

LEAD INDUSTRIES ASSOCIATION

430 LEXINGTON AVENUE
NEW YORK 17, N. Y.

RED LEAD CONFIDENTIAL

SUBJECT TO REVISION

RED LEAD DIVISION

New York, N. Y.

August 23-24, 1945

The regular meeting of the Red Lead Technical Committee was held at Sayville, L.I. on August 23-24, 1945, so that the Committee could inspect the exposure panels on the test fence.

Present

A.C. Coats
O.F. Shobe
J.O. Johnstone
George Dickman

R. Shutt
A.J. Rickhoff

Representing

Eagle-Picher Co.
Glidden Co.
Hammond Lead Products, Inc.
National Lead Co.

Glidden Co.
National Lead Co.

F.E. Warner, Secretary of L.I.A.
L.H. Curriek, Director, Red Lead Research

It was thought advisable to inspect the panels at Sayville, L.I. so that all members of the Committee could have first hand knowledge of the panels and be better prepared to discuss the future of the red lead program, also to formulate an atmospheric test program incorporating red lead formulations.

The exposure panels at the marine test basin are divided into three groups:

1. Total Immersion
2. Tide-Range
3. Atmospheric exposure, have the panels suspended 2 ft. above high tide level

INSPECTION OF ATMOSPHERIC PANELS RESEARCH PROJECT NO. 1

The panels in this group are prepared from paints formulated at the Joplin meeting of the Red Lead Technical Committee in January 1943. These paints were applied to panels consisting of 4" Angle iron 1/4" thick and 12 inches long. The lower half of each panel was given one coat of primer. The upper half was given two coats of primer. Then one face of the angle iron was given a topcoat. The other face was left with the primer systems exposed.

The panels of Research Project No. 1 were placed on exposure May 9, 1943. To date they have been on exposure 27 months. General inspection data as of



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August 23-24, 1945, is attached for your files (Exhibit A). A study of this data discloses the following trends.

1. No two coat primer system nor any system composed of a primer and topcoat are failing at this time except for two panels. The only deterioration in the paint films were those of the one coat primer systems.

2. Panels No. 4501A and 4509A show a breakdown in the one primer coat-one topcoat system. This seems to be due in the case of 4501A to the cracking of the topcoat.

3. A comparison of the paints containing pigmentations A and B emphasizes the importance of the vehicle. This statement is true for both corrosion and sealage.

4. Panels Nos. 4494A, 4492A, 4500A and 4501A which carry pigmentation B or a modification of pigmentation B in the same vehicle indicate that the variation of the zinc oxide, iron oxide, magnesium silicate or diatomaceous silica content within the ranges of these pigmentations does not materially effect the weathering characteristics of the paint. All of these show material signs of deterioration. The pigmentation is B and the Vehicle is No. 1.

5. Panels No. 4510A, 4511A, 4514A all carry the same vehicle V-6. Of this group of paints the paint represented by panel 4510A is the most outstanding. It has a rating of 10-perfect in all particulars. The pigmentation is 36.8% red lead, 53.3% iron oxide, 9.9% diatomaceous silica.

6. Panel No. 4510A is the most outstanding paint of Research Project No. 1. It has a pigmentation of 36.8% red lead, 53.3% iron oxide, 9.9% diatomaceous silica in a phenolic vehicle which is similar to that used in the U.S.N.C. Engineer's specification P-2100, No. 512, Vehicle No. 2.

7. If we exclude vehicle V-6 which is approximately a 33-gallon length varnish then the performance of the other vehicles is almost proportional to the linseed oil content. This is especially true in connection with pigmentations A and B.

8. There is little difference between the performance of Navy specification 52-P-18 and the U.S.N.C. Class XIII red lead paint. Both of these have rather low ratings.

A final report of the tide range and total immersion exposure of the paints of Research Project No. 1 may be found in the Blackbook Data, Section D, pages 3 to 16 inclusive.

INSPECTION OF ATMOSPHERIC PANELS RESEARCH PROJECT NO. 1

This project dealt with the formulation of low-cost primers which were submitted to the Maritime Commission for test on the hulls of steel ships at total immersion and tide-range. While these paints were known to be rather short in oil for atmospheric exposure yet they were exposed to the atmosphere with the same conditions of panel preparation as Research Project No. 1 noted above.

These panels were placed on exposure October 7, 1945 and have been on exposure to date 23 months.

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The inspection is as of August 24, 1945. Detailed exposure data of this inspection is attached for your files (see Exhibit B).

This inspection reveals the following trends:

1. Panels Nos. 4834A, 4840A, 4842A, 4870A and 4874A constitute the standards for these tests and are also paints which were included in Research Project No. 1. The condition of these panels at 22 months is substantially the same as observed on the inspection of Research Project No. 1 panels as of 27 months.

2. Of all the pigmentations used pigmentation J makes the best showing of this series. It has been tried in vehicles 8, 13, 20, 21 and 22. At the end of 22 months there is no significant variation in the behavior of pigmentation J in any of these five vehicles. All the paints are uniformly good.

