MISSISSIPPI STATE UNIVERSITY

FOREST AND WILDLIFE RESEARCH CENTER

FOREST PRODUCTS DEPARTMENT

Third Annual Evaluation of MSU/RTA Alternative Preservative Study

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

General Observations:

No unexpected results were found. As noted in previous reports, checking and/or splitting appeared worse at Site 2 probably due to more direct sunlight exposure and ties at Site 1 appeared to be more moist/wet due to the increased shade and leaf litter at this site.

General photographs documenting the condition of the sites and some of the noted biological problems can be seen below (Figures 1 - 12). 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 #9 showing decay.

Figure 4 - Tie #53 with signs of decay and termite activity.

Figure 5 - Tie #147 (white oak/untreated) showing signs of obvious decay.

Figure 6 - Tie #161 with noticeable checking.

Figure 7 - Tie #321 (white oak/untreated) with extensive decay found at the time of inspection.

Site 2 – Formosan Termite Research Facility

Figure 8 - Tie #4 (Turada) with light decay.

Figure 9 - Tie #44 Very clean and no signs of problems at time of inspection.

Figure 10 - #169 active decay at time of inspection.

Figure 11 - #83 showing signs of decay upon inspection of lower face**.**

Figure 12 - #253 with signs of decay and slight termite damage visible at the time of inspection.

APPENDIX:

Plot Map RTA Ties (Dorman - installed 4-08)

Position Row 1 runs North - South (Eastern most row)

			June-11				
			Decay	Termite	Decay	Termite	Comments
1	wo-2	Cedar	9	10	x	x	Cut 5/10
2	wo-3		9	10			
3	wo-4		9	10			
4	wo-5		10	10			split
5	wo-7		10	10			
6	wo-6		10	10			
7	wo-1		9	10			
8	wo-10		9	10			
9	wo-8		10	10			
10	wo-9		10	10			
11	wo-21		8	9			live termites/DK top&bottom
12	ro-18		10	10	x	x	Cut 5/10
13	ro-19		10	10			
14	ro-20		10	10			
15	ro-7		10	10			
16	ro-6		10	10			
17	ro-5		10	10			alligator
18	ro-21		10	10			
19	ro-4		10	10			
20	ro-3		10	10			
21	ro-2		10	10			
22	ro-1		10	10			
23	5	Turada	9	10	x	x	Cut 5/10
24	6		10	10			
25	7		10	10			
26	4		10	10			
27	2		10	10			
28	9		10	10			
29	8		10	10			
30	10		10	10			
31	1		10	10			
32	3		10	10			
33	SROBC-7	Seaman	10	10	x	x	Cut 5/10
34	SROBC-7		10	10			
35	SROBC-7		10	10			
36	SROBC-7		10	10			
37	SROBC-7		10	10			
38	SROBC-7		10	10			check
39	SROBC-7		10	10			
40	SROBC-5		10	10	x	x	Cut 5/10
41	SROBC-7		10	10			
42	SWOCEF		10	10	x	x	Cut 5/10
43	SWOCEF		10	10			
44	SWOCEF		10	10			
45	SWOCEF		10	10			

46	SWOCEF		10	10			
47	SWOCEF		10	10			
48	SWOCEF		10	10			
49	SWOCEF		10	10			
50	SWOCEF		10	10			
51	SROC-7		8	9	x	x	Cut 5/10
52	SWOC-5		9	9	x	x	Cut 5/10
53	SROBC-5		7	9			
54	SWOBCREF		10	10			
55	SWOBCREF		10	10			
56	SWOBCREF		10	10			
57	SWOBCREF		10	10			
58	SWOBCREF		10	10			
59	SWOBCREF		10	10			
60	SWOBCREF		10	10			
61	SWOBCREF		10	10			check
62	SROC5		10	10	x	x	Cut 5/10
63	SROC5		10	10			
64	SROC5		10	10			
65	SROC5		10	10			
66	SROC5		10	10			
67	SROC5		10	10			
68	SROC5		10	10			
69	SROC5		10	10			
70	SROC5		10	10			
71	SROBC5		10	10			
72	SROBC5		10	10			
73	SROBC5		10	10			
74	SROBC5		10	10			
75	SWOBCREF		10	10			
76	SWOCREF		10	10			
77	SROC5		10	10			
78	SROBC5		10	10			
79	SROBC5		10	10			
80	SROBC5		10	10			
81	SROBC5		10	10			
82	SWOBCREF		10	10			
83	SROBC5		10	10			
84	SROBC5		10	10			
85	wo-136	Lonza	10	10	x	x	Cut 5/10
86	wo-130		10	10			
87	wo-129		10	10			
88	wo-121		10	10			
89	wo-127		10	10			
90	wo-124		10	10			
91	wo-128		10	10			
92	wo-122		10	10			
93	wo-123		10	10			
94	wo-125		10	10			

95	ro-105		10	10	x	x	Cut 5/10
96	ro-104		10	10			
97	ro-103		10	10			
98	ro-102		10	10			
99	ro-110		10	10			
100	ro-107		10	10			
101	ro-106		10	10			
102	ro-109		10	10			
103	ro-101		10	10			
104	ro-108		10	10			
105	wo-135		10	10	x	x	Cut 5/10
106	wo-134		10	10			
107	wo-138		10	10			
108	wo-139		10	10			
109	wo-137		10	10			
110	wo-132		10	10			
111	wo-136		9	10			
112	wo-140		10	10			
113	wo-133		10	10			
114	wo-131		9	10			
115	ro-182		9	10			
116	wo-181		9	10			
117	ro-114		10	10	x	x	Cut 5/10
118	ro-120		10	10			
119	ro-117		10	10			
120	ro-112		10	10			
121	ro-113		10	10			
122	ro-115		10	10			check
123	ro-119		10	10			
124	ro-116		10	10			
125	ro-111		10	10			
126	ro-118		10	10			
127	P3RO7-39	KMG	10	10			
128	P3RO7-36		10	10			
129	P3RO7-37		10	10			
130	P3RO7-38		10	10			
131	P3RO7-23		10	10			
132	P3RO7-40		10	10			
133	P3RO7-26		10	10			
134	P3RO7-42		10	10			
135	P3RO7-35		10	10			
136	P3RO7-41		10	10	x	x	Cut 5/10
137	P3WO7-5		10	10	x	x	Cut 5/10
138	P3WO7-4		10	10			
139	P3WO7-6		10	10			
140	P3WO7-7		10	10			
141	P3WO7-11		10	10			
142	P3WO7-17		10	10			
143	P3WO7-20		10	10			

144	P3WO7-2		10	10			
145	P3WO7-8		10	10			
146	P3WO7-3		10	10			
147	Woctrl-21		8	9			live termites
148	Roctrl-43		10	10			
149	WO122	Nisus	10	10			
150	WO14		10	10			
151	WO128		10	10			check
152	WO61		10	10			
153	WO5		10	10			
154	WO1		10	10			check
155	WO71		10	10			check
156	WO98		10	10			
157	WO139		10	10			check
158	WO135		10	10			check
159	WO144		10	10			
160	WO126		10	10			check
161	WO131		10	10			check
162	WO138		10	10			split
163	WO130		10	10			
164	WO125		10	10			
165	WO29		10	10			
166	WO52		10	10	x	x	Cut 5/10
167	WO137		10	10			
168	WO134		10	10	x	x	Cut 5/10
169	WO44ctrl		9	10			fruiting body
170	WO94ctrl		9	10			
171	RO6ctrl		9	10			

172	RO-51ctrl		10	10			
173	RO21		10	10			
174	RO22		10	10			
175	RO15		10	10			check
176	RO62		10	10			
177	RO46		10	10			
178	RO2		10	10			
179	RO24		10	10			
180	RO20		10	10	x	x	Cut 5/10
181	RO37		10	10	x	x	Cut 5/10
182	RO31		10	10			
183	RO59		10	10			
184	RO89		10	10			
185	RO13		10	10			
186	RO58		10	10			
187	RO57		10	10			
188	RO12		10	10			
189	RO56		10	10			
190	RO25		10	10			
191	RO43		10	10			
192	RO10		10	10			
193	RO54		10	10	x	x	Cut 5/10
194	RO38		10	10			
195	RO45		10	10			
196	RO16		10	10			
197	RO72		10	10			
198	RO77		10	10			
199	RO40		10	10			
200	RO55		10	10			
201	RO18		10	10			
202	RO3		10	10			
203	WO49		10	10	x	x	Cut 5/10
204	WO121		10	10			
205	WO68		10	10			
206	WO11		10	10			
207	WO65		10	10			
208	WO92		10	10			
209	WO60		9	10			
210	WO47		10	10			
211	WO90		10	10			
212	WO69		10	10			
213	MRO8	Merichen	10	10	x	x	Cut 5/10
214	MRO8		10	10			
215	MROB8		10	10	x	x	Cut 5/10
216	MROB8		10	10			
217	MROB8		10	10			
218	MROB8		10	10			
219	MROB8		10	10			check
220	MROB8		10	10			

221	MROB8	9	10			
222	MROB8	10	10			
223	MROB8	10	10			
224	MWO8ctrl	7	10			
225	MWO8ctrl	10	10			
226	MRO8ctrl	10	10			
227	MRO8	10	10			
228	MRO8	10	10			
229	MRO8	10	10			
230	MRO8	10	10			
231	MRO8	10	10			
232	MRO8	10	10			
233	MRO8	10	10			
234	MRO8	10	10			
235	MWOB8	10	10	x	x	Cut 5/10
236	MWOB8	10	10			
237	MWOB8	10	10			
238	MWOB8	10	10			
239	MWOB8	10	10			
240	MWOB8	10	10			
241	MWOB8	10	10			
242	MWOB8	10	10			
243	MWOB8	10	10			
244	MWOB8	10	10			

Row 2 runs North - South (West row)

		June-11				
		Decay	Termite	Decay	Termite	Comments
245	6	10	10	x	x	Cut 5/10
246	14	10	10			
247	79	10	10			
248	73	10	10			
249	75	10	10			
250	?	10	10			
251	80	10	10			
252	?	10	10			
253	62	10	10			
254	82	10	10			
255	68	10	10			
256	74	10	10			
257	37	10	10	x	x	Cut 5/10
258	26	10	10			
259	53	10	10	x	x	Cut 5/10
260	59	10	10			
261	52	10	10			
262	48	10	10			
263	45	10	10			
264	67	10	10	x	x	Cut 5/10
265	51?	10	10			

266	?		10	10			
267	88		10	10			
268	46		10	10			
269	12		10	10			
270	20		10	10			
271	31		10	10			
272	17		10	10			
273	4		10	10			
274	10?		10	10			
275	16		10	10			
276	5		10	10			
277	27		10	10			
278	36		10	10			
279	24		10	10			
280	?		10	10			
281	22		10	10			
282	39		10	10			
283	25		10	10			
284	?		10	10			
285	WO30	Enviro	10	10	x	x	Cut 5/10
286	RO6		10	10	x	x	Cut 5/10
287	RO7		10	10			
288	RO8		10	10			
289	RO9		10	10			
290	RO1		10	10			check
291	RO2		10	10			
292	RO3		10	10			check
293	RO4		10	10			
294	RO5		10	10			
295	RO10		10	10			
296	6	BioP	10	10			
297	1		10	10			
298	7		10	10			
299	8		10	10			
300	9		10	10			
301	10		10	10			
302	2		10	10			
303	3		10	10			
304	4		10	10			
305	5		10	10			
306	12		10	10			control?
307	9469		10	10			
308	9459		10	10			
309	9460		10	10			
310	9471		10	10			
311	9472		10	10			
312	9470		10	10			
313	9464		10	10			
314	11		9	10			control?

315	9468		10	10			
316	9466		10	10			
317	9467		10	10			
318	roctrl	Enviro	10	10			
319	roctrl		10	10			
320	woctrl		8	10			
321	woctrl		7	9			fruiting body
322	WO22		10	10			
323	WO23		10	10			
324	WO24		10	10			
325	W025		10	10			
326	WO27		10	10			
327	WO28		10	10			
328	WO29		10	10			
329	WO21		10	10			
330	WO26		10	10			
331	MWO8	Meri	10	10			
332	MWO8		10	10			
333	MWO8		10	10			check
334	MWO8		10	10			
335	MWO8		10	10			
336	MWO8		10	10			
337	MWO8		10	10			
338	MWO8		10	10			
339	MWO8		10	10			
340	MWO8		10	10			
341	MWO8		10	10	x	x	Cut 5/10/heart rot

Plot Map RTA Ties (McNeill)

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

			Mar. 11				
			Decay	Termite	Decay	Termite	Comments
Turada	1	1	x	x	x	x	cut 4/10
	2	2	10	10			
	3	3	10	10			
	4	4	10	10			
	5	5	10	10			
	6	6	10	10			
	7	7	10	10			
	8	8	9	10			DK present upon delivery
	9	9	10	10			
	10	10	9	10			DK present upon delivery
Envirosaf	11	11RO	10	10			pic 09
	12	15RO	10	10			
	13	14RO	10	10			large check
	14	13RO	10	10			large check
	15	12RO	10	10			
	16	20RO	10	10			
	17	19RO	10	10			
	18	18RO	10	10			
	19	17RO	10	10			
	20	16RO	x	x	x	x	large check/cut 4/10
	21	35WO	x	x	x	x	cut 4/10
	22	34WO	10	10			
	23	33WO	10	10			
	24	32WO	10	10			
	25	31WO	10	10			
	26	40WO	10	10			
	27	39WO	10	10			
	28	38WO	10	10			
	29	37WO	10	10			
	30	36WO	10	10			large check
Seaman	31	SROC5	x	x	x	x	cut 4/10
	32	SROC5	10	10			
	33	SROC5	10	10			
	34	SROC5	10	10			pic 09/large check
	35	SROC5	10	10			
	36	SROC5	10	10			
	37	SROC5	10	10			
	38	SROC5	10	10			
	39	SROC5	10	10			large check
	40	SROC5	10	10			
	41	SROBC5	x	x	x	x	split/cut 4/10
	42	SROBC5	10	10			
	43	SROBC5	10	10			
	44	SROBC5	10	10			
	45	SROBC5	10	10			
	46	SROBC5	10	10			
	47	SROBC5	10	10			

	48	SROBC5		10		10			
	49	SROBC5		10		10			
	50	SROBC5		10		10			
	51	SWOCREF	x		x		x	x	cut 4/10
	52	SWOCREF		10		10			
	53	SWOCREF		10		10			
	54	SWOCREF		10		10			large check
	55	SWOCREF		10		10			
	56	SWOCREF		10		10			
	57	SWOCREF		10		10			
	58	SWOCREF		10		10			
	59	SWOCREF		10		10			large check
	60	SWOCREF		10		10			
	61	SWOBCREF	x		x		x	x	cut 4/10
	62	SWOBCREF		10		10			
	63	SWOBCREF		10		10			
	64	SWOBCREF		10		10			
	65	SWOBCREF		10		10			large check
	66	SWOBCREF		10		10			
	67	SWOBCREF		10		10			large check
	68	SWOBCREF		10		10			large check
	69	SWOBCREF		10		10			
	70	SWOBCREF		10		10			
	71	SROBC7	x		x		x	x	cut 4/10
	72	SROBC7		10		10			
	73	SROBC7		10		10			
	74	SROBC7		10		10			
	75	SROBC7		10		10			
	76	SROBC7		10		10			
	77	SROBC7		10		10			
	78	SROBC7		10		10			
	79	SROBC7		10		10			large check
	80	SROBC7		10		10			
	81	ctrlSROC7	x		x		x	x	cut 4/10
	82	ctrlSWOC5	x		x		x	x	cut 4/10
	83	ctrlSWOC5		8		10			pic 09/active DK/FB
Lonza	84	209	x		x		x	x	cut 4/10
	85	206		10		10			
	86	204		10		10			
	87	201		10		10			
	88	208		10		10			
	89	203		10		10			
	90	205		10		10			
	91	207		10		10			
	92	210		10		10			
	93	202		10		10			
Nisus	94	240	x		x		x	x	cut 4/10
	95	237		10		10			
	96	243		10		10			
	97	238		10		10			
	98	245		10		10			

	99	239		10		10		
	100	247		10		10		
	101	241		10		10		
	102	233		10		10		
	103	242		10		10		
	104	203	x		x		x	x	cut 4/10
	105	227		10		10		
	106	207		10		10		
	107	200		10		10			large check
	108	229		10		10		
	109	206		10		10			large check
	110	216		10		10		
	111	220		10		10		
	112	212		10		10			large check
	113	222		10		10		
	114	217	x		x		x	x	cut 4/10
	115	264		10		10		
	116	287		10		10		
	117	253		10		10		
	118	283		10		10			large check
	119	219		10		10			large check
	120	276		10		10		
	121	292		10		10		
	122	269		10		10		
	123	289		10		10			pic 09
	124	225	x		x		x	x	cut 4/10
	125	204		10		10		
	126	234		10		10			large check
	127	215		10		10		
	128	231		10		10		
	129	213		10		10		
	130	205		10		10			large check
	131	208		10		10		
	132	210		9		10			large check
	133	226		10		10		
	134	305	x		x		x	x	cut 4/10
	135	201		10		10		
	136	313		10		10		
	137	294		10		10		
	138	308		10		10			large check
	139	301		10		10		
	140	291		10		10		
	141	309		10		10			large check
	142	296		10		10		
	143	314		10		10		
Lonza	144	236		10		10		
	145	232		10		10		
	146	238		10		10		
	147	234		10		10		
	148	231		10		10		
	149	233		10		10		

	150	235		10		10		
	151	239		10		10		
	152	240		10		10		
	153	237	x		x		x	x	cut 4/10
Nisus	154	272	x		x		x	x	cut 4/10
	155	223		10		10		
	156	256		10		10		
	157	297		10		10		
	158	295		10		10			large check
	159	267		10		10		
	160	299		10		10		
	161	261		10		10		
	162	214		10		10		
	163	275		10		10		
Lonza	164	281		10		10		
	165	282		10		10		
Nisus	166	315		10		10		
	167	316		10		10		
	168	249		10		10		
	169	248		8		10			pic 09/DK active

Row 2 runs East - West (middle row)

			Mar. 11				
			Decay	Termite	Decay	Termite	Comments
Lonza	170	220	x	x	x	x	cut 4/10
	171	218	10	10			
	172	214	10	10			
	173	219	10	10			
	174	212	10	10			
	175	217	10	10			
	176	216	10	10			
	177	211	10	10			
	178	213	10	10			
	179	215	10	10			
	180	224	x	x	x	x	cut 4/10
	181	228	10	10			
	182	221	10	10			
	183	222	10	10			
	184	230	10	10			large check
	185	225	10	10			
	186	226	10	10			
	187	229	10	10			large check
	188	223	10	10			
	189	227	10	10			
Cedarcide	190	19W	x	x	x	x	cut 4/10
	191	20W	10	10			loose plate
	192	15W	10	10			
	193	16WC	10	10			
	194	18W	10	10			
	195	17W	10	10			shake
	196	10R	x	x	x	x	cut 4/10
	197	9RC	10	10			large check
	198	8R	10	10			large check
	199	11W	10	10			large check
	200	12W	10	10			large check
	201	13W	10	10			
	202	14W	10	10			split
	203	11R	10	10			cross grain/shake
	204	12R	10	10			
	205	13R	10	10			
	206	14R	10	10			
	207	15R	10	10			
	208	16R	9	10			split
	209	17R	10	10			split
	210	22R	10	10			large check
	211	22W	10	10			
Merichem	212	MWOB8	x	x	x	x	cut 4/10
	213	MWOB8	10	10			
	214	MWOB8	10	10			
	215	MWOB8	10	10			
	216	MWOB8	10	10			

	217	MWOB8		10		10			
	218	MWPB8		10		10			
	219	MRO8		10		10			
	220	MRO8	x		x		x	x	cut 4/10
	221	MRO8		10		10			
	222	MRO8		10		10			pic 09
	223	MRO8		10		10			
	224	MRO8		10		10			
	225	MRO8		10		10			
	226	MRO8		10		10			large check
	227	MWOB8		10		10			
	228	MWOB8		10		10			
	229	MRO8		10		10			
	230	MRO8		10		10			
	231	MWO8		10		10			
	232	MWO8	x		x		x	x	cut 4/10
	233	MWO8		10		10			
	234	MWO8		10		10			
	235	MWO8		10		10			
	236	MWO8		10		10			
	237	MWO8		10		10			
	238	MWO8		10		10			
	239	MWO8		10		10			
	240	MWO8		10		10			
	241	MROB8	x		x		x	x	cut 4/10
	242	MWO8		10		10			large check
	243	MROB8		10		10			
	244	MROB8		10		10			
	245	MROB8		10		10			
	246	MROB8		10		10			
	247	MROB8		10		10			
	248	MROB8		10		10			
	249	MROB8		10		10			
	250	MROCONT		10		9			pic 09/termite dmg
	251	MWOCONT		10		9			pic 09/DK
	252	MWOCONT		10		10			
BioPres	253	72	x		x				pic 09/DK top side
	254	76	x		x				
	255	75	x		x				
	256	67	x		x				
	257	68	x		x				DK top side
	258	69	x		x				DK top side
	259	71	x		x				
	260	74	x		x				DK top side
	261	82	x		x				
	262	77	x		x				
	263	93	x		x				
	264	?	x		x				DK top side
	265	66	x		x				
	266	65	x		x				
	267	73	x		x				

KMG	270	1		10		10			
	271	14		10		10			
	272	12		10		10			
	273	16		10		10			
	274	15		10		10			large check
	275	18		10		10			
	276	19		10		10			
	277	10		10		10			
	278	30		10		10			pic 09
	279	33		10		10			
	280	34		10		10			
	281	24		10		10			
	282	27		10		10			large check
	283	28		10		10			
	284	29		10		10			large check
	285	32		10		10			
	286	13		10		10			
	287	31		10		10			
	288	9		10		10			
	289	25		10		10			
	290	22		9		10			
	291	44		10		10			pic 09
Koppers	292	11		10		10			
	293 ?			10		10			
	294 ?			10		10			
	295 ?			10		10			
	296		19	x		x		x	x	cut 4/10
	297		15	10		10			
	298 ?			10		10			
	299 ?			10		10			
	300		47	x		x		x	x	cut 4/10
	301		44	10		10			
	302		41	10		10			
	303		55	10		10			
	304		60	10		10			
	305		43	10		10			pic 09
	306		51	10		10			
	307		76	10		10			
	308		65	10		10			
	309		61	x		x		x	x	cut 4/10
	310		70	10		10			
	311		72	10		10			
	312		71	10		10			
	313		77	10		10			
	314		64	10		10			
	315 2?			10		10			
	316		34	x		x		x	x	cut 4/10
	317		38	10		10			
	318		33	10		10			
	319		29	10		10			
	320		32	10		10			

	321	?		10	10		
	322		31	10	10		
	323		35	10	10		
	324		23	10	10		
	325		66	10	10		
	326		67	10	10		
	327	?		10	10		
	328		61	10	10		
	329		7	10	10		
	330		8	10	10		
	331	WO		9	10		pic 09/DK
	332	WO		8	10		pic 09
	333	RO		9	10		
	334	RO		9	10		pic 09/DK/large check
Enviro	335	ctrl		10	10		
	336	ctrl		10	10		

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Applicable Standards:
None: