurement of dry film thickness (DFT) and adhesion to concrete substrates of existing concrete coating applications described in Reference 1-A using the Mark II Tooke Gage and the Elcometer 106 Adhesion Tester respectively. The above tests are destructive in nature which will necessitate a repair of the coating system at each test location.

3.0 INSTRUCTION

For all coated concrete surfaces for which documentation is missing or discrepant, the inspection activities discussed in Paragraphs 3.1 through 3.2 shall be performed as indicated therein.

3.1 TOOKE TEST (SCRATCH TEST)

The scratch test of the REACTIC 1201 finish coat shall be performed using a Mark II Tooke Inspection Gage equipped with a 2x tip. Five separate readings spaced randomly over

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each finish coated area of 100 square feet or less shall be taken.

NOTE: Tooke tests are not required to be performed on areas of concrete which have not been finish coated with REACTIC 1201.

Acceptance Criteria

The acceptable range for dry film thickness of the REACTIC 1201 finish coat is 3 mils minimum and 16 mils maximum.

In the event that any reading(s) is found to be outside of the acceptable finish coat thickness range, additional readings shall be taken to determine the extent of the unacceptable area. Results of additional testing shall be documented on Attachment 1.

In the event that the average of the area is unacceptable due to unacceptable spot readings, the unacceptable spots shall be isolated as described above. Additional spot readings shall be taken equal to the number of unacceptable spot readings and the average recalculated. Results of these additional readings shall be documented in the "Remarks" area of the IR. If the recalculated average is acceptable, the IR shall be so marked with an explanation in "Remarks" stating that "average recalculated - now acceptable", or wording to that effect. If the recalculated average is unacceptable, the unacceptable spots shall be isolated (as described above) and the above re-averaging process repeated.

3.2 ADHESION (PATCH TEST)

The QC Inspector shall perform an Adhesion (Patch) Test on each 500 square feet or less of concrete surfaces which have been previously coated with surfacer only (NUTEC 11 or 11S) or with surfacer and finish coat (REACTIC 1201). A calibrated Elcometer 106 Adhesion Tester shall be used to verify that the minimum acceptable tensile strength of adhesion of the coating to the concrete substrate has been obtained. For test areas of 300 square feet or less, each test shall consist of three (3) dollies randomly spaced and tested to failure. For test areas greater than 300 square feet but less than or equal to 500 square feet, each test shall consist of one (1) dolly tested to failure for each 100 square feet or fraction thereof.

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EXAMPLES:

1. For test area of 450 square feet, test 5 dollies to failure.
2. For test area of 350 square feet, test 4 dollies to failure.
3. For test area of 100 square feet, test 3 dollies to failure.

Acceptance Criteria:

The minimum acceptable strength per dolly shall be 200 psi.

If a dolly should fail the minimum strength criteria, the following additional testing shall be performed:

Four (4) additional dollies shall be adhesion tested at approximately one foot from the failing dolly and spaced radially at approximately 90 degree intervals. If any of the additional dollies fail the minimum strength criteria, additional dollies shall be placed and tested as indicated above, until area of loss of adhesion is isolated; this area(s) shall be removed to the substrate, and new coatings applied in accordance with Reference 1-C.

NOTE 1: In the case in which all of the additional dollies pass the minimum strength criteria, test failures on any of the original three (3) dollies shall nevertheless be documented as "unsatisfactory" on the IR.

3.3 STATUS INDICATORS

During backfit activities when items are unsatisfactory and could inadvertently be recoated with the unsatisfactory condition remaining, a reject tag shall be used in accordance with Reference 1-E. A reject tag shall be placed on the area referencing the unsatisfactory Inspection Report number and applicable NCR number.

3.4 REPAIRS

Repairs of each coated area which has been destructively tested per Sections 3.1 and 3.2 shall be performed in accordance with Reference 1-C and inspected in accordance with Reference 1-D.

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3.5 DOCUMENTATION

Results of all inspections described in Sections 3.1 through 3.2 shall be documented on an Inspection Report, Attachment 1, in accordance with Reference 1-B.

3.6 MAPPING

For each IR generated in accordance with Section 3.4, a sketch shall be attached to indicate the location and size of the applicable coated concrete area (See Note 1). The individual sketches from each IR shall be used to prepare composite maps which shall cover in scope a specific room, compartment, quadrant, or cavity within the Reactor Containment Buildings. The IR number shall be transferred to the applicable area on the composite map in order to provide traceability to the IR.

The composite maps shall be maintained by the QC Supervisor, or his designee, until all surfaces applicable to this instruction within a given area have been reinspected and mapped. Each completed composite map shall be transmitted to the Permanent Plant Records Vault.

NOTE 1: The following parameters (as necessary) should be considered for descriptions of test 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 or other components of known location.
- c. Whether concrete substrate is wall, ceiling, floor, beam or column.
- d. Quadrant, compartment, cavity or room in which inspection area is located.
- e. Unit number.
- f. Relation of surface to Cardinal Directions (i.e. North, South, etc.).

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ATTACHMENT 1

COMANCHE PEAK STEAM ELECTRIC STATION
INSPECTION REPORT

ITEM DESCRIPTION PROTECTIVE COATING		IDENTIFICATION NO.		SYSTEM / STRUCTURE DESIGNATION		SHEET OF NO.			
SPEC. NO.	REV.	REF. Q.C. DOC. & REV. & CHANGE NO. QI-QP-11.4-24, 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"/> PRETEST INSPECTION					
INSP. 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	QC SIGNATURE
	<input type="checkbox"/> SURFACER ONLY		<input type="checkbox"/> FINISH COAT						
1.	Perform Tooke test per Para. 3.1 to determine thickness in mils of finish coat. (Document one set of readings for each 100 square feet or less.)								
	RECORD:								
		1	2	3	4	5			
	Min. DFT								
	Max. DFT								
	Avg. DFT								
	Circle individual unacceptable readings.								
2.	Perform Adhesion Test per Para. 3.2. (Document three readings for each 300 sq. ft. or less. Document one additional reading for each 100 sq. ft. or fraction thereof in excess of 300 sq. ft.)								
	DOLLY #1:								
	DOLLY #2:								
	DOLLY #3:								
	DOLLY #4:								
	DOLLY #5:								
REMARKS (DWGS, SPECS, ETC.)									
RELATED NCR NO.	I.R. CLOSED <input type="checkbox"/>		DATE		SIGNATURE		QC INSPECTOR		