3. In comparing pigmentation J in vehicle 13 and 22 with pigmentation N in the same vehicles it may be observed that the red lead-multiple pigmentation J is slightly better than the 90% red lead-10% diatomaceous silica pigmentation N.

4. If we compare pigmentations A, M and N in vehicle 8 (80 gallon length varnish) we find that there is no significant difference in the behavior of these widely different pigmentations. This emphasizes the importance of the vehicle.

A final report of the tide-range and total immersion exposures of the paints of Research Project No. 2 may be found in the Blackbook data, Section D, pages 17 to 28 inclusive.

INSPECTION OF ATMOSPHERIC PANELS RESEARCH PROJECT NO. 10

These panels were prepared for exposure in the same manner as those for Research Project No. 1.

Two red lead multiple pigmentations are involved in this series of tests, pigmentations P-65 and P-68. The vehicles are a variation in cooking temperature, viscosity, oil length and phenolic resin content. A more detailed account of these vehicles and pigmentations will be found in Red Lead Technical Bulletin No. 8, dated July 25, 1945. A more detailed exposure sheet is attached for your files (see Exhibit C).

The inspection of these panels as of August 24, 1945, after the exposure had continued for six months indicates the following trends:

1. Although several low viscosity varnishes have commenced to show signs of failure yet only low viscosity varnishes are found among those that are still rated 10-perfect.

2. The high viscosity varnish vehicles (viscosity of M, P or V) when cooked at 480° F. or 500° F. have all commenced to fail.

3. There seems to be no definite correlation between viscosity and temperature of cook for the low viscosity varnishes.

4. In the case of the varnish vehicles containing resin EM4036 in a 25 gallon length tung oil cook at 480° F. the high viscosity (V) vehicle is the first to fail. The other two which have a viscosity of D and E are still rated in perfect condition.

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5. In the case of varnish vehicles containing 3R284 resin in a dehydrated castor oil vehicle of 25 gallon length the high viscosity vehicles are failing first. Although some of the low viscosity vehicles are showing signs of failure yet the perfect panels are among these that have a low viscosity.

6. The same statement as made in 5 above for dehydrated castor oil applies equally as well for linseed oil.

7. Panels Nos. 658A to 663A inclusive constitute two studies of variation of PV of pigmentation 65 in two different vehicles. We may note first that there is little correlation between the oil length and the weathering characteristics of these two series of exposures as for instance, between Panels 658A and 659A or between 657A and 660A or between 658A and 661A. A comparison of the series 658A, 657A, 660A with the series of 658A, 660A and 661A indicates that a PV of 37 to 38 is better than a PV of 40.

The tide-range and total immersion exposures of these panels were at Daytona Beach, Florida. A detailed report may be found in Red Lead Technical Bulletin No. 6 dated July 25, 1945.

INSPECTION OF PANELS AT MARINE TEST BASIN
RESEARCH PANELS NOS 3, 4, V and VB

A correlation of the formulation data of the paints used in this project may be found in Red Lead Technical Bulletin No. 8, dated December 29, 1944. Inspection data is attached for your files (see Exhibit D).

INSPECTION OF TIDE-RANGE EXPOSURES
RESEARCH PANELS NO. 3

Panels Nos. 413 to 463 inclusive constitute a study in the PV and a variation in the formulation of vehicles 18 and 20.

Variations in PV are noted by the suffix letter after the L.L.A. Paint No. Variations in vehicle composition are noted by the letter attached to the Vehicle No.

The following trends were noted by the Committee in Conference:

1. Panels 416, 418, 417, 418 and 419 -- These constitute a variation in PV with one vehicle V-28. The data indicates that a PV of 28.5 to 30 is superior to PV's of higher range as 31 to 43 for P-16 pigmentation.

2. Panels 416, 420, to 423 inclusive -- constitute a study in PV with vehicle V-19. A PV of 34 to 40 with Pigmentation P-16 and Vehicle V-19 is the most advantageous range for the PV.

3. Panels 424 to 427 inclusive -- This study in variation of PV of pigmentation P-16 in Vehicle V-28 indicates that a PV of 35 to 40 is the most desirable range of PV. Although these paints as a class are inferior to paints which contain pigmentation P-16 in either vehicle V-26 or V-19.

4. Panels 428 and 439 -- the first general statement is to the effect that pigmentation P-16 produces paints with vehicles V-19, V-26 and V-28 which fail entirely at tide-range within 11 months exposure.

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6. Panels 440-447 inclusive -- this is a study of the variation in composition of vehicle V-19. It may be concluded from this series of panels that for paints above the water line a substitution of Cumar R3 for Cumar V-2- $\frac{1}{2}$ in vehicle V-19 formulation improves the performance when ground into a paint with pigmentation P-72.

6. Panels 448 to 458 inclusive -- this series of panels constitutes a study of the variation of composition in vehicle V-19. The pigmentation is P-16. A substitution of Cumar R3 for Cumar V-2- $\frac{1}{2}$ slightly improves the performance of vehicle V-19 ground in pigmentation P-16. This is the same conclusion as found with Panels 440 and 447. The PV of these paints is 40.

7. Panels 454 to 457 inclusive -- this series of panels constitutes a study in the variation of the composition of vehicle V-26. The pigmentation is P-16. The data indicates that a substitution of Amberol 226 or RK254 for the original ER9432 in vehicle V-26 when ground into a paint with pigmentation P-16 substantially improves the performance. The PV of these paints is 25.

8. Panels 458 to 460 inclusive -- these three panels constitute a variation in the pigmentation with vehicle V-27. The data indicates that pigmentation P-16 in vehicle V-27 has slightly better performance than the same vehicle in pigmentation P-20 or P-18.

TIDE-RANGE EXPOSURES RESEARCH PROJECT NO. 7a

9. Panels 461-466 inclusive -- these six panels constitute a series in which we study the effect of substituting Dyphene 13080 for ER9432 in vehicle V-19. This data indicates the substitution of Dyphene 13080 for ER9432 in vehicle 19 does not improve the quality of vehicle V-19.

TIDE-RANGE EXPOSURE RESEARCH PROJECT NO. 6

10. Panels 467-495 inclusive -- this constitutes a study of the effect of adding miscellaneous material to red lead multiple pigmentations.

Panel 467 was never exposed as the paint thickened too much for proper application.

Panels 469, 491, 492, 493 and 494 constitute a series of paints in which the red lead, zinc chromate, zinc oxide and iron oxide are held constant and the variation is respectively 18% of Micalith-O, magnesium silicate, 825 mesh mica, micronized mica and iron oxide. The 18% Micalith-O and the micronized mica panels are comparable in performance and are superior to the other inert modifications. Vehicle V-27 a castor oil alkyl varnish is superior to vehicle V-19 which is a 40% alkyl and 60% V-267 varnish for tide-range and light load line exposures.

There is no material improvement in observed exposure data produced by varying the Micalith-O content from 10 to 28% when the red lead varies correspondingly from 70-68 providing the balance of the pigmentation is either zinc oxide, zinc chromate or a 50-50 blend of these two pigments in vehicles V-19 or V-27. The effect of Micalith-O is not as definite in half tide exposure tests as the vehicle seems to be the determining factor.

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Panels 477-478 and 487-488 -- contrasting the first two of these panels with the last two it may be observed that the substitution of basic lead sulphate for zinc yellow in either Vehicle V-19 or V-27 produces a paint which is of poor quality. The mica content in either of these paints is 25%.

Panels 485-486 and 481-482 -- in contrasting the first two of these panels with the last two panels it may be observed that the substitution of mono-basic lead chromate for red lead does not improve the exposure characteristics of the paints.

The Committee selected the following paints in the order of their superiority. The first place was given to Panel No. 470. The table following indicates the composition of each of the paints selected by the Committee.

ORDER OF PANEL RATING

	<u>First</u> <u>Choice</u>	<u>Second</u> <u>Choice</u>	<u>Third</u> <u>Choice</u>	<u>Fourth</u> <u>Choice</u>	<u>Fifth</u> <u>Choice</u>	<u>Sixth</u> <u>Choice</u>
Panel No.	470	476	488	482	480	489
L.L.L. No.	118	124	128	120	80	246
Pigmentation No. of Paint	P-27	P-33	P-45	P-41	P-16	P-16
Vehicle No. of Paint	V-27	V-27	V-27	V-27	V-19b	V-27
<u>Pigmentation Composition</u>						
Red Lead	55	55	55	70	55	55
Zinc Oxide	10	-	-	10	10	10
Zinc Yellow	10	20	20	10	10	10
Iron Oxide	7	7	-	-	7	7
Micolith-8	18	18	25	10	-	-
Magnesium Silicate	-	-	-	-	10	10
Diatomaceous Silica	-	-	-	-	8	8

Vehicle Composition

V-19b - 60% medium linseed oil alkyl (24% phthalic anhydride) and 40% of a 6-gallon dehydrated castor oil (castung #103) varnish containing resin which is 50% cumar V-2-1/2 and 50% BR2452.

V-27 - A castor oil alkyl, Body 2, Acid No. 10.4, glyceryl phthalate 48%.

WIDE-RANGE EXPOSURES

RESEARCH PROJECT #7b

The six formulations represented by panels 496-501 inclusive constitute suggestions offered by the U.S.M.C. for variation of Vehicle V-19.

The exposure data indicates none of the suggestions resulted in paint of better exposure performance than the original Vehicle V-19.

TOTAL IMMERSION EXPOSURES

RESEARCH PROJECT #7b

The attached inspection data of total immersion panels is attached for your files (see Exhibit E)

The Committee in conference reviewed the data and presents the following trends:

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1. Panels 414, 416, 417, 418 and 419 -- the paints used in the preparation of these panels all contain Vehicle V-26 and Pigmentation P-16. The variation is in the PV content. It may be observed that a PV of 38.6 as exemplified by Panel 414 is the most outstanding. PV's of 34 to 43 are inferior.

2. Panels 416, 420-423 inclusive -- here again the emphasis is on the PV which should be used. The pigmentation is P-16 and the Vehicle is V-19. This combination requires a PV range of 34 to 40 for most effective exposure.

3. Panels 424 to 427 inclusive -- This is a pigmentation of P-16 in vehicle V-26. The PV range which is most effective is 40 to 43.

