FOREST AND WILDLIFE RESEARCH CENTER

DEPARTMENT OF SUSTAINABLE BIOPRODUCTS

Third Annual Evaluation of Phase II MSU/RTA Alternative Preservative Study

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This report covers the 3rd annual evaluation of the full length crossties exposed as part of the MSU/RTA Phase II alternative preservative study. A visual evaluation of the exposed top surface was conducted for all ties at both exposure sites. Random ties from various treatment groups, at both sites, were selected to be examined on all four surfaces.

General Observations:

No unexpected results were found. Site 2 ties appeared to be a drier probably due to more direct sunlight exposure allowing for more checking. Ties at Site 1 appeared to be more moist/wet due to the increased shade and leaf litter at this site and thus more sign of incipient decay were noted at this site.

General photographs documenting the condition of the sites and some of the noted deterioration can be seen below (Figures 1 - 8). The tie number denotes the position of exposure as recorded on the plot-maps. Copies of the inspection forms can be found in the appendix.

Figure 1 - An overall view of exposure Site 2 illustrating the conditions at the time of inspection.

Figure 2 - A general photograph demonstrating the exposure conditions at Site 1 at the time of inspection.

Site 1 - Dorman Lake Test Site

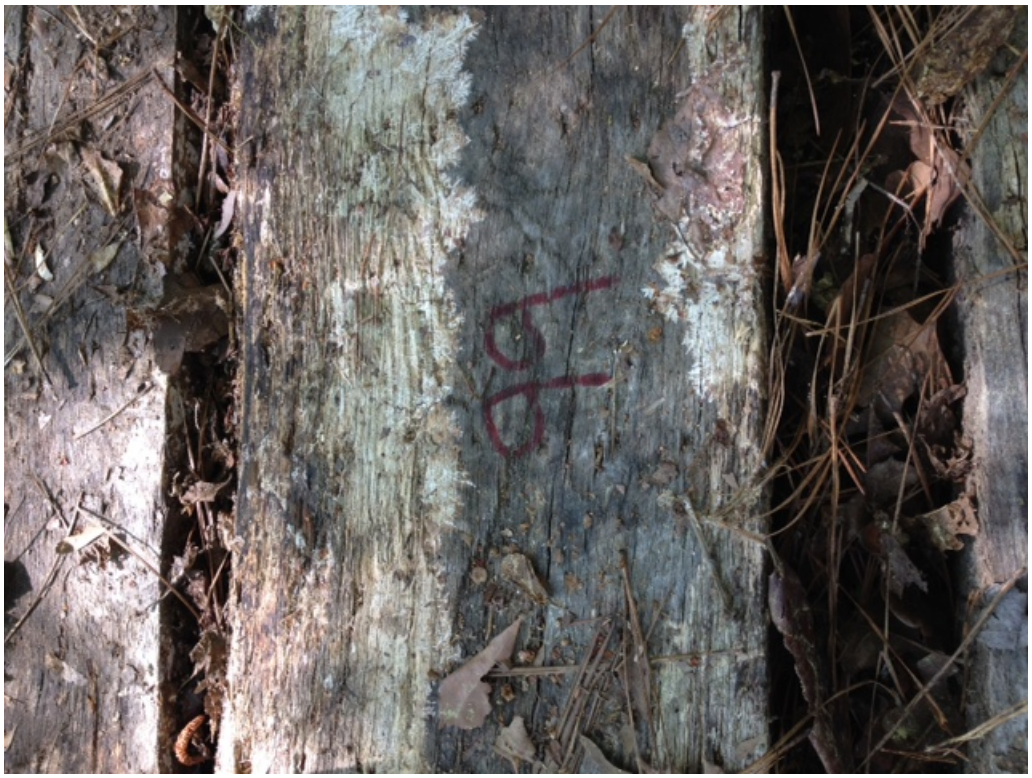

Figure 3 - Tie #99 (unt. white oak) showing trace amounts of decay.

Figure 4 – Tie #21 (unt. red oak) tie with light decay.

Figure 5 - Tie #104 (D-fir untreated) with light decay.

Site 2 – Formosan Termite Research Facility

Figure 6 - Tie #106 (unt. D-fir) with visible decay.

Figure 7 - Tie #249 (unt. red oak) with severe split and decay fruiting bodies on end grain.

