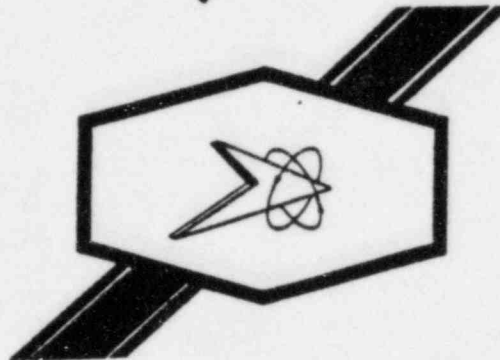


Imperial



TECHNICAL REPORT

NUMBER

167-77

TITLE

Repairability of Nutec 11S/Nutec 11/Reactic 1201

FOR

CUSTOMER

Submitted by: *Jerry Arnold*

Approved: *[Signature]*

Date: July 15, 1977

SOUTHERN IMPERIAL COATINGS CORPORATION, INC.
P. O. Box 29077, • New Orleans, Louisiana 70189
Phone: (504) 254-1433

The information contained in this report, based upon our experience, is offered without charge as part of our service to customers. It is intended for use by persons having technical skill, at their own discretion and risk. We assume no liability in connection with its use. This information is not intended as a license to operate under, nor a recommendation to infringe, any patent covering any material or use.

8511060085 851016
PDR FOIA
GARDE85-59 PDR

Repairability of Damaged Concrete Systems

The following report describes the repairability of the three systems outlined below:

1. Conamet C cleaned/Nutec 11S/Nutec 11/Reactic
2. Nutec 10/ Conamet C cleaned/Nutec 11S/Nutec 11/Reactic 1201
3. L & M cure-fugitive dye/Nutec 11S/Nutec 11/Reactic 1201

Since, however, the damage incurred by the Elcometer adhesion tester occurred in the concrete, the actual repairability evaluations reflect only the Nutec 11S/Nutec 11/Reactic 1201 system.

The tested specimens were damaged by means of an Elcometer adhesion tester. A high strength aluminum dollie was applied to each coupon with an epoxy resin type adhesive in accordance with Imperial Test Method 03. The adhesive was allowed to cure thoroughly, then removed with the Elcometer. Failure occurred in the concrete. The purpose of this procedure is two fold; to generate adhesion data, and to inflict damage.

The damaged coupons were repaired with the original three coat system; Nutec 11S/Nutec 11/Reactic 1201. The affected areas were hand sanded to remove loose concrete and to feather edge the adjacent coating system. Compressed air, 100 psi, was used to remove any dust and contamination from the substrate prior to applying the Nutec 11S surfacer. Refer to the following panel preparation sheets for application and airing data of the applied touch up system.

NOTEBOOK REFERENCES

33-85,86

33-101,103

TEST PANEL PREPARATION DI
REPAIRABILITY & MAINTENANCE

1. Product to be Tested: NUTEC #11S/NUTEC #11/REACTIC #1201
2. Type Substrate: Concrete - Bechtel CP-956 Size: 2" x 4" x 2"
3. Surface Preparation (describe): All surfaces blasted with 100 psi compressed air.
4. PRODUCT DATA: Sample No(s): 2369
5. Date and Time Curing Compound or Primer Applied: L & M cure/fugitive dye applied 3/3/77

COAT	PRODUCT	PRODUCT CODE	BATCH #	APPLICATION METHOD	CONDITIONS R/M (°F) & R.H.	THICKNESS (ins.)	TIME & DATE APPLIED
1	L & M/Fugitive Dye			Spray	72/73	*	3/3/77
2	NUTEC	#11S	1310/1556/1312	Squeegee	76/59	.015-.020	4/4/77
3	NUTEC	#11	1313/1314	Squeegee	74/58	.005-.010	4/6/77
4	REACTIC	#1201	7497/7434	Spray	82/48	.007-.008	4/11/77

*L & M Cure/Fugitive Dye Mixture applied at a spread rate of 250 ft²/gal.