4. Panels 428 to 431 inclusive -- here the pigmentation is P-20 and Vehicle is V-19. A PV range of 30 to 35 is the most outstanding.

5. Panels 432-435 inclusive -- these have a pigmentation of P-20 and vehicle of V-26. The most effective PV range is 30 to 35.

6. Panels 436-439 inclusive -- here the most outstanding paints are those which have a PV range of 30 to 35.

7. Panels 440-444 inclusive -- these panels indicate the the original vehicle V-19 for total immersion primers is still the most outstanding vehicle. It was used with pigmentation P-72. The variations have been made in respect to cumar, Bakelite resin, and type of oil.

8. Panels 445-453 inclusive -- this is a study in variation of vehicle composition. The original V-19 is the most outstanding and is superior to any of the variations tried when ground with pigmentation P-16. The same variations of vehicles used with pigmentation P-72 were employed with pigmentation P-16.

9. Panels 454-457 inclusive -- the pigmentation is P-16 and the vehicle is V-26 and variation of this vehicle, in respect to the resin employed. Vehicle V-26 is slightly improved if the RK9432 is replaced by either RK254 or Durac 570.

10. Panels 458-460 inclusive -- Three pigmentations P-16, P-18 and P-20 were ground in vehicle V-27. Of these three pigmentations, P-16 is the best pigmentation to use with the castor oil alkyl vehicle V-27.

TOTAL IMMERSION EXPOSURES RESEARCH PROJECT NO. 72

11. Panels 461-466 inclusive -- a study of the exposure data of these panels indicates that the substitution of Dyphene resin 12060 for RK9432 does not improve the quality of the primer when used with either pigmentation P-16 or P-71.

TOTAL IMMERSION EXPOSURES RESEARCH PROJECT NO. 72

12. Panels 467-468 inclusive -- the paint which was to be used on panel 467 was so reactive that it could not be applied. Panels 469, 471, 482, 483 and 494 -- the paints used in the preparation of these panels contained the same percentage of red lead, zinc oxide, zinc yellow and iron oxide. The variation was in the inert employed which is respectively 18% Micolith-0, magnesium silicate, 325 mesh mica, micronized mica and iron oxide. The micronized mica or the 325 mesh mica panels are superior to the Micolith-0.

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13. Panels 471-495 -- the variation in the composition of these panels is the substitution of Micalith-G for 325 mesh mica. The Micalith-G shows superior performance in respect to peeling and in respect to checking but the 325 mesh mica has a slight edge in respect to edge corrosion, blistering and cracking.

14. Panels 473-489 inclusive -- these panels indicate that there is a slight superiority for 75% Micalith-G over 18% Micalith-G.

It may be definitely stated that miscellaneous materials improve the underwater primer in respect to blistering and peeling characteristics.

It is to be observed from this total immersion exposure test that the short oil vehicle V-19 is more effective in total immersion exposures than the castor oil alkyd V-27.

The Committee selected the following panels as being most outstanding for this total immersion series. The order and composition are given below:

ORDER OF PANEL RATINGS

	<u>First Choice</u>	<u>Second Choice</u>	<u>Third Choice</u>
Panel No.	498	489	473
L.I.A. Paint No.	181	137	121
Pigmentation No. of Paint	P-31	P-46	P-32
Vehicle No. of Paint	V-19	V-19	V-19
<u>Pigmentation Composition</u>			
Red Lead	55	55	55
Zinc Oxide	10	20	20
Zinc Yellow	10	-	-
Iron Oxide	7	-	7
Micalith-G	-	25	18
Mica (micronised)	18	-	-

Vehicle Composition

V-19 - 40% medium linseed oil alkyd (34% phthalic anhydride) and 60% of a 6-gallon linseed oil (body 2₂) varnish containing resin which is 80% cumar V-3-1 and 60% B20432.

TOTAL IMMERSION EXPOSURES

EXPOSURE PERIOD: 30. 75

Variations of V-19 as requested by the U.S.N.C. and as exemplified by panels 498 to 501 inclusive, have not improved the original vehicle V-19.

STANDARDS

Panels 502-508 inclusive -- these constitute a series of standard panels. Of all the standards employed the system which is composed of L.I.A. primer 6 covered with the Navy cold plastic anti-fouling, 163a, is the best of the standards and is better than the present Navy system, 16-A-C, followed with Navy cold plastic 163a.

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ATMOSPHERIC INSPECTION OF PANELS 413-508

Most of the panels at this time do not show any signs of breakdown. The attached inspection sheets (see exhibit F) include only those that show a breakdown.

Not sufficient panels have shown breakdown tendencies to draw conclusions.

A tentative date of September 18 was set for the next Red Lead Technical Committee meeting. It is proposed to hold the meeting in the offices of the L.I.A. in New York at 9:30 A.M.

It was suggested that each member of the Committee review any test data which they have on hand and that they bring to the meeting definite suggestions which they wish to have incorporated in the atmospheric test program.

