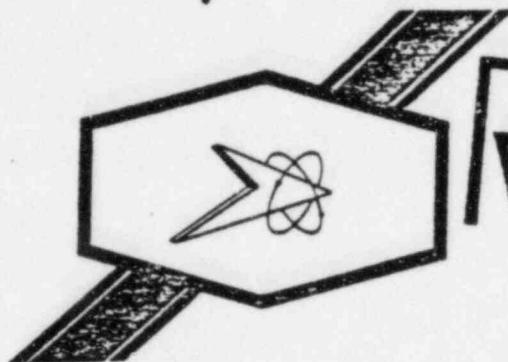


VBR-12916

Imperial



JOB NO. 35-1195

E C C E I V E

MAR 27 1980

E C C E I V E

D

TECHNICAL REPORT

NUMBER

346-79-G

TITLE

DBA Test Results-Short Intercoat Times:
Nutec 11S/Nutec 11, Nutec 11/Nutec 1201

FOR

CUSTOMER

Submitted by: Gerald E. Arnold

Accepted by:

Approved: *W. Bauer* 1/3/80

Date: December 27, 1979

B & R DCC DIST.

PROJECT MGR.	
PROJECT ENGR.	
QA MGR.	/
PROJECT CONT. ENGR.	1/4
TUGCO QA	
PROJECT GEN. MGR.	
ARMS	1/4
G. MacPhail	1/4 (5)
VBR	1/4

SOUTHERN IMPERIAL COATINGS CORPORATION, INC.

P. O. Box 29077, • New Orleans, Louisiana 70189

Phone: (504) 254-1433

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PDR FOIA
GARDEB5-59

PDR

SCOPE: The purpose of this test was to determine the feasibility of applying two coatings (Nutec 11S and 11 or, Nutec 11 and 1201) in a single day, for touch up purposes.

BACKGROUND: When applying the 11S/11/1201 concrete coating system, it is sometimes necessary to conduct repair or touch up work. Voids or pinholes may be left in the Nutec 11S coated surface. It would be advantageous to touch up these voids the same day prior to applying the next full coat.

Similarly, before applying the 1201 topcoat, the 11S or 11S/11 coated concrete should be pinhole free. If pinholes do exist they should be touched up with Nutec 11 prior to topcoating. Again, it would be ideal if both the repair and final coats could be applied in the same day.

SUMMARY: Design Basis Accident testing conducted by Coastal Science Associates revealed no significant defects on specimens which had the Nutec 11S and Nutec 11 applied at 6 hour intervals and others which had the Nutec 11 and Nutec 1201 applied with a 4 hour intercoat period. Because the cure time of each coating is dependent on film thickness, temperature, amount of thinning, and to some extent relative humidity, this practice is only recommended for touch up applications and not full coats.

PROCEDURES: Three concrete coupons, measuring 2 x 4 x 2" were all coated with Nutec 11S. Of these, two coupons were coated with Nutec 11, 24 hours later, and one was coated with Nutec 11 after only 6 hours. The one specimen with the 6 hour 11S/11 intercoat cure was then topcoated with Nutec 1201 following a 24 hour cure of the Nutec 11. The remaining two coupons with the 24 hour 11S/11 intercoat cure were handled as follows: One specimen was topcoated 4 hours after the application of the Nutec 11, while the other was topcoated following a 24 hour curing of the Nutec 11.

To summarize:

<u>Coupon #</u>	<u>Description</u>
3535	11S/11 6 hour intercoat cure
3537	11/1201 4 hour intercoat cure
3539	Standard 24 hour intercoat times

*Refer to the attached panel preparation sheets for details of application and curing.

The coated specimens were allowed to cure approximately 22 days, then submitted to Coastal Science Associates for DBA Testing in accordance with the Houston Lighting and Power/South Texas Project conditions: 291°F. and 58PSIG (maximum). The duration of the test was four days-see attached diagram.

RESULTS: See attached Coastal Science Reports.