Figure 8 -Tie #40 (unt. white oak) with decay and beetle damage.

APPENDIX:

Plot Map RTA Phase II Ties (Dorman Lake Site 1)

Position Row 1 runs West -East (Northern most row)

				May-15 Decay	Termite	Decay	Termite	Comments
Koppers	1	T6	WO-Bor-6#	10	10			
	2	T6		10	10			
	3	T6		10	10			
	4	T6		10	10			
	5	T6		10	10			
	6	T6		10	10			
	7	T6		10	10			
	8	T6		10	10			
	9	T6		10	10			
	10	T6		10	10			
	11	T70	RO-Bor-7#	10	10			
	12	T70		10	10			
	13	T70		10	10			
	14	T70		10	10			
	15	T70		10	10			
	16	T70		10	10			
	17	T70		10	10			
	18	T70		10	10			
	19	T70		10	10			
	20	T70		10	10			
	21	blank tag	Unt. RO	9	9			
	22	blank tag		9.5	10			
	23	blank tag		9.5	10			
	24	blank tag		9.5	10			
	25	blank tag		9.5	10			
	26	blank tag		9.5	10			
	27	blank tag		9.5	10			
	28	blank tag		9.5	10			
	29	blank tag		9.5	10			
	30	blank tag		9.5	10			
	31	T10	RO-Creo-7#	10	10			
	32	T10		10	10			
	33	T10		10	10			
	34	T10		10	10			
	35	T10		10	10			
	36	T10		10	10			CK
	37	T10		10	10			
	38	T10		10	10			
	39	T10		10	10			CK
	40	T10		10	10			
	41	T7	WO-Bor-7#	10	10			
	42	T7		10	10			
	43	T7		10	10			
	44	T7		10	10			
	45	T7		10	10			
	46	T7		10	10			
	47	T7		10	10			CK
	48	T7		10	10			
	49	T7		10	10			
	50	T7		10	10			
	51	T60	RO-Bor-6#	10	10			
	52	T60		10	10			
	53	T60		10	10			

	54	T60		10	10			
	55	T60		10	10			
	56	T60		10	10			
	57	T60		10	10			
	58	T60		10	10			
	59	T60		10	10			
	60	T60		10	10			
Stella-Jones	61	RO-1 step		10	10			
	62	RO-1 step		10	10			
	63	RO-1 step		10	10			
	64	RO-1 step		10	10			
	65	RO-1 step		10	10			
	66	RO-1 step		10	10			
	67	RO-1 step		10	10			
	68	RO-1 step		10	10			
	69	RO-1 step		10	10			
	70	RO-1 step		10	10			
	71	WO-Creo		10	10			
	72	WO-Creo		10	10			
	73	WO-Creo		10	10			
	74	WO-Creo		10	10			
	75	WO-Creo		10	10			
	76	WO-Creo		10	10			
	77	WO-Creo		10	10			
	78	WO-Creo		10	10			
	79	WO-Creo		10	10			
	80	WO-Creo		10	10			
	81	WO-1 step		10	10			
	82	WO-1 step		10	10			
	83	WO-1 step		10	10			
	84	WO-1 step		10	10			
	85	WO-1 step		10	10			
	86	WO-1 step		10	10			
	87	WO-1 step		10	10			
	88	WO-1 step		10	10			
	89	WO-1 step		10	10			
	90	WO-1 step		10	10			
	91	WO-Unt		9.5	10			
	92	WO-Unt		9.5	10			
	93	WO-Unt		9.5	10			
	94	WO-Unt		9.5	10			
	95	WO-Unt		9.5	10			
	96	WO-Unt		9.5	10			
	97	WO-Unt		9.5	10			
	98	WO-Unt		9.5	10			
	99	WO-Unt		9.5	10			FB
	100	WO-Unt		9	10			
Lonza	101	784	DF-Unt.	9.5	10			
	102	783		9.5	10			
	103	782		9.5	10			
	104	781		8	9.5			FB
	105	789		9.5	10			
	106	788		9.5	10			
	107	787		9.5	10			
	108	786		9.5	10			FB
	109	785		9.5	10			
	110	790		9.5	10			

