

Inspection ReportProject No. 16

Exposure Site: Miami, Florida
Type of Exposure: Total Salt Water
Immersion
Date Exposed: February, 1949
Date Inspected: November 10, 1949
Elapsed Time: 9 Months
Inspected by: George Diehlman

Project No. 17

Exposure Site: Miami, Florida
Type of Exposure: Land and Tide
Range
Date Exposed: February, 1949
Date Inspected: Nov. 10, 1949
Elapsed Time: 9 Months
Inspected by: George Diehlman

L.I.A. PROJECT NO. 16
BOTTOM PAINT SYSTEMS EXPOSED
BY NAVY

Locations Miami, Florida
Type Exposure: Total
Immersion

Exposure Dates:
Inspection Dates:

PANEL NO.	Corrosion						PRETREATMENT		ANTICORROSION			ANTIPOULING		
	Distilling	Sealing	Cracking	Peeling	Flaking	Spalling	WASH PRIMER	NAVY PHOS.	PAINT NO.	NO. OF COATS	DRY FILM THICK. MILS	PAINT NO.	NO. OF COATS	DRY FILM THICK. MILS
1A	5	6	6	8	8	5	-	X	33	2	2.5	Navy 105	2	5.5
1B	5	6	6	8	8	5	-	X	33	2	3.0	Navy 105	2	5.5
2A	10	8	10	10	9	8	306	-	33	2	2.75	Navy 105	2	5.25
2B	9	8	10	10	9	8	306	-	33	2	2.75	Navy 105	2	5.25
3A	5	6	8	8	8	6	-	X	35	2	3.0	Navy 105	2	6.0
3B	5	6	8	8	8	6	-	X	35	2	3.25	Navy 105	2	6.25
4A	10	9	10	10	10	9	306	-	35	2	3.0	Navy 105	2	5.5
4B	10	8	10	10	10	9	306	-	35	2	3.0	Navy 105	2	5.0
5A	10	9	9	10	9	8	-	X	327	2	3.5	Navy 105	2	5.0
5B	10	8	9	10	9	8	-	X	327	2	3.5	Navy 105	2	5.0
6A	9	6	10	10	9	9	306	-	327	2	3.5	Navy 105	2	5.5
6B	9	6	8	10	9	7	306	-	327	2	3.0	Navy 105	2	5.5
7A	10	9	10	10	10	9	-	X	323	2	4.0	Navy 105	2	4.5
7B	10	10	10	10	10	9	-	X	328	2	4.5	Navy 105	2	5.5
8A	10	10	10	10	10	10	306	-	328	2	4.5	Navy 105	2	5.5
8B	10	10	10	10	10	10	306	-	328	2	5.0	Navy 105	2	5.0
9A	9	7	7	8	9	9	339	-	328	2	4.5	Navy 105	2	5.5
9B	9	7	7	8	9	9	339	-	328	2	4.5	Navy 105	2	5.5
10A	3	7	6	7	8	9	-	X	338	2	2.5	Navy 105	2	5.0
10B	3	7	6	7	8	9	-	X	338	2	3.5	Navy 105	2	5.5
11A	10	9	10	10	10	10	306	-	338	2	3.0	Navy 105	2	5.5
11B	10	9	10	10	10	9	306	-	338	2	2.75	Navy 105	2	5.0
12A	10	10	10	10	10	9	306	-	336	4	3.25	337	4	5.75
12B	10	10	10	10	10	8	306	-	336	4	3.5	337	4	5.0
13A	10	9	10	10	10	9	339	-	336	4	3.5	337	4	5.5
13B	10	6	10	10	10	9	339	-	336	4	3.0	337	4	6.5
14A	10	8	10	10	10	8	306	-	326	4	3.5	337	4	6.5
14B	10	9	10	10	10	8	306	-	326	4	3.75	337	4	5.0

PANEL NO.	Corrosion	Blistering	Peeling	Sealing	Cracking	Pitting	PRETREATMENT		ANTICORROSIVE			ANTIPOULING		
							WASH PRIMER	NAVY PHOS.	PAINT NO.	NO. OF COATS	DRY FILM THICK. MILS	PAINT NO.	NO. OF COATS	DRY FILM THICK. MILS
15A	10	9	10	10	10	8	339	-	326	4	3.5	337	4	5.5
15B	10	9	10	10	10	8	339	-	326	4	3.5	337	4	5.5
33A	10	10	10	10	7	8	Navy	X	Navy	1	19.0	Navy	2	6.0
33B	10	10	10	10	7	8	M-14	X	7-89A	1	20.0	105	2	6.0
34A	9/	9/	10	9	9/	9/	-	X	NFR.	2	4.5	Navy	2	5.5
34B	9/	9/	10	9	9/	10	-	X	55-54A	2	4.25	105	- 2	5.75
35A	10	10	10	10	10	9/	-	X	NFR. D	1	24.0	Navy	2	6.0
35B	10	10	10	10	10	9/	-	X	147-85	1	20.0	105	- 2	6.0
36A	10	9	10	10	10	7	-	X	Navy	2	3.0	Navy	2	6.5
36B	10	9	10	10	10	9	-	X	14	2	3.5	105	2	6.0
37A	10	10	10	10	10	8	-	X	Navy	2	3.0	Navy	1	22.0
37B	10	10	10	10	10	8	-	X	14	2	3.5	194P	2	20.0

X - 5% Phosphoric acid wash.

All paints spray applied with each coat given a double pass.

PROJECT NO. 16 - PAINT COMPOSITIONS

INGREDIENTS PIGMENT	33	35	326	327	328	336	338	337(M)
Red Lead (97% Grade)	55.0	54.6	75.3	55.0	47.0	100.0	24.6	-
Zinc Oxide (Lead Free)	10.0	9.9	-	10.0	8.3	-	9.9	-
Zinc Yellow	10.0	9.9	-	-	8.8	-	9.9	-
Siliceous Iron Oxide	6.9	7.0	-	6.0	-	-	7.0	-
Cuprous Oxide	-	-	-	-	-	-	-	100.0
Magnesium Silicate	10.0	10.4	24.7	20.9	27.2	-	10.4	-
Diatomaceous Silica	7.9	8.0	-	-	-	-	8.0	-
Mica	-	-	-	7.7	8.3	-	-	-
Lampblack	-	-	-	-	-	-	-	-
Aluminum Stearate	0.2	0.2	-	0.4	4.4	-	0.2	-
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VEHICLE								
Alkyd Resin Solution (a)	33.2	-	-	-	-	-	-	-
Alkyd Resin Solution (b)	-	36.9	-	-	-	-	22.1	-
Varnish LV 253 (c)	69.1	-	-	-	1	-	-	-
Varnish LV 257C (d)	-	55.1	-	-	-	-	-	-
Varnish LV 490 (e)	-	-	-	-	-	-	32.4	-
Cumar V-24	-	-	-	7.1	25.4	-	-	-
Cumar R-10	-	-	-	5.9	8.7	-	-	-
Ester Gum	-	-	-	1.3	-	-	-	-
Acrochlor #1254	-	-	-	2.7	-	-	-	-
Liquid Coal Tar	-	-	-	-	8.9	-	-	-
Zinc Resinate	-	-	-	-	3.2	-	-	-
Chlorinated Rubber	-	-	-	-	6.3	-	-	-
VACM Vinylite	-	-	19.4	-	0.8	19.4	-	-
VMM Vinylite	-	-	-	-	-	-	-	15.2
Rosin	-	-	-	-	-	-	-	15.2
Mineral Spirits	7.4	-	-	-	-	-	-	-
Hi Flash Naphtha	9.7	7.5	-	-	31.7	-	-	-
Ethyl Cellulose	-	-	-	11.8	-	-	4.5	-
Hydroxyethyl Alcohol	-	-	-	-	-	-	2.9	-
Butyl Alcohol	-	-	-	-	-	-	17.8	-
Xylene	-	-	-	-	-	-	20.0	-
Toluene	-	-	29.1	53.3	-	29.1	-	24.6
Ethyl Alcohol (denatured)	-	-	-	17.7	-	-	-	-
Savacol #1	-	-	-	-	15.0	-	-	-
Ethyl Isobutyl Ketone	-	-	51.5	-	-	51.5	-	15.0
Stabilizer	-	-	-	0.2	-	-	-	-
Lead Naphthenate (24)	0.3	0.3	-	-	-	-	1.2	-
Lead Naphthenate (6)	0.1	0.2	-	-	-	-	1.1	-
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

- (a) Linseed Oil Modified
 (b) OE 2454 - a linseed oil alkyd
 (c) 10 gal. BR 9432 (5 Linseed Oil - 5 castor oil)
 (d) A 6 gallon-linseed oil (22) - 50% Cumar V-24-50% BR9432
 (e) A 6 gal. cumar, BR 9432, zinc resinate vehicle

PROJECT NO. 17 - PAINT COMPOSITIONS

INGREDIENTS	317	318	319	320	321	322	323	324	325
PIGMENTS									
Red Lead (97% Grade)	53.0	53.0	52.3	45.0	53.15	52.7	55.2	53.0	45.0
Green Chrome Yellow	-	-	-	15.0	-	-	-	-	-
Zinc Yellow	9.8	10.0	10.2	7.0	10.1	10.0	10.4	10.0	10.0
Zinc Oxide	8.0	8.0	9.0	8.0	8.0	7.9	-	8.0	10.0
Titanium Dioxide	-	-	-	-	-	-	-	-	10.0
Raw Sienna	3.9	4.0	3.8	-	4.0	4.0	4.2	4.0	-
Graphitic Mica	15.2	15.0	14.5	15.0	14.7	15.1	15.6	15.0	15.0
Magnesium Silicate	9.8	9.7	9.8	10.0	9.4	10.0	14.3	9.7	10.0
Aluminum Stearate	.3	0.3	.4	-	.3	.3	.3	.3	-
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VEHICLES									
Raw Linseed Oil	-	-	-	-	-	-	23.5	7.1	-
Vehicle 27 (Castor Oil Alkyd)	69.1	25.4	-	25.5	42.4	-	-	29.8	-
Alkyd Solution (Navy 52-B-13a Type I)	-	43.3	-	43.4	-	-	45.8	-	64.9
Alkyd Solution (Maritime Com. 52-WC-501, Type I)	-	-	29.7	-	-	-	-	-	-
Alkyd Resin Solution (a)	-	-	-	-	-	-	-	42.3	-
Vehicle No. 5 (Long Oil Modified Phenolic Varnish)	-	-	36.5	-	-	61.8	-	-	-
FACH Vinylite	-	-	-	-	4.7	-	-	-	-
Aromatic Mineral Spirits	29.5	-	32.5	-	-	37.1	-	-	-
Mineral Spirits	-	29.3	-	27.0	-	-	22.7	10.9	32.9
Hi-Flash Naphtha	-	-	-	-	17.1	-	-	-	-
Ethyl Butyl Ketone	-	-	-	-	35.0	-	-	-	-
Lead Naphthenate (2% Pb)	.9	1.4	.3	1.5	.5	.7	2.1	1.5	1.5
Cobalt Naphthenate (1% Co)	.1	.2	.1	.2	.1	.1	.1	.2	0.4
Manganese Naphthenate (6% Mn)	.3	.2	.2	.2	.1	.1	.3	.2	0.3
Anti-Skinning Agent	.2	.2	.2	.2	.1	.2	.3	.2	0.2
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Linseed alkyd (34% Phthalic Anhydride)