CONCLUSIONS: All test specimens, including those coated using short intercoat cure times, performed well under DBA conditions, exhibiting no significant defects. For minor repair applications, Nutec 11S may be coated with Nutec 11 as soon as the 11S has set to touch. The same is also true for topcoating Nutec 11

with Nutec 1201. The set to touch time will be dependent on film thickness, % thinning, temperature, and to some extent relative humidity. Because of the number of variables that can effect the set time and the corresponding release of solvent, the practice of using short intercoat times is recommended only for small areas.

REFERENCE: Lab Notebook 133 pg. 155.

TEST PANEL PREPARATION DAT

1. Product to be Tested: Nutec 11S/Nutec 11/Nutec 1201
2. Type Substrate: Concrete SIZE: 2 x 4 x 2"
3. Surface Preparation (describe): 100 psi compressed air
4. PRODUCT DATA: Sample No(s): 3535
5. Date and Time Curing Compound or Primer Applied: N/A

COAT	PRODUCT	PRODUCT CODE	BATCH #	APPLICATION METHOD	CONDITIONS R/M (°F) & R.H.	THICKNESS (ins.)	TIME & DATE APPLIED
	Nutec	11S	2671/LB150/LB148	Squeegee	75/54	.015-.020"	10/17/77 11 a.m.
	Nutec	11	2671/LB150/LB149	Squeegee	82/48	.003-.005"	10/17/77 5 p.m.
	Nutec	1201	2467/2568	Spray	84/56	.004-.006"	10/18/77 4 p.m.

Total dry film thickness: .022-.031"

6. Curing Conditions: Ambient Temp. 70 - 80 °F Rel. Humidity 45 - 60%
Minimum Cure 22 Days
7. Test Procedure: DBA per HL&P/South Texas
8. Testing Performed By: Coastal Science Associates Date: 11/11/77

Prepared By: *Gerald E. Arnold*
 Date: 12-27-79
 Approved By: *DB*
 Date: 1/3/80
 Report No. _____

TEST PANEL PREPARATION DATA

1. Product to be Tested: Nutec 11S/Nutec 11/Nutec 1201
2. Type Substrate: Concrete SIZE: 2 x 4 x 2"
3. Surface Preparation (describe): 100 psi compressed air
4. PRODUCT DATA: Sample No(s): 3537
5. Date and Time Curing Compound or Primer Applied: N/A

COAT	PRODUCT	PRODUCT CODE	BATCH #	APPLICATION METHOD	CONDITIONS R/M (°F) & R.H.	THICKNESS (ins.)	TIME & DATE APPLIED
	Nutec	11S	2671/LN150/LB148	Squeegee	74/54	.015-.020"	10/17/77 11 a.m.
	Nutec	11	2671/LB150/LB149	Squeegee	82/55	.003-.005"	10/18/77 11:40 am
	Nutec	1201	2467/2568	Spray	84/56	.004-.006"	10/18/77 3:45 p.m.

Total dry film thickness: .022-.031"

6. Curing Conditions: Ambient Temp. 70 - 80 °F Rel. Humidity 45 - 60
Minimum Cure 22 Days
7. Test Procedure: DBA per HL&P/South Texas
8. Testing Performed By: Coastal Science Associates Date: 11/11/77

Prepared By: Gerald E. Arnold
 Date: 12-27-79
 Approved By: PS
 Date: 1/3/80
 Report No. _____

TEST PANEL PREPARATION DATA

1. Product to be Tested: Nutec 11S/Nutec 11/Nutec 1201
2. Type Substrate: Concrete SIZE: 2 x 4 x 2"
3. Surface Preparation (describe): 100 psi compressed air
4. PRODUCT DATA: Sample No(s): 3539
5. Date and Time Curing Compound or Primer Applied: N/A

COAT	PRODUCT	PRODUCT CODE	BATCH #	APPLICATION METHOD	CONDITIONS R/M (°F) & R.H.	THICKNESS (ins.)	TIME & DATE APPLIED
	Nutec	11S	2671/LB150/LB148	Squeegee	74/54	.015-.020"	10/17/77 11 a.m.
	Nutec	11	2671/LB150/LB149	Squeegee	82/55	.003-.005"	10/18/77 11:40 am
	Nutec	1201	2467/2568	Spray	80/68	.004-.006"	10/19/77 11 a.m.