6. Curing Conditions: Ambient Temp. 70-80 °F Rel. Humidity 40-60
Minimum Cure 27 Days
7. Test Procedure: DBA - Houston Lighting & Power (Rev. 0, 10/22/75)
8. Testing Performed By: Coastal Sciences Date: 6/7/77

Approved By: [Signature]
Date: 7/19/77
Prepared By: [Signature]
Date: 7/18/77
Report No. 167-77

TEST PANEL PREPARATION DATA

REPAIRABILITY & MAINTENANCE

1. Product to be Tested: NUTEC #11S/NUTEC #11/REACTIC #1201
2. Type Substrate: Concrete - Bechtel CP-956 Size: 2" x 4" x 2"
3. Surface Preparation (describe): All surfaces blasted with 100 psi compressed air.
4. PRODUCT DATA: Sample No(s): 2367
5. Date and Time Curing Compound or Primer Applied: L & M cure/fugitive dye applied 3/3/77

COAT	PRODUCT	PRODUCT		APPLICATION	CONDITIONS		THICKNESS	TIME & DATE
		CODE	BATCH #		R/M (°F) % R.H.	(ins.)		
1	L & M/Fugitive Dye			Spray	72/73	*		3/3/77
2	NUTEC	#11S	1121/1122/1123	Squeegee	80/60	.015-.020		3/10/77
3	NUTEC	#11	1124/1125	Squeegee	74/56	.005-.010		3/14/77
4	REACTIC	#1201	7497/7434	Spray	80/68	.007-.008		3/16/77

*L & M Cure/Fugitive Dye Mixture applied at a spread rate of 250 ft²/gal.

6. Curing Conditions: Ambient Temp. 70-80 °F Rel. Humidity 40-60
Minimum Cure 27 Days
7. Test Procedure: DBA - Houston Lighting & Power (Rev. 0, 10/22/75)
8. Testing Performed By: Coastal Sciences Date: 6/7/77

Approved By: [Signature]
Date: 7/15/77
Prepared By: Harold E. Arnold
Date: 7/18/77
Report No. 167-77

TEST RESULTS
FOR TOUCH-UP AND REPAIR

PRODUCT IDENTIFICATION:

Steel Panel

X

Concrete Block

1st Coat:

2nd Coat: See Panel Preparation

3rd Coat:

TOUCH-UP PROCEDURE:

Method of Damage: Elcometer adhesion test - break in concrete

Surface Preparation: Damaged area hand sanded and feather edged

Touch-Up Coating:	1st Coat:	NUTEC #11S	4/22/77	.015-.020
	2nd Coat:	NUTEC #11	5/2/77	.005-.010
	3rd Coat:	REACTIC #1201	5/11/77	.005-.007

DBA TEST RESULTS:

ORNL Master Analytical Manual Method No. 2 0922.

Sample No.

DBA Phase

Comments

See Coastal Science Report #040060777

Approved By:

Date:

Prepared By:

Date:

Report No.

167-77

TEST RESULTS
FOR TOUCH-UP AND REPAIR

PRODUCT IDENTIFICATION:

Steel Panel

X

Concrete Block

1st Coat:

2nd Coat:

See Panel Preparation

3rd Coat:

TOUCH-UP PROCEDURE:

Method of Damage: Elcometer adhesion test - break in concrete

Surface Preparation: Damaged area hand sanded and feather edged

Touch-Up Coating:	1st Coat:	NUTEC #11S	4/22/77	.015-.020
	2nd Coat:	NUTEC #11	5/2/77	.005-.010
	3rd Coat:	REACTIC #1201	5/11/77	.005-.007

DBA TEST RESULTS:

ORNL Master Analytical Manual Method No. 2 0922.

Sample No.

DBA Phase

Comments

See Coastal Science Report #C40060777

Approved By:

Date:

Prepared By:

Date:

Report No.

167-77

TEST RESULTS
FOR TOUCH-UP AND REPAIR

PRODUCT IDENTIFICATION:

Steel Panel

X

Concrete Block

1st Coat:

2nd Coat:

See Panel Preparation

3rd Coat:

TOUCH-UP PROCEDURE:

Method of Damage: Elcometer adhesion test - break in concrete

Surface Preparation: Damaged area hand sanded and feather edged

Touch-Up Coating:	1st Coat:	NUTEC #11S	4/22/77	.015-.020
	2nd Coat:	NUTEC #11	5/2/77	.005-.010
	3rd Coat:	REACTIC #1201	5/11/77	.005-.007

DBA TEST RESULTS:

CRNL Master Analytical Manual Method No. 2 0922.

Sample No.

DBA Phase

Comments

See Coastal Science Report #040060777

Approved By:

Date:

Prepared By:

Date:

Report No.