Source or Mfr.	Mfr. Code	Type of Surface	W-1 Yes or No	Land (FL)		Fide Range (FT)			
				P-158	P-158	P-158	P-158	P-158	
L.I.A.	317	Reg.	No	1	5	2	3	4	
do	318	do	do	6	7	8	9	10	
do	319	do	do	12	15	11	13	14	
do	320	do	do	17	19	16	18	20	
do	321	do	do	21	22	23	24	25	
do	322	do	do	26	27	28	29	30	
do	323	do	do	33	35	31	32	34	
do	323	W.B.	do	36	37	38	39	40	
do	323	P.R.S.	do	81	82	83	84	85	
do	324	Reg.	do	41	42	43	44	45	
do	325	do	do	46	50	46	47	49	
Ind. Test Lab. Phila. Navy Yard	84/47	do	do	51	52	53	54	55	
do	84/47	W.B.	do	56	57	58	59	60	
do	84/47	P.R.S.	do	69	90	86	87	88	
do	84/47	S.B.	Yes	91	92	93	94	95	
do	84/47	Reg.	do	178	179	176	177	180	
do	84/47	S.B.	No	181	182	183	184	185	
Nat'l Lead	W-6318	Reg.	do	64	65	61	62	63	
do	do	S.B.	Yes	77	78	76	78	80	
do	W-6319	Reg.	No	68	69	66	67	70	
do	do	S.B.	Yes	71	72	73	74	75	
do	52-WC-201	Reg.	No	116	120	117	118	119	
Ind. Test Lab. Phila. Navy Yard	52-P-19								
do	(52-V-20)	do	do	169	169	166	167	170	
do	(52-Y-21)	do	do	173	174	171	172	175	
Nat'l Lead	P-10	do	Yes	249	250	246	247	250	
do	P-10	S.B.	do	251	255	251	252	253	
Drexel Finishes	P-21	Reg.	do	256	259	256	257	260	
do	P-21	S.B.	do	263	264	261	262	265	
E.-P.e	460	Reg.	No	98	99	96	97	100	
doe	461	do	do	103	105	101	102	104	
doe	462	do	do	106	108	107	109	110	
doe	467	do	do	111	112	113	114	115	
doe	84/47	Reg.	do	329	330	326	327	328	
doe	84/47	P.R.S.	do	339	340	336	337	338	
doe	84/47	Reg.	Yes	343	344	341	342	345	
doe	84/47	S.B.	No	331	332	333	334	335	
doe	52-P-18	do	No	301	302	303	304	305	
doe	52-P-18	S.B.	No	306	307	308	309	310	
doe	460	Reg.	No	792	795	791	793	794	
doe	do	Reg.	Yes	796	799	797	799	800	
doe	461	Reg.	No	811	813	812	814	815	
doe	do	Reg.	Yes	818	819	816	817	820	

Source of Mfr.	Mfr. Code	Type of Surface	L.I.A. Yes or No	Land (FL)		Tide Range (FT)		
				P-158	P-158	P-158	P-158	P-158
doee	L62	Reg.	No	833	834	831	832	835
doee	do	Reg.	Yes	837	839	836	838	840
doee	L67	Reg.	No	851	852	853	854	855
doee	do	Reg.	Yes	856	858	857	859	860
doee	84/47	Reg.	No	871	872	873	874	875
doee	do	Reg.	Yes	876	880	877	878	879

Key to symbols under Type of Surface:

Reg. - regular Navy procedure, acid pickled-phosphate treated steel.

W.B. - wire brushed.

P.R.S. - partially rusted steel.

NOTE: All panel numbers contain the prefix P-158, designating the Navy project number.

All panel numbers contain the suffix FL or FT to designate Florida Land or Florida Tide Range, respectively. Example: The first panel exposed on land containing L.I.A. Paint No. 117 should be marked: P-158-1-FL.

*These panels were exposed approximately one month after the L.I.A. panels.
 **These panels were exposed approximately two months after the L.I.A. panels.