Total dry film thickness: .022-.031"

6. Curing Conditions: Ambient Temp. 70 - 80 °F Rel. Humidity 45 - 60
Minimum Cure 22 Days
7. Test Procedure: DBA per HL&P/South Texas
8. Testing Performed By: Coastal Science Associates Date: 11/11/77

Prepared By: Herold C. Arnold
 Date: 12-27-79
 Approved By: DL
 Date: 1/3/80
 Report No. _____

Houston Power & Light

ENVIRONMENTAL QUALIFICATION TEST PROFILE

Temperature Versus Time

REVISION 0, 10/22/75

ADDITIONAL

PEAK TRANSIENT

DBA TRANSIENT

291 F

291 F

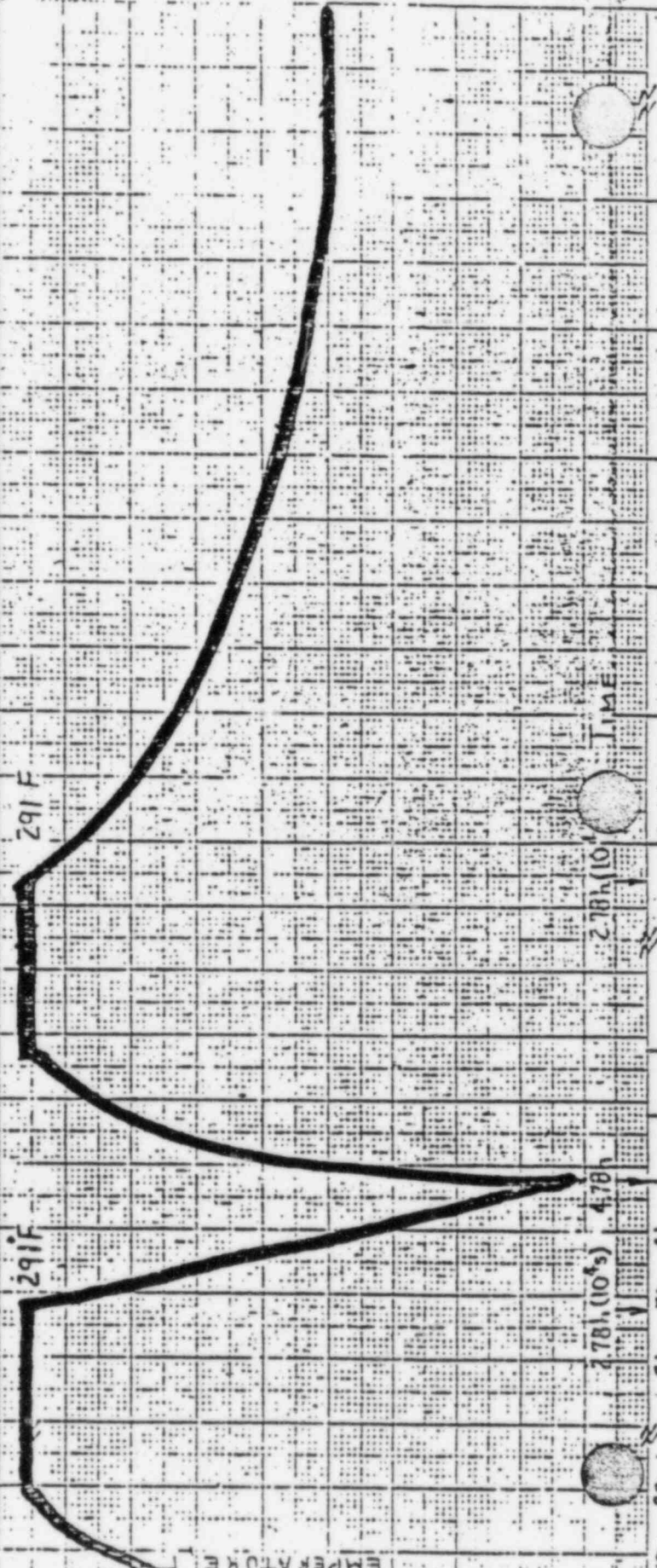
278h (10⁵s) 478h

278h (10⁵s)