L. L. Carriak

L. L. Carriak

RESEARCH PROJECT NO. 1

EXHIBIT A

PIGMENTATIONS	A	B	B-1 Omit ZnO	B-2 Omit Asbestos	C	Special
Red Lead	45%	70%	70%	70%	70%	34.8
Zinc Oxide	10	10	-	10	10	-
Iron Oxide	20	10	20	10	-	23.3
Asbestos	10	7	7	-	14	-
Cellite	8	8	8	10	6	9.9
	100%	100%	100%	100%	100%	100.0%
VEHICLES						
Vehicle No. 1						
Raw Linseed Oil			1.125 pt.	Vehicle No. 6(V-4) Panel 4510A		
V-706-C1 Varnish (44 gal.length)			2.25 pt.	LV-195 Varnish (23 gal.length)		82.0%
BK2963 Varnish (82 gal.length)			2.25 pt.	Butanol		2.0%
D-29 Drier			0.25 pt.	Sorvasol #8		13.7%
Solvesso No. 3			2.125 pt.	Non-Volatile 49.0%		100.0%
Vehicle No. 2						
Raw Linseed Oil			2.5 pt.	Vehicle No. 6(V-12) Panels 4512A & 4514A		
BK2963 Varnish (82 gal.length)			4.0 pt.	LV-195 Varnish (23 gal.length)		91.0%
D-29 Drier			4 liq.oz.	Solvesso #8		8.2%
Mineral Spirits			0.5 pt.	Non-Volatile 49.1%		100.0%
Vehicle No. 3						
Raw Linseed Oil			2.5 pt.	Vehicle No. 7		
V-706-C1 Varnish (44 gal.length)			4.0 pt.	LV-227 Varnish (26 gal.length)		93.54%
D-29 Drier			4 liq.oz.	Solvesso #8		6.46%
Mineral Spirits			0.5 pt.	Non-Volatile 80%		100.0%
Vehicle No. 4(V-11) Panel 4508A						
LV-197 Varnish (12 gal.length)			23.18%	Vehicle No. 8		
Raw Linseed Oil			80.98%	JV-1050 Varnish (80 gal.length)		91.0%
Pale Heat Bodied Linseed Oil			6.71	Mineral Spirits		9.0%
Liquid Drier			1.82	Non-Volatile 80%		100.0%
Sorvasol No. 3			7.31			
Non-Volatile 80.2%			100.0%			
Vehicle No. 4(V-10) Panel 4507A						
LV-197 Varnish (12 gal.length)			23%	Vehicle No. 9		
Raw Linseed Oil			80%	JV-211		
Pale Heat Bodied Linseed Oil			8	Resin BK2963 (80 gal.length)		100%
Liquid Drier			2	Isoline JV 87%		
Sorvasol			8	Fish Oil 23%		80 gal.
Non-Volatile 79.8%			100%	Non-Volatile 85%		
Vehicle No. 4(V-9) Panel 4506A						
LV-197 Varnish (12 gal.length)			79.92%	Vehicle No. 10		
Sorvasol #8			18.11%	JV-112 Varnish (80 gal.length)		94%
Solvesso #8			1.97%	Mineral Spirits		4%
Non-Volatile 45.1%			100.0%	Non-Volatile 88%		100%
Vehicle No. 4(V-8) Panel 4505A						
LV-197 Varnish (14 gal.length)			82.86%	Non-Volatile 88%		
Sorvasol #8			10.0%	JV-112 in BK2963 in 80 gal. length		
Solvesso #8			6.42%	of No. 710 Linseed Oil.		
Non-Volatile 45.2%			100.0%			
Vehicle No. 11						
LV-198 Varnish (11 gal.length)				Vehicle No. 12		
Sorvasol #8				LV-198 Varnish (11 gal.length)		91.01%
Solvesso #8				Sorvasol #8		6.76%
Non-Volatile 84.6%				Solvesso #8		2.23%

INSPECTION RECORD-ATMOSPHERIC EXPOSURE

EXHIBIT A

Project No. 1
 Date Exposed May 9, 1948
 Date Inspected May 27, 1948
 Elapsed Time 27 Months

Panel No.	Paint No.	P	V	Corrosion				Feeling to				Check-Over-Base- or				Remarks
				Page	Con.	Page	Con.	Page	Con.	Page	Con.	1st	2nd	3rd	4th	
4487A	PMS-30	A	9		4/10										5/10	
4488A	PMS-31	B	9		5/10										6/10	
4489A	PMS-32	A	8		7/10										9/10	
4490A	PMS-33	B	8		4/9										5/10	
4491A	PMS-34	A	10		6/10										6/10	
4492A	PMS-35	B	10		3/9										4/10	
4493A	S-2-8-0	A	1		2/10										3/10	
4494A	S-2-8-0	B	1		1/8										2/9	
4495A	S-2-8-0	A	2		8/10										9/10	
4496A	S-2-8-0	B	2		2/8										3/10	
4497A	S-2-8-0	A	3		3/10										4/10	
4498A	S-2-8-0	B	3		3/9										4/10	
4499A	S-2-8-0	B1	1		3/9										4/10	
4500A	S-2-8-0	B2	1		2/8										3/10	
4501A	S-2-8-0	C	1		2/7										3/9	
4502A	S-2-8-0	B	13		2/8										3/9	
4503A	62P18				4/8										5/9	1 primer-1 topcoat corrosion 9
4504A	62P18				4/7										5/8	

Old pigment and vehicle numbers.

INSPECTION RECORD-ATMOSPHERIC EXPOSURE

Project No. 1Date Reported

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EXHIBIT A

Date Inspected Elapsed Time

Panel No.	Paint No.	A.	V.	Corrosion				Pitting				Microcracking				Check-Crack-Scab-				Comments
				Face	Con.	Edge	Con.	Face	Con.	Edge	Con.	Face	Con.	Edge	Con.	1st	2nd	3rd	4th	
4505A	M-197 19	B	4			7/10						2/10						9/10		
4506A	M-197U 20	A	4			6/10						•						10/10		
4507A	M-197V 21	A	4			8/10						•						9/10		
4508A	M-1990 22	B	4			7/10						•						8/10		
4509A	M-1951 23	B	12			9/9						•						10/10		1 primer corrosion in cracks 1 topcoat - cracking to primer
4510A	M-1982 24	Upo- cial	6			10/10						•						10/10		
4511A	M-199 25	B	7			7/9						•						8/10		
4512A	M-199 26	A	7			6/9						•						7/10		
4513A	M-199 27	A	6			8/10						•						10/10		
4514A	M-199 28	B	6			6/10						•						8/10		
4515A	UCAC XIII					6/7						•						6/9		

RESEARCH PROJECT NO. 2

EXHIBIT 2

Pigments involved in this exposure are --

	A	B	J	L	M	N
Red Lead	45	70	55	55	70	90
Lead Chromate (mono basic)	-	-	-	20	-	-
Zinc Oxide	10	10	10	10	10	-
Zinc Yellow	-	-	10	-	-	-
Iron Oxide	20	10	7	-	-	-
Magnesium Silicate	10	7	10	10	10	-
Diatomaceous Silica	5	3	5	5	10	10

Vehicles

Vehicle 1 (V-5)
 Raw Linseed Oil 1.125 pts
 V-705-C1 Varnish (44 gal.length) 2.25 pts
 BR2963 Varnish 2.25 pts
 D-29 Drier 0.25 pts
 Solvesso No. 8 2.125 pts

Vehicle 8 (V-14)
 JV-1050 Varnish (60 gal.length) 91%
 Mineral Spirits 9%
 100%

Non-Volatile 80%

Vehicle No. 12 (V-18)
 LV-198 Varnish (11 gal.length) 91.01%
 Sovasol #6 6.74%
 Solvesso #2 2.25%

Non-Volatile 84.0%

Vehicle 21 - A castor oil alkyl body 2, Acid No. 10.4, Non-Volatile 67%
 glyceryl phthalate 45%

Vehicle 13 - LV-267 varnish 60% - oil length 6 gallon
 Medium Linseed oil alkyl 40%

Vehicle 22 - Phenolic modified alkyl varnish using linseed oil fatty acids,
 Acid No. 9.4, Non-volatile 47.1%

Vehicle 23 - Alkyl linseed oil modified 40%
 LV-268 Varnish 60% oil length 8 gal.
 Non-Volatile 87.8%

N2867.02

INSPECTION RECORD-ATMOSPHERIC EXPOSURE

Section 3.

Project No. 2
Date Reported Oct. 7, 1948
Date Inspected Aug. 24, 1948
Classified Time 22 months

1 primer cost rating
2 primer cost rating

Elapsed Time		Pulled 90		Crawl	
Pool No.	Point No.	P.	V.	Page Co.	Page Co.

Company

[illegible]

Exhibit C

☒ 1 coat primer rating
☒ 2 coat primer rating
exp. Bakelite Vehicle Data
Viscos- Oil
Cook ity Length _____

Panel No.	Pilot No.	P.	C.	Corrected Page	Total Pages	Numbering Page Cons.	Miscellaneous Page Cons.	Check-Over-Deal- ing Page Cons.	Cons. Temp. or Arch.	Viscos- ity	Oil Length	Remarks	Resin	Oil
645A	78	P-88	V-40							450°F	D	25	BR4038	T.O.
646A	78	P-88	V-3*							450°F	E	25	"	T.O.
647A	77	P-88	V-45	6/9					7/10	450°F	V	"	"	"
648A	78	"	V-40	9/10					X/10	450°F	E	"	BR254	D.C.O.
649A	79	"	V-47							450°F	E	"	"	"
650A	80	"	V-48	8/10					10/10	"	F	"	"	"
651A	81	"	V-35	8/10					"	588°F	H	"	"	"
652A	82	"	V-43	9/10					"	450°F	R/	"	"	L.O.
653A	84	"	V-50							450°F	E	"	"	L.O.
654A	65	"	V-51	8/10					"	450°F	F/	"	"	"
655A	86	"	V-36	8/10					"	588°F	H	"	"	"
656A	87*	P-85	V-63	8/10					"	"	F	"	BR1700	"
657A	87a*	"	V-63							"	F	"	"	"
658A	87b*	"	V-63							"	F	"	"	"
659A	88	"	V-64	7/10					"	"	F	40	"	"
660A	88a	"	V-64	9/10					"	"	F	"	"	"
661A	88b	"	V-64							"	F	"	"	"
662A	89	"	V-65	8/10					"	"	F	25	"	"

minutes 87 and 88 have a PI of 40, 87a and 88a have a PI of 37.5, 87b and 88b have a PI of 30.

N2867.03

1. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

Run	Time	Temp	Pressure	Flow	Level	Notes
1	10:00	70	100	10	10	
2	10:15	72	105	12	12	
3	10:30	74	110	14	14	
4	10:45	76	115	16	16	
5	11:00	78	120	18	18	
6	11:15	80	125	20	20	
7	11:30	82	130	22	22	
8	11:45	84	135	24	24	
9	12:00	86	140	26	26	
10	12:15	88	145	28	28	
11	12:30	90	150	30	30	
12	12:45	92	155	32	32	
13	13:00	94	160	34	34	
14	13:15	96	165	36	36	
15	13:30	98	170	38	38	
16	13:45	100	175	40	40	
17	14:00	102	180	42	42	
18	14:15	104	185	44	44	
19	14:30	106	190	46	46	
20	14:45	108	195	48	48	
21	15:00	110	200	50	50	
22	15:15	112	205	52	52	
23	15:30	114	210	54	54	
24	15:45	116	215	56	56	
25	16:00	118	220	58	58	
26	16:15	120	225	60	60	
27	16:30	122	230	62	62	
28	16:45	124	235	64	64	
29	17:00	126	240	66	66	
30	17:15	128	245	68	68	
31	17:30	130	250	70	70	
32	17:45	132	255	72	72	
33	18:00	134	260	74	74	
34	18:15	136	265	76	76	
35	18:30	138	270	78	78	
36	18:45	140	275	80	80	
37	19:00	142	280	82	82	
38	19:15	144	285	84	84	
39	19:30	146	290	86	86	
40	19:45	148	295	88	88	
41	20:00	150	300	90	90	
42	20:15	152	305	92	92	
43	20:30	154	310	94	94	
44	20:45	156	315	96	96	
45	21:00	158	320	98	98	
46	21:15	160	325	100	100	
47	21:30	162	330	102	102	
48	21:45	164	335	104	104	
49	22:00	166	340	106	106	
50	22:15	168	345	108	108	
51	22:30	170	350	110	110	
52	22:45	172	355	112	112	
53	23:00	174	360	114	114	
54	23:15	176	365	116	116	
55	23:30	178	370	118	118	
56	23:45	180	375	120	120	
57	00:00	182	380	122	122	
58	00:15	184	385	124	124	
59	00:30	186	390	126	126	
60	00:45	188	395	128	128	
61	01:00	190	400	130	130	
62	01:15	192	405	132		

LINE	NO.	DESCRIPTION	QTY	UNIT	PRICE	TOTAL
001	1	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
002	2	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
003	3	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
004	4	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
005	5	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
006	6	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
007	7	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
008	8	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
009	9	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
010	10	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
011	11	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
012	12	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
013	13	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
014	14	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
015	15	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
016	16	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
017	17	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
018	18	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
019	19	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00
020	20	1/2" X 1/4" X 1/4" ALUMINUM	1	EA	1.00	1.00

LIAOE291

2000 年 12 月 20 日

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

Journal of Management Education 30(6)

472	121	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10
473	122	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10
474	123	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10
475	124	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10
476	125	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10
477	126	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10
478	127	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10
479	128	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10
480	129	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10
481	130	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10
482	131	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10
483	132	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10
484	133	1-30 1-10 1-10 1-10 1-10 1-10	1-10 1-10	1-10	1-10	1-10	1-10

487	100	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
489	117	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
490	118	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
491	119	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
492	120	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
493	121	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
494	122	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
495	123	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
496	124	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
497	125	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
498	126	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
499	127	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
500	128	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
501	129	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
502	130	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
503	131	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
504	132	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
505	133	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
506	134	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
507	135	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
508	136	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
509	137	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
510	138	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
511	139	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10
512	140	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10	1-10-10

[illegible]

INSPECTION RECORD-SALT WATER EXPOSURE
COMPLETE IMMERSION

EXHIBIT 2

Project No. _____

per a copy of _____

Page 13 of 13

11 August 1999

[illegible][illegible]

INSPECTION RECORD - SALT WATER EXPOSURE EXHIBIT B

COMPLETE IMMERSION

Project No. _____

Date Reported _____

Date Inspected _____

Exposure Time _____

Panel No.	Panel Size	R	V	Corrosion		Notes		Peeling to		Blistering		Check-Cracks		Scale		Chalk		Peeling		Remarks
				Rate	Area	Size	Sec.	Size	Sec.	Size	Sec.	Size	Sec.	Size	Sec.	Size	Sec.	Size	Sec.	
431	40x	R-20	V-19	7	9			7				7		7						Large blister
432	41x	R-20	V-20	7	6			6				6		6						Small blister
433	41x	R-20	V-26	6	8			7				7		7						
434	41x	R-20	V-26	6	5			5				7		6						
435	41x	R-20	V-26	6	4			4				6		6						
436	42x	R-20	V-26	7	8			8				9		6						
437	42x	R-20	V-26	4	8			7				9		6						
438	42x	R-20	V-26	6	6			6				7		6						
439	42x	R-20	V-26	5	7			7				7		7						
440	43x	R-72	V-19	7	9			8				8		6						
441	44	R-72	V-19	6	10			8				6		6						Large blister
442	46	R-72	V-19	7	9			9				8		6						
443	46	R-72	V-19	8	9			10				8		6						
444	47	R-72	V-25	7	10			9				8		6						
445	Class Z-1			6	6			8				8		6						
446	52-R-18			7	10			10				7		6						
447	48	R-72	V-19	7	10			9				8		6						Large blister
448	56x	R-16	V-19	6	7			9				7		6						

INSPECTION RECORD - SALT WATER EXPOSURE COMPLETE IMMERSION

EXHIBIT B

Project No. _____

Date Reported _____

Date Inspected _____

Elapsed Time _____

Serial No. _____

Serial No.	Date	Time	Temp	Humidity	Wind	Direction	Corrosion	Metal	Failure	Blistering	Cracks	Spalls	Reinforcement	Notes
449	45	1-10	1-10	2	0		7			8	OP			
450	50	1-27	1-10	9	0		7			7	TM			
451	51	1-10	1-10	5	6		10			7	OM			
452	52	1-10	1-10	5	10		9			6	TM			1/2" large
453	53	1-10	1-10	6	9		9			3	TM			1/2" "
454	53	1-10	1-10	4	8		8			6	OP			
455	54	1-10	1-10	6	8		9			5	OM			" "
456	55	1-10	1-10	5	7		6			5	OM			
457	55	1-10	1-10	7	7		8			5	OM			Large blister
458	56	1-20	1-27	5	9		7			4	TM			
459	56	1-10	1-27	7	9		9			6	OP			Small blister
460	57	1-10	1-27	6	8		8			4	OM			
461	97	1-10	1-10	6	4		4			7	OP			Damaged edge due to cause of failure
462	98	1-10	1-10	7	9		10			5	OP			
463	99	1-71	1-19	8	9		7			6	OP			Large 1/2"
464	100	1-71	1-19	8	7		5			5	OP			Large 1/2"
465	101	1-71	1-19	5	9		5			4	OP			
466	102	1-10	1-19	8	9		8			7	OP			1/8" to 1/4"

INSPECTION RECORD-SALT WATER EXPOSURE
COMPLETE IMMERSION

Project No. _____
 Date Reported _____
 Date Inspected _____
 Planned Time _____

[illegible]

EXHIBIT B
Continued

[illegible]

INSPECTION RECORD - SALT WATER EXPOSURE
COMPLETE IMMERSION

EXHIBIT 8

Placed Time		Dr. used		Notes		Paving		Person		Comments	
1	2	3	4	5	6	7	8	9	10	11	12
503	5/1/52			7	8	10					cracking to joint line
504	5/1/52			1							
505	5/1/52			8	10	10		1			small 1/4" cracking to joint
506	5/1/52			7	8	10		10			
507	5/1/52			7	10	10			SP		
508	5/1/52			8	10	10		10	SP		not good adhesion to the prime

LIAC8300

INSPECTION RECORD-ATMOSPHERIC EXPOSURE

Exhibit V

Project No. _____
 Date Reported _____
 Date Inspected _____
 Elapsed Time _____

Panel No.	Paint No.	P.	V.	Corrosion Days	Coat	Drying 48				Drying 144				Check or Remarks
						Days	Coat	Days	Coat	Days	Coat	Days	Coat	
428	40a	P-20	V-19	8	10									
429	40b	P-20	V-19	8	9									
430	40c	P-20	V-19	8	8									
431	40d	P-20	V-19	7	8									
432	41a	P-20	V-28	8	10									
433	41b	P-20	V-28	7	9									
434	41c	P-20	V-28	7	9									
435	41d	P-20	V-28	6	9									
436	42a	P-20	V-26	5	9									
437	42b	P-20	V-26	5	8									
449	49	P-16	V-19	7	9									
450	50	P-16	V-19	6	7									
451	51	P-16	V-19	6	7									
453	53	P-16	V-19	7	9									
454	54	P-16	V-26	8	10									
455	55	P-16	V-26	7	8									
456	56	P-16	V-26	8	10									
457	57	P-16	V-26	6	9									

N2867.06

LIA08301

INSPECTION RECORD-ATMOSPHERIC EXPOSURE

Project No. _____

Notes: 1. 1999-2004

Page 1 continued

13. 13.000

— 18 —

Exhibit 7

2011 年 9 月

Chaitin

[illegible]

Comments:

460	870	P-18	N-27	7	0
461	97	P-16	N-16	6	9
462	98	P-16	S2	6	8
463	99	P-71	N-19	8	
465	101	P-71	N-19	6	9
478	128	P-34	N-27	8	8
479	127	P-39	N-19	6	7
480	128	P-39	N-27	8	8
481	129	P-41	N-19	8	8
494	93	P-16	N-40	7	7