167-77

TEST RESULTS
FOR TOUCH-UP AND REPAIR

PRODUCT IDENTIFICATION:

Steel Panel

X

Concrete Block

1st Coat:

2nd Coat:

See Panel Preparation

3rd Coat:

TOUCH-UP PROCEDURE:

Method of Damage: Elcometer adhesion test - break in concrete

Surface Preparation: Damaged area hand sanded and feather edged

Touch-Up Coating:	1st Coat:	NUTEC #11S	4/22/77	.015-.020
	2nd Coat:	NUTEC #11	5/2/77	.005-.010
	3rd Coat:	REACTIC #1201	5/11/77	.005-.007

DBA TEST RESULTS:

ORNL Master Analytical Manual Method No. 2 0922.

Sample No.

DBA Phase

Comments:

See Coastal Science Report #040060777

Approved By:

Date:

7/15/77

Prepared By:

Michael E. Arnold

Date:

7/18/77

Report No.

167-77

TEST PANEL PREPARATION DATA

REPAIRABILITY & MAINTENANCE

1. Product to be Tested: NUTEC #10/NUTEC #11S/NUTEC #11/REACTIC #1201
2. Type Substrate: Concrete - Bechtel CP-956 Size: 2" x 4" x 2"
3. Surface Preparation (describe): NUTEC #10 cured concrete scrubbed and rinsed with diluted conamet C (Engineered Design Products)
4. PRODUCT DATA: Sample No(s): 2364
5. Date and Time Curing Compound or Primer Applied: NUTEC #10 Primer/Sealer applied 7/9/76

COAT	PRODUCT	PRODUCT CODE	BATCH #	APPLICATION METHOD	CONDITIONS R/M (°F) & R.H.	THICKNESS (ins.)	TIME & DATE APPLIED
1	NUTEC	#10	6154/6155	Spray	86/70	*	7/9/76
2	NUTEC	#11S	1310/1556/1312	Squeegee	76/59	.015-.020	4/4/77
3	NUTEC	#11	1313/1314	Squeegee	74/58	.005-.010	4/6/77
4	REACTIC	#1201	7497/7434	Spray	82/48	.007-.008	4/11/77

* NUTEC #10 applied at a spread rate of 350 ft²/gal.

6. Curing Conditions: Ambient Temp. 70-80 °F Rel. Humidity 40-60
Minimum Cure 27 Days
7. Test Procedure: DBA - Houston Lighting & Power (Rev. 0, 10/22/75)
8. Testing Performed By: Coastal Sciences Date: 6/7/77

Approved By: [Signature]
Date: 7/19/77
Prepared By: [Signature]
Date: 7/18/77
Report No. 167-77

TEST PANEL PREPARATION DATA

REPAIRABILITY & MAINTENANCE

1. Product to be Tested: NUTEC #11S/NUTEC #11/REACTIC #1201
2. Type Substrate: Concrete - Bechtel CP-956 Size: 2" x 4" x 2"
3. Surface Preparation (describe): Concrete scrubbed and rinsed with concentrated Conamat C (Engineered Design Products)
4. PRODUCT DATA: Sample No(s): 2361
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
1	NUTEC	#11S	1310/1556/1312	Squeegee	76/59	.015-.020	4/4/77
2	NUTEC	#11	1313/1314	Squeegee	74/58	.005-.010	4/6/77
3	REACTIC	#1201	7497/7434	Spray	82/48	.007-.008	4/11/77

6. Curing Conditions: Ambient Temp. 70-80 °F Rel. Humidity 40-60
Minimum Cure 27 Days
7. Test Procedure: DBA - Houston Lighting & Power (Rev. 0, 10/22/75)
8. Testing Performed By: Coastal Sciences Date: 6/7/77

Approved By: [Signature]
Date: 7/19/77
Prepared By: Donald E. Arnold
Date: 7/18/77
Report No. 167-77

COASTAL SCIENCE ASSOCIATES

(504) 283-7251

6900 CANAL BOULEVARD • NEW ORLEANS, LOUISIANA 70124

467-5948

Date: July 14, 1977

Product Identification: Steel Panel 4 Concrete Block

DBA Test Conditions: Houston Lighting and Power Curve,
Rev. 0, Oct. 22, 1975

<u>Sample No.</u>	<u>Comments</u>
2367	No cracks, blisters, flakes, or loss of adhesion on any side.
2369	No cracks, blisters, flakes, or loss of adhesion on any side.
2364	No cracks, blisters, flakes, or loss of adhesion on any side.
2361	No cracks, blisters, flakes, or loss of adhesion on any side.