TIME

10s 20s 2h 3h 4h

TEMPERATURE



ENVIRONMENTAL QUALIFICATION TEST PROFILE

Pressure Versus Time

REVISION 0, 10/22/75

ADDITIONAL

PEAK TRANSIENT

DBA TRANSIENT

54.6 psig

54.5 psig

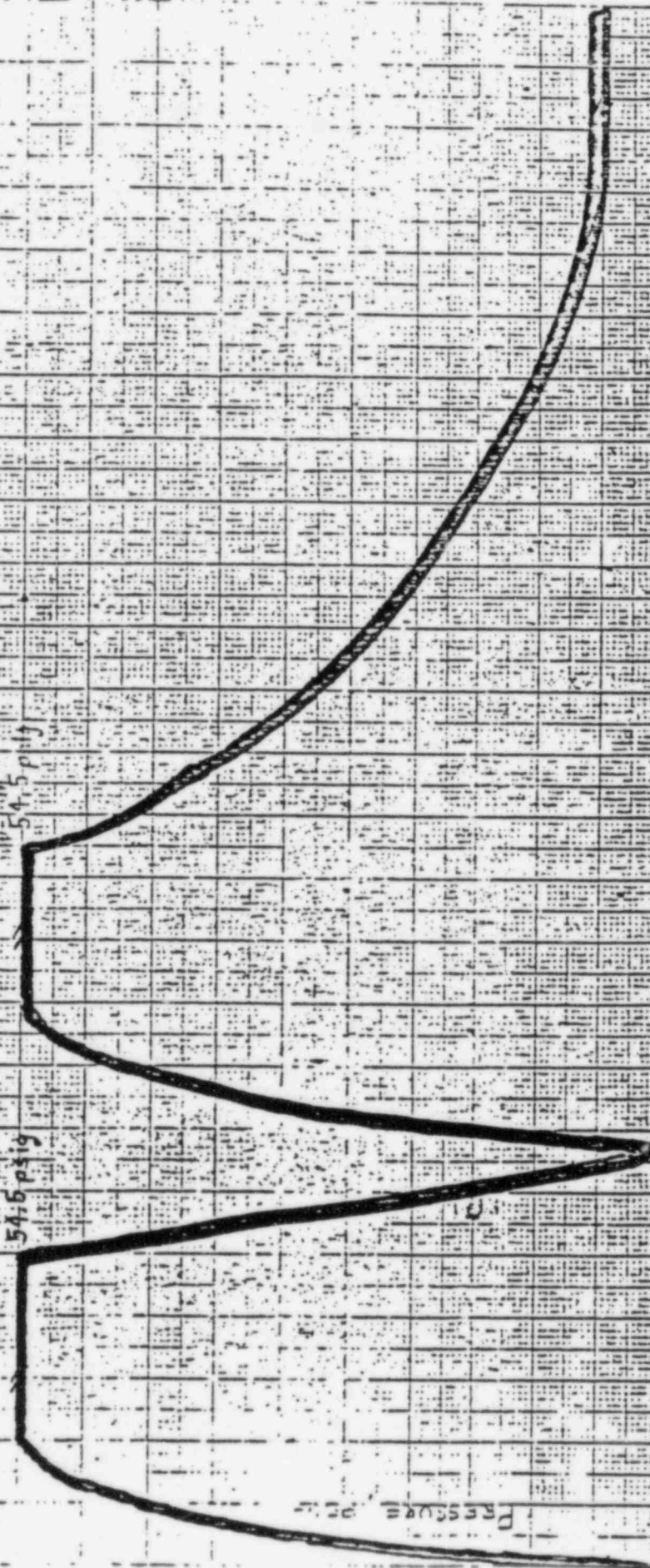
2.08 (0.5)

2.29 (1.0)

TIME

2h 3h 4h

10s 20s



COASTAL SCIENCE ASSOCIATES

(504) 283-7251

6900 CANAL BOULEVARD • NEW ORLEANS, LOUISIANA 70124

PRINT

DATE: 11/14/77

PRODUCT IDENTIFICATION: 1 CONCRETE

DBA TEST CONDITIONS:
HOUSTON LIGHTING AND POWER, SHORTENED TO 96 HOURS.

SAMPLE NUMBER

COMMENTS

3535

SIDE ONE: NO BLISTERS, CRACKS, FLAKING, DELAMINATIONS,
OR OTHER DEFECTS DETECTED.

SIDE TWO: NO BLISTERS, CRACKS, FLAKING, DELAMINATIONS,
OR OTHER DEFECTS DETECTED.

SIDE THREE: NO BLISTERS, CRACKS, FLAKING, DELAMINATIONS,
OR OTHER DEFECTS DETECTED.

SIDE FOUR: NO BLISTERS, CRACKS, FLAKING, DELAMINATIONS,
OR OTHER DEFECTS DETECTED.

REPORT NUMBER 052111477

APPROVED

Charles B. Fung

COOPERATIVE STUDIES • TECHNICAL PROGRAM EVALUATION • POLLUTION ABATEMENT
MARINE COATINGS & TESTING • CHEMICAL / PHYSICS CONSULTING

COASTAL SCIENCE ASSOCIATES

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6900 CANAL BOULEVARD • NEW ORLEANS, LOUISIANA 70124

PRINT

DATE: 11/14/77

PRODUCT IDENTIFICATION: 1 CONCRETE

DBA TEST CONDITIONS:
HOUSTON LIGHTING AND POWER, SHORTENED TO 96 HOURS.

SAMPLE NUMBER

COMMENTS

3537

SIDE ONE: NO BLISTERS, CRACKS, FLAKING, DELAMINATIONS,
OR OTHER DEFECTS DETECTED.

SIDE TWO: NO BLISTERS, CRACKS, FLAKING, DELAMINATIONS,
OR OTHER DEFECTS DETECTED.

SIDE THREE: NO BLISTERS, CRACKS, FLAKING, DELAMINATIONS,
OR OTHER DEFECTS DETECTED.

SIDE FOUR: NO BLISTERS, CRACKS, FLAKING, DELAMINATIONS,
OR OTHER DEFECTS DETECTED.

REPORT NUMBER 852111477

APPROVED

Charles F. Fung

COASTAL SCIENCE ASSOCIATES

04) 283-7251

6900 CANAL BOULEVARD • NEW ORLEANS, LOUISIANA 70124

PRINT

DATE: 11/14/77

PRODUCT IDENTIFICATION: 1 CONCRETE

DBA TEST CONDITIONS:
HOUSTON LIGHTING AND POWER, SHORTENED TO 96 HOURS.

SAMPLE NUMBER

COMMENTS

3539

SIDE ONE: NO BLISTERS, CRACKS, FLAKING, DELAMINATIONS,
OR OTHER DEFECTS DETECTED.

SIDE TWO: ONE FLAKE, ABOUT 1/4", LOWER HALF.

SIDE THREE: NO BLISTERS, CRACKS, FLAKING, DELAMINATIONS,
OR OTHER DEFECTS DETECTED.

SIDE FOUR: NO BLISTERS, CRACKS, FLAKING, DELAMINATIONS,
OR OTHER DEFECTS DETECTED.

REPORT NUMBER 052111477

APPROVED

Charles A. Fenzl