111	684	DF-DOT-ACZA	10	10			
112	683		10	10			
113	682		10	10			
114	681		10	10			
115	689		10	10			
116	688		10	10			
117	687		10	10			
118	686		10	10			
119	685		10	10			
120	690		10	10			
121	581	RO-DOT-ACZA-Oil	10	10			
122	586		10	10			
123	587		10	10			
124	584		10	10			
125	583		10	10			
126	582		10	10			
127	585		10	10			
128	590		10	10			CK
129	589		10	10			CK
130	588		10	10			
131	735	RO-ACZA-Oil	10	10			
132	734		10	10			
133	732		10	10			
134	733		10	10			
135	731		10	10			
136	775	WO-ACZA-Oil	10	10			
137	774		10	10			
138	773		10	10			
139	772		10	10			
140	771		10	10			
141	524	WO-DOT-ACZA-Oil	10	10			
142	523		10	10			
143	522		10	10			
144	521		10	10			
145	529		10	10			
146	528		10	10			
147	527		10	10			
148	526		10	10			
149	530		10	10			
150	525		10	10			
151	641	RO-DOT-ACZA-Oil	10	10			CK
152	646		10	10			
153	642		10	10			
154	643		10	10			
155	644		10	10			
156	645		10	10			
157	647		10	10			
158	648		10	10			
159	649		10	10			
160	650		10	10			
161	702	RO-ACZA	10	10			
162	703		10	10			
163	704		10	10			
164	705		10	10			
165	709		10	10			
166	708		10	10			
167	707		10	10			

168	706		10	10			
169	710		10	10			
170	701		10	10			
171	747	WO-ACZA	10	10			
172	746		10	10			
173	742		10	10			
174	741		10	10			
175	744		10	10			
176	749		10	10			
177	748		10	10			
178	743		10	10			
179	745		10	10			
180	750		10	10			
181	803	DF-P2	10	10			
182	802		10	10			CK
183	806		10	10			
184	808		10	10			
185	807		10	10			
186	805		10	10			
187	804		10	10			
188	810		10	10			
189	809		10	10			
190	801		10	10			
191	544	WO-ACZA-ET	10	10			
192	543		10	10			
193	542		10	10			
194	541		10	10			
195	549		10	10			
196	548		10	10			
197	547		10	10			
198	546		10	10			
199	545		10	10			
200	550		10	10			
201	664	DF-ACZA-DOT-ET	10	10			
202	663		10	10			
203	662		10	10			
204	661		10	10			
205	669		10	10			
206	668		10	10			
207	667		10	10			
208	666		10	10			
209	665		10	10			
210	670		10	10			
211	627	RO-ACZA-ET	10	10			
212	628		10	10			
213	629		10	10			
214	630		10	10			
215	622		10	10			
216	623		10	10			
217	624		10	10			
218	625		10	10			
219	626		10	10			
220	621		10	10			
221	502	WO-ACZA-DOT	10	10			
222	503		10	10			
223	504		10	10			
224	505		10	10			

225	507		10	10	_____	_____	_____
226	508		10	10	_____	_____	_____
227	509		10	10	_____	_____	_____
228	510		10	10	_____	_____	_____
229	501		10	10	_____	_____	_____
230	506		10	10	_____	_____	_____
231	564	WO-DOT-ACZA-ET	10	10	_____	_____	_____
232	563		10	10	_____	_____	_____
233	562		10	10	_____	_____	_____
234	561		10	10	_____	_____	_____

Position Row 2 runs West -East (Southern most row)

			May-15				
			Decay	Termite	Decay	Termite	Comments
235	569		10	10	_____	_____	_____
236	568		10	10	_____	_____	_____
237	567		10	10	_____	_____	_____
238	566		10	10	_____	_____	_____
239	565		10	10	_____	_____	_____
240	570		10	10	_____	_____	_____
241	604	RO-DOT-ACZA-ET	10	10	_____	_____	_____
242	603		10	10	_____	_____	_____
243	602		10	10	_____	_____	_____
244	601		10	10	_____	_____	_____
245	609		10	10	_____	_____	_____
246	608		10	10	_____	_____	_____
247	607		10	10	_____	_____	_____
248	606		10	10	_____	_____	_____
249	605		10	10	_____	_____	_____
250	610		10	10			

CK=check
FB=fruiting body

Plot Map RTA Phase II Ties (McNeill Site 2)