Approved

C.A. Fung

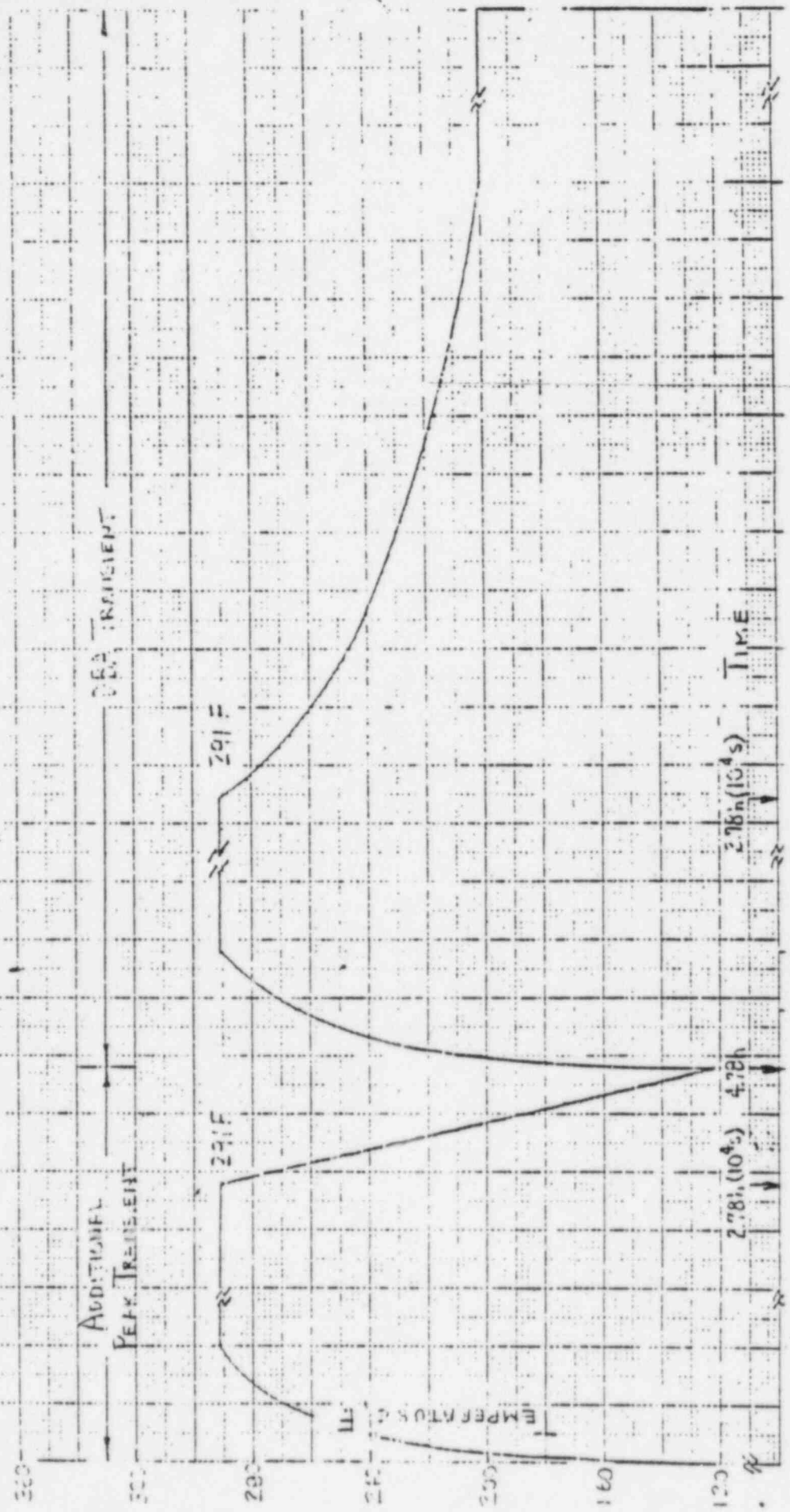
Report #040060777

Houston Power & Light (South Texas)

ENVIRONMENTAL QUALIFICATION: TEST PROFILE

Temperature Versus Time

REVISION O, 10/22/75



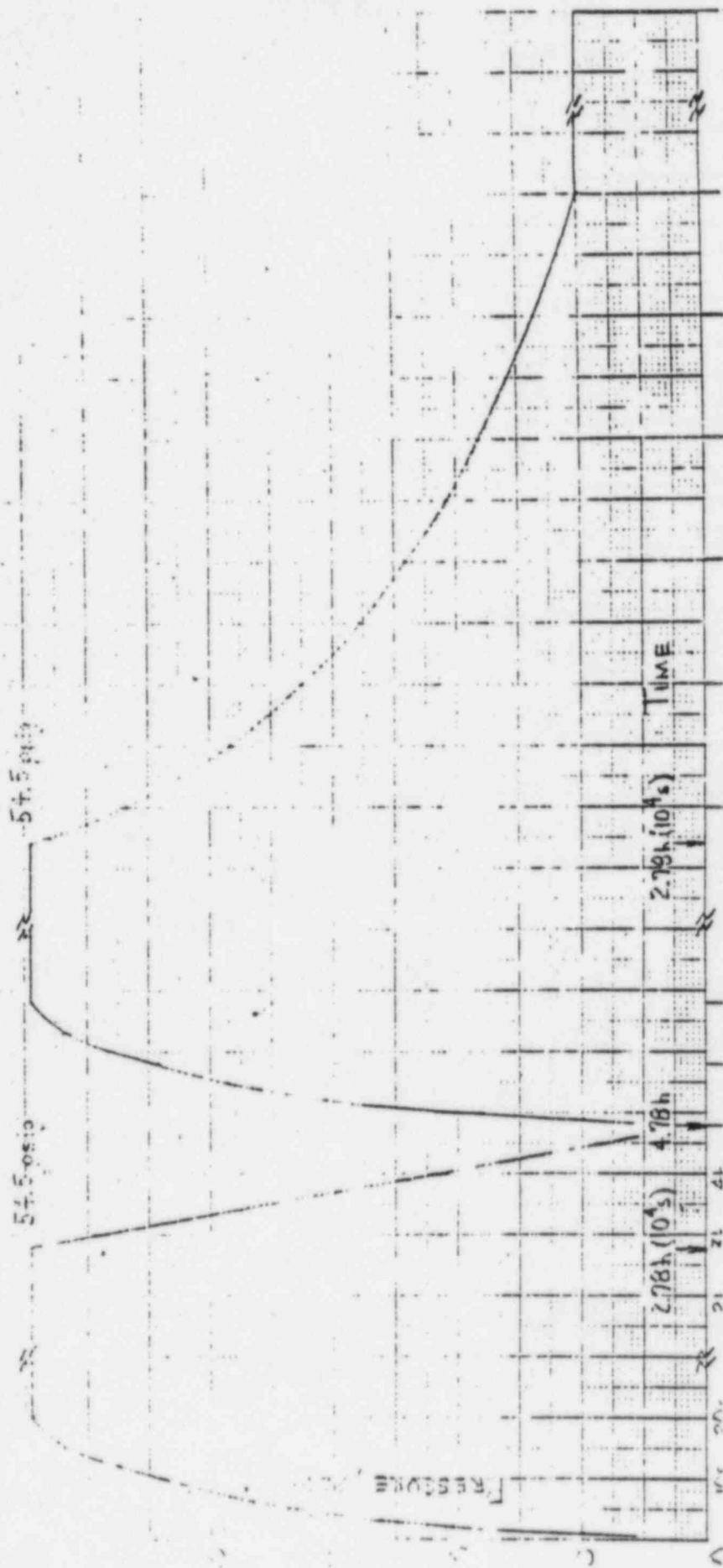
ENVIRONMENTAL QUALIFICATION TEST PROFILE

Pressure Versus Time

REVISION 0, 10/22/75

ADDITIONAL
PER TRANSIENT

D5A TRANSIENT



Box 29077 New Orleans, Louisiana 70189 U.S.A. 504-254-1433



PROFESSIONAL COATINGS

VBR-7366

March 29, 1978

Commanche Peak Steam Electric Station
Brown & Root, Inc.
P.O.Box 1001
GLEN ROSE, TX 76043

ATTENTION: Mr. Don Sutton

Dear Mr. Sutton:

As promised, attached is a copy of Imperial's Technical Report #167-77 relating to the use of Conamet C for cleaning concrete surfaces. The report was specifically prepared to demonstrate repairability of the #11S/#11/#1201 system, however, as outlined in the panel preparation data, two of the four concrete specimens were cleaned using Conamet C followed by thorough rinsing with clean water.

We hope this information is what you require, but if we can be of any further assistance, please do not hesitate to contact me again. (504) 254-1433.

Sincerely,

Gerald E. Arnold
Technical Representative
Nuclear Coatings

GEA/nd

Enclosure