Position Row 1 runs East - West (Southern most row)

				Mar-15 Decay	Mar-15 Termite	Decay	Termite	Comments
Stella Jones	1	WO-Creo		10	10			check/bowed
	2	WO-Creo		10	10			check
	3	WO-Creo		10	10			check
	4	WO-Creo		10	10			check
	5	WO-Creo		10	10			check
	6	WO-Creo		10	10			check
	7	WO-Creo		10	10			check
	8	WO-Creo		10	10			check
	9	WO-Creo		10	10			split
	10	WO-Creo		10	10			split
	11	1-Step-RO		10	10			
	12	1-Step-RO		10	10			check
	13	1-Step-RO		10	10			check
	14	1-Step-RO		10	10			check
	15	1-Step-RO		10	10			
	16	1-Step-RO		10	10			
	17	1-Step-RO		10	10			defect top South end
	18	1-Step-RO		10	10			
	19	1-Step-RO		10	10			
	20	1-Step-RO		10	10			check
	21	1-Step-WO		10	10			check
	22	1-Step-WO		10	10			
	23	1-Step-WO		10	10			
	24	1-Step-WO		10	10			
	25	1-Step-WO		10	10			
	26	1-Step-WO		10	10			
	27	1-Step-WO		10	10			
	28	1-Step-WO		10	10			
	29	1-Step-WO		10	10			
	30	1-Step-WO		10	10			
	31	Unt. - WO		10	10			
	32	Unt. - WO		9.5	10			FB
	33	Unt. - WO		9.5	10			FB
	34	Unt. - WO		10	10			
	35	Unt. - WO		10	10			
	36	Unt. - WO		10	10			
	37	Unt. - WO		9.5	10			
	38	Unt. - WO		10	10			
	39	Unt. - WO		9.5	9.5			
	40	Unt. - WO		8	10			FB/beetle dmg
Lonza	41	572	WO-DOT-ACZA-ET	10	10			
	42	573		10	10			
	43	574		10	10			
	44	575		10	10			
	45	576		10	10			
	46	577		10	10			
	47	578		10	10			
	48	579		10	10			
	49	580		10	10			

50	571		10	10	_____	_____	_____
51	611	RO-DOT-ACZA-ET	10	10	_____	_____	_____
52	612		10	10	_____	_____	_____
53	613		10	10	_____	_____	_____
54	614		10	10	_____	_____	_____
55	615		10	10	_____	_____	check_____
56	617		10	10	_____	_____	_____
57	618		10	10	_____	_____	check_____
58	619		10	10	_____	_____	_____
59	620		10	10	_____	_____	_____
60	616		10	10	_____	_____	_____
61	675	DF-DOT-ACZA-ET	10	10	_____	_____	_____
62	674		10	10	_____	_____	check_____
63	673		10	10	_____	_____	_____
64	672		10	10	_____	_____	_____
65	671		10	10	_____	_____	check_____
66	679		10	10	_____	_____	_____
67	678		10	10	_____	_____	_____
68	677		10	10	_____	_____	_____
69	676		10	10	_____	_____	_____
70	680		10	10	_____	_____	_____
71	555	WO-ACZA-ET	10	10	_____	_____	_____
72	554		10	10	_____	_____	_____
73	553		10	10	_____	_____	_____
74	552		10	10	_____	_____	_____
75	551		10	10	_____	_____	_____
76	560		10	10	_____	_____	_____
77	559		10	10	_____	_____	_____
78	558		10	10	_____	_____	_____
79	557		10	10	_____	_____	_____
80	556		10	10	_____	_____	_____
81	640	RO-ACZA-ET	10	10	_____	_____	_____
82	639		10	10	_____	_____	check_____
83	638		10	10	_____	_____	_____
84	637		10	10	_____	_____	_____
85	636		10	10	_____	_____	_____
86	635		10	10	_____	_____	check_____
87	634		10	10	_____	_____	_____
88	633		10	10	_____	_____	_____
89	632		10	10	_____	_____	_____
90	631		10	10	_____	_____	_____
91	695	DF-DOT-ACZA	10	10	_____	_____	_____
92	694		10	10	_____	_____	end plate corroded _____
93	693		10	10	_____	_____	check/end plat corroded_____
94	692		10	10	_____	_____	end plate corroded _____
95	691		10	10	_____	_____	end plate corroded _____
96	699		10	10	_____	_____	end plate corroded _____
97	698		10	10	_____	_____	end plate corroded _____
98	697		10	10	_____	_____	check/end plat corroded_____

	99	696		10	10	_____	_____	end plate corroded _____
	100	700		10	10	_____	_____	end plate corroded _____
	101	795	DF-Unt.	10	10	_____	_____	check_____
	102	794		10	10	_____	_____	_____
	103	793		10	10	_____	_____	_____
	104	792		10	10	_____	_____	_____
	105	791		10	10	_____	_____	_____
	106	800		9.5	10	_____	_____	FB_____
	107	799		10	10	_____	_____	_____
	108	798		10	10	_____	_____	FB_____
	109	797		10	10	_____	_____	_____
	110	796		10	10	_____	_____	_____
	111	755	WO-ACZA	10	10	_____	_____	end plate corroded _____
	112	754		10	10	_____	_____	end plate corroded _____
	113	753		10	10	_____	_____	end plate corroded _____
	114	752		10	10	_____	_____	end plate corroded _____
	115	751		10	10	_____	_____	end plate corroded _____
	116	760		10	10	_____	_____	Knot/burl under plate area N end_
	117	759		10	10	_____	_____	end plate corroded _____
	118	758		10	10	_____	_____	check/end plat corroded_____
	119	757		10	10	_____	_____	check/end plat corroded_____
	120	756		10	10	_____	_____	end plate corroded _____
	121	712	RO-ACZA	10	10	_____	_____	end plate corroded _____
	122	713		10	10	_____	_____	end plate corroded _____
	123	714		10	10	_____	_____	end plate corroded _____
	124	715		10	10	_____	_____	end plate corroded _____
	125	717		10	10	_____	_____	end plate corroded _____
	126	718		10	10	_____	_____	end plate corroded _____
	127	719		10	10	_____	_____	end plate corroded _____
	128	720		10	10	_____	_____	end plate corroded _____
	129	716		10	10	_____	_____	end plate corroded _____
	130	711		10	10	_____	_____	end plate corroded _____
	131	511	WO-ACZA-DOT	10	10	_____	_____	end plate corroded _____
	132	512		10	10	_____	_____	end plate corroded _____
	133	513		10	10	_____	_____	end plate corroded _____
	134	514		10	10	_____	_____	end plate corroded _____
	135	515		10	10	_____	_____	end plate corroded _____
	136	516		10	10	_____	_____	end plate corroded _____
	137	517		10	10	_____	_____	end plate corroded _____
	138	518		10	10	_____	_____	end plate corroded _____
	139	519		10	10	_____	_____	end plate corroded _____
	140	520		10	10	_____	_____	end plate corroded _____
			Row 2 runs East - West (middle row)					
Lonza	141	595	RO-DOT-ACZA-Oil	10	10	_____	_____	check_____
	142	594		10	10	_____	_____	check_____
	143	593		10	10	_____	_____	check_____
	144	592		10	10	_____	_____	check_____
	145	600		10	10	_____	_____	check_____
	146	599		10	10	_____	_____	_____
	147	598		10	10	_____	_____	check_____
	148	597		10	10	_____	_____	check_____

	149	596		10	10	_____	_____	check_____
	150	591		10	10	_____	_____	check_____
	151	740	RO-ACZA-Oil	10	10	_____	_____	check_____
	152	739		10	10	_____	_____	check_____
	153	738		10	10	_____	_____	severe check_____
	154	737		10	10	_____	_____	severe check_____
	155	736		10	10	_____	_____	_____
	156	779	WO-ACZA-Oil	10	10	_____	_____	_____
	157	780		10	10	_____	_____	_____
	158	777		10	10	_____	_____	_____
	159	778		10	10	_____	_____	_____
	160	776		10	10	_____	_____	_____
	161	655	RO-DOT-ACZA-Oil	10	10	_____	_____	check_____
	162	654		10	10	_____	_____	severe check_____
	163	653		10	10	_____	_____	check_____
	164	652		10	10	_____	_____	check_____
	165	660		10	10	_____	_____	check_____
	166	659		10	10	_____	_____	check_____
	167	658		10	10	_____	_____	check_____
	168	657		10	10	_____	_____	check_____
	169	651		10	10	_____	_____	check_____
	170	656		10	10	_____	_____	check_____
	171	531	WO-DOT-ACZA-Oil	10	10	_____	_____	check_____
	172	532		10	10	_____	_____	check_____
	173	533		10	10	_____	_____	check_____
	174	534		10	10	_____	_____	check_____
	175	536		10	10	_____	_____	_____
	176	537		10	10	_____	_____	_____
	177	538		10	10	_____	_____	check_____
	178	539		10	10	_____	_____	sever check - holding water ____
	179	540		10	10	_____	_____	_____
	180	535		10	10	_____	_____	sever check - holding water ____
	181	820	DF-P2	10	10	_____	_____	check_____
	182	817		10	10	_____	_____	check_____
	183	819		10	10	_____	_____	check_____
	184	811		10	10	_____	_____	_____
	185	815		10	10	_____	_____	_____
	186	816		10	10	_____	_____	_____
	187	814		10	10	_____	_____	_____
	188	813		10	10	_____	_____	_____
	189	818		10	10	_____	_____	check_____
	190	812		10	10	_____	_____	_____
Koppers	191	T6	WO-Bor-6#	10	10	_____	_____	check & ring shake _____
	192	T6		10	10	_____	_____	check & split S end_____
	193	T6		10	10	_____	_____	_____
	194	T6		10	10	_____	_____	_____
	195	T6		10	10	_____	_____	_____
	196	T6		10	10	_____	_____	_____
	197	T6		10	10	_____	_____	check_____
	198	T6		10	10	_____	_____	_____
	199	T6		10	10	_____	_____	check_____

200	T6		10	10	_____	_____	_____
201	T7	WO-Bor-7#	10	10	_____	_____	_____
202	T7		10	10	_____	_____	_____
203	T7		10	10	_____	_____	_____
204	T7		10	10	_____	_____	_____
205	T7		10	10	_____	_____	_____
206	T7		10	10	_____	_____	_____
207	T7		10	10	_____	_____	check_____
208	T7		10	10	_____	_____	check_____
209	T7		10	10	_____	_____	_____
210	T7		10	10	_____	_____	severe check/bad tie_____
211	T70	RO-Bor-7#	10	10	_____	_____	_____
212	T70		10	10	_____	_____	_____
213	T70		10	10	_____	_____	_____
214	T70		10	10	_____	_____	_____
215	T70		10	10	_____	_____	_____
216	T70		10	10	_____	_____	_____
217	T70		10	10	_____	_____	_____
218	T70		10	10	_____	_____	_____
219	T70		10	10	_____	_____	_____
220	T70		10	10	_____	_____	_____
221	T60	RO-Bor-6#	10	10	_____	_____	split _____
222	T60		10	10	_____	_____	_____
223	T60		10	10	_____	_____	_____
224	T60		10	10	_____	_____	_____
225	T60		10	10	_____	_____	_____
226	T60		10	10	_____	_____	_____
227	T60		10	10	_____	_____	_____
228	T60		10	10	_____	_____	_____
229	T60		10	10	_____	_____	_____
230	T60		10	10	_____	_____	_____
231	T10	RO-Creo-7#	10	10	_____	_____	severe check_____
232	T10		10	10	_____	_____	_____
233	T10		10	10	_____	_____	_____
234	T10		10	10	_____	_____	_____
235	T10		10	10	_____	_____	_____
236	T10		10	10	_____	_____	_____
237	T10		10	10	_____	_____	check_____
238	T10		10	10	_____	_____	_____
239	T10		10	10	_____	_____	check_____
240	T10		10	10	_____	_____	_____
241	blank tag	Unt. RO	10	10	_____	_____	_____
242	blank tag		9.5	10	_____	_____	FB_____
243	blank tag		9.5	10	_____	_____	_____
244	blank tag		9.5	10	_____	_____	FB_____
245	blank tag		10	10	_____	_____	_____
246	blank tag		9.5	10	_____	_____	_____
247	blank tag		9.5	10	_____	_____	FB/split/gator_____
248	blank tag		9.5	10	_____	_____	FB_____
249	blank tag		9.5	10	_____	_____	split/gator_____
250	blank tag		9	10	_____	_____	_____

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Applicable Standards:
None: