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FOREST AND WILDLIFE RESEARCH CENTER

FOREST PRODUCTS DEPARTMENT

Fourth Annual Evaluation of MSU/RTA Alternative Preservative Study

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This report covers the fourth 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. One tie from each treatment group, at both sites, was selected at random to be examined on all four surfaces and to be cross-cut near the inner spike holes for interior evaluation.

General Observations:

No unexpected results were found. Checks and/or splits were noted to be worse at Site 2 probably due to more direct sunlight exposure. Increased termite activity was noted at this site in the form of *Coptotermes formosanus* alates collected on traps adjacent to the ties and alate wings found among the test ties. Ties at Site 1 were more moist/wet due to the increased shade and leaf litter as well as the clay soil at this site and these ties showed an increased amount of decay in the controls and vigorous *Reticulitermes flavipes* activity due to these conditions.

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 as well as photographs of the segmented ties can be found in the appendix. There have been corrections made to the Site 2 map as ties have weathered (preservative has migrated from the surface) and sponsor tags are now readable or noticeable.

Photographic documentation of the segmented ties as well as inspection sheets from both sites 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 of Site 1 at the time of inspection.

Site 1 - Dorman Lake Test Site

Figure 3 - Tie #306 (control) showing severe decay and beetle damage.

Figure 4 - Tie #148 (red oak/control) with termite shelter tubes in check and surface grazing by termites.

Site 2 – Formosan Termite Research Facility

Figure 5 - Tie #9 (Turada) with substantial decay which appears to be in a sapwood zone.

Figure 6 - Tie #107 (Nisus) with checking.

Figure 7 – Tie #334 (untreated red oak) with extensive decay.

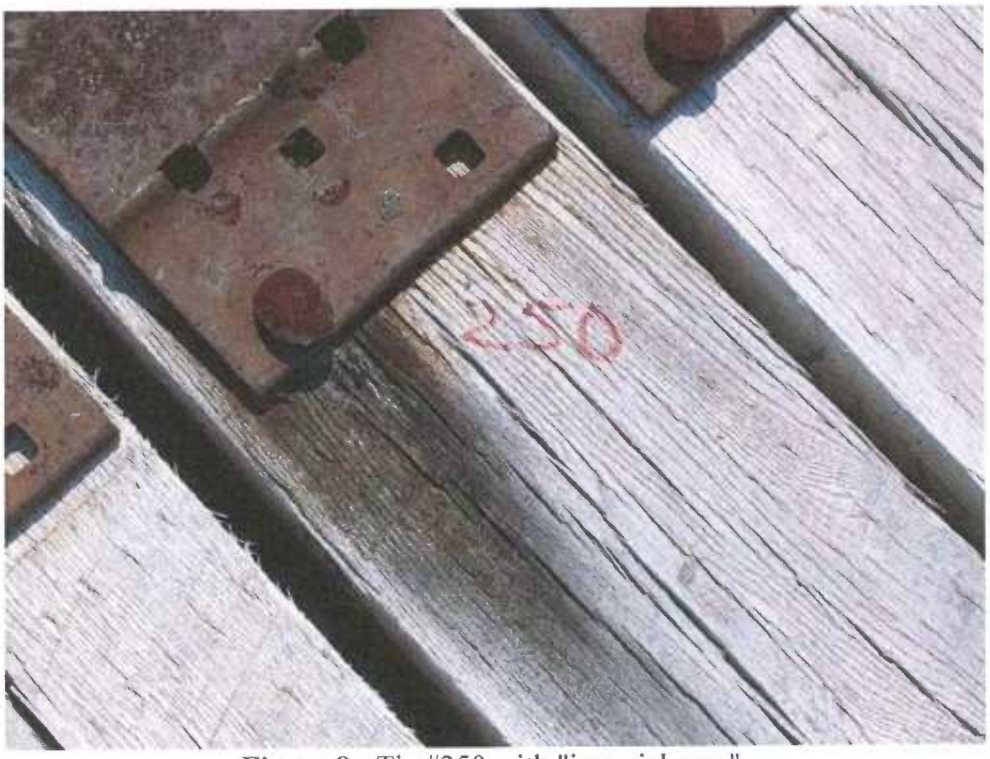

Figure 8 - Tie #250 with "iron sickness".

APPENDIX:

Site 1 - Dorman Lake Test Site (bottom/cross-section)

Figure 1 - Tie #2 (Cedarcide/white oak).

Figure 2 – Tie #2 (Cedarcide/white oak).

Figure 3 - Tie #13 (Cedarcide/red oak).

Figure 4- Tie #13 (Cedarcide/red oak) showing areas of decay.

Figure 5 - Tie #32 (Turada).

Figure 6 - Tie #32 (Turada).

Figure 7 - Tie #34 (Boatright/red oak/borate/creosote 7pcf).

Figure 8 - Tie #34 (Boatright/red oak/borate/creosote 7pcf).

Figure 9 - Tie #43 (Boatright/white oak/creosote to refusal).

Figure 10 - Tie #43 (Boatright/white oak/creosote to refusal).

Figure 11 - Tie #61 (Boatright/white oak/borate/creosote to refusal).

Figure 12 - Tie #61 (Boatright/white oak/borate/creosote to refusal).

Figure 13- Tie#63 (Boatright/red oak/creosote 5pcf).

Figure 14 - Tie# 63 (Boatright/red oak/creosote 5pcf).

Figure 15 - Tie #71 (Boatright/red oak/borate/creosote 5pcf).

Figure 16 - Tie #71 (Boatright/red oak/borate/creosote 5pcf).

Figure 17- Tie #86 (Lonza/white oak).

Figure 18 - Tie #86 (Lonza/white oak).

Figure 19- Tie#96 (Lonza/red oak).

Figure 20 - Tie#96 (Lonza/red oak).

Figure 21- Tie #106 (Lonza/white oak).

Figure 22 - Tie #106 (Lonza/white oak).

Figure 23- Tie #119 (Lonza/red oak).

Figure 24 - Tie #119 (Lonza/red oak).

Figure 25- Tie #135 (KMG/red oak).

Figure 26 - Tie #135 (KMG/red oak).

Figure 27- Tie #138 (KMG/white oak).

Figure 28 - Tie #138 (KMG/White oak).

Figure 29 - Tie #164 (Nisus/white oak/borate/oil A).

Figure 30 - Tie #164 (Nisus/white oak/borate/oil A).

Figure 31- Tie #165 (Nisus/white oak/borate/oil B).

Figure 32 - Tie #165 (Nisus/white oak/borate/oil B).

Figure 33 – Tie #170 (white oak/control) with slight decay on bottom.

Figure 34 – Tie #170 (white oak/control).

Figure 35 - Tie #171 (red oak/control) with heavy decay on bottom.

Figure 36 - Tie #171 (red oak/control) with decay visible in cross-section.

Figure 37 - Tie #179 (Nisus/red oak/borate/oil B).

Figure 38 - Tie #179 (Nisus/red oak/borate/oil B).

Figure 39 - Tie #192 (Nisus/red oak/borate/oil A).

Figure 40 - Tie #192 (Nisus/red oak/borate/oil A).

Figure 41 - Tie #194 (Nisus/red oak/borate).

Figure 42 - Tie #194 (Nisus/red oak/borate).

Figure 43 - Tie #204 (Nisus/white oak/borate).

Figure 44 - Tie #204 (Nisus/white oak/borate).

Figure 45 Tie #223 (red oak/borate/CuNap).

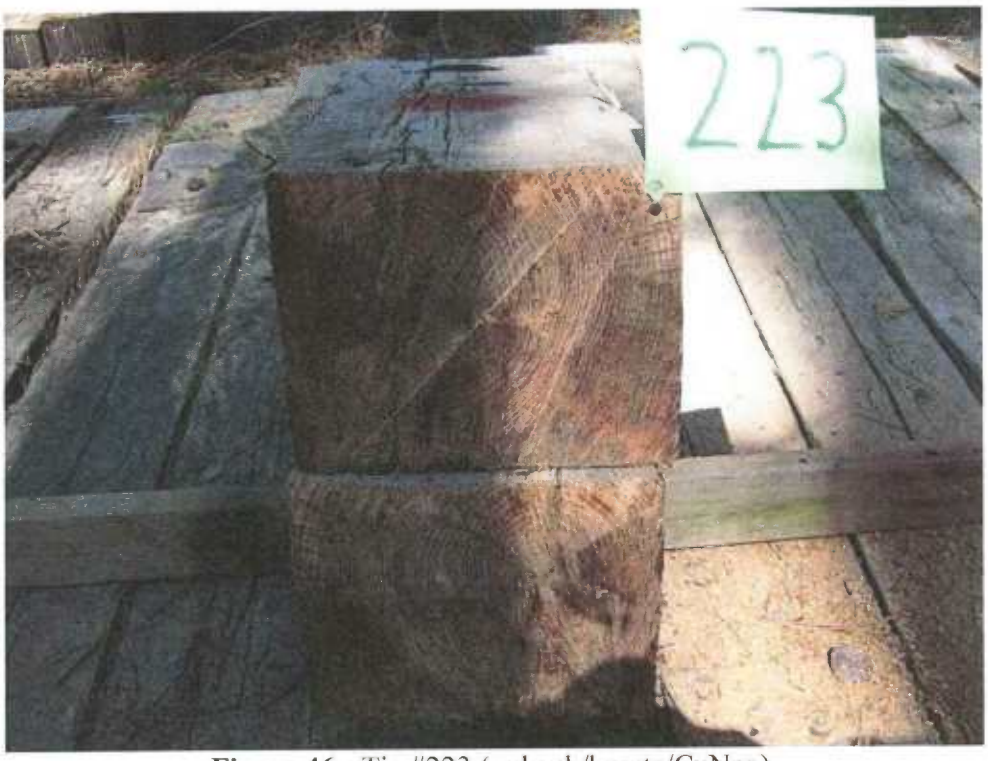

Figure 46 - Tie #223 (red oak/borate/CuNap).

Figure 47 Tie #227 (red oak/CuNap).

Figure 48 - Tie #227 (red oak/CuNap).

Figure 49 - Tie #244 (white oak/borate/CuNap).

Figure 50 - Tie #244 (white oak/borate/CuNap).

Figure 51 Tie #248 (Koppers/white oak/creosote petroleum).

Figure 52 - Tie #248 (Koppers/white oak/creosote petroleum).

Figure 53 Tie #268 (Koppers/red oak/creosote petroleum).

Figure 54 - Tie #268 (Koppers/red oak/creosote petroleum).

Figure 55 - Tie #270 (Koppers/white oak/creosote).

Figure 56 - Tie #270 (Koppers/white oak/creosote).

Figure 57 - Tie #271 (Koppers/red oak/creosote).

Figure 58 - Tie #271 (Koppers/red oak/creosote).

Figure 59 - Tie #295 (Envirosafe/red oak) with live termites (surface etching) and trace decay.

Figure 60 - Tie #295 (Envirosafe/red oak).

Figure 61 - Tie #330 (Envirosafe/white oak) with termite grazing and trace decay.

Figure 62 - Tie #330 (Envirosafe/white oak).

Figure 63 - Tie #331 (white oak/CuNap).

Figure 64 - Tie #331 (white oak/CuNap).

Site 2 – Formosan Termite Research Facility

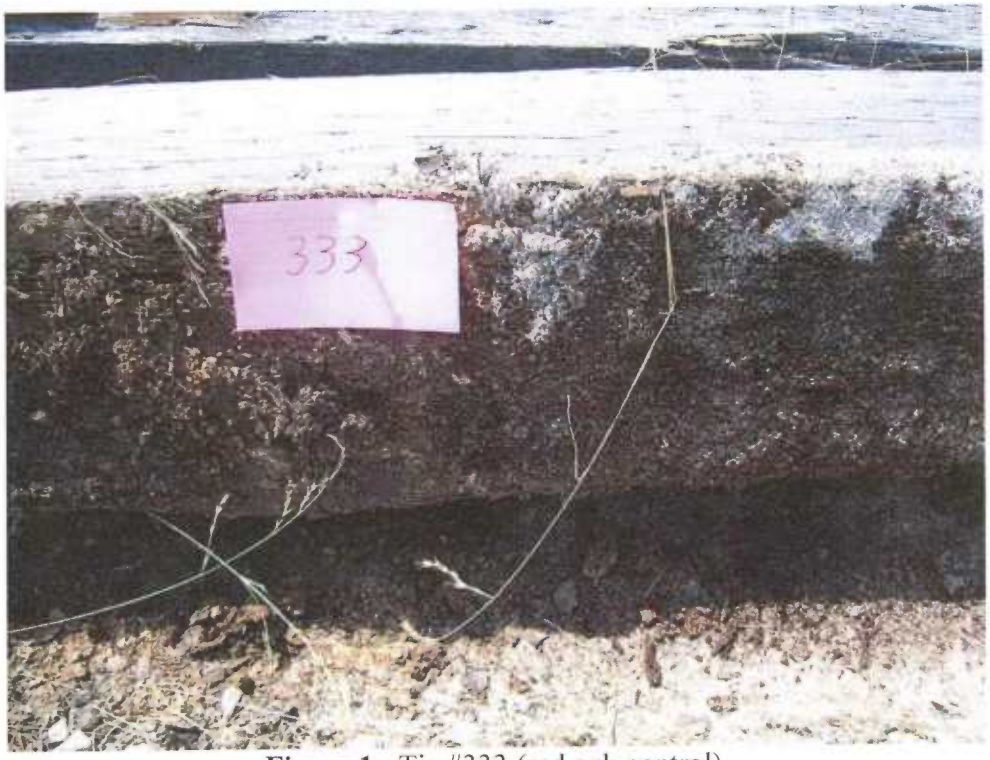

Figure 1 - Tie #333 (red oak control).

Figure 2 - Tie #333 (red oak control).

Figure 3 – Tie #332 (white oak control).

Figure 4 – Tie #332 (white oak control).

Figure 5 – Tie #326 (Koppers/white oak/ creosote petroleum).

Figure 6 – Tie #326 (Koppers/white oak/ creosote petroleum).

Figure 7 – Tie #318 (Koppers/red oak/creosote 7.5pcf).

Figure 8 – Tie #318 (Koppers/red oak/creosote 7.5pcf).

Figure 9 - Tie #305 (Koppers/red oak/creosote petroleum).

Figure 10 - Tie #305 (Koppers/red oak/creosote petroleum).

Figure 11 - Tie #292 (Koppers/white oak/creosote to refusal).

Figure 12 - Tie #292 (Koppers/white oak/creosote to refusal).

Figure 13 - Tie #287 (KMG/red oak).

Figure 14 - Tie #287 (KMG/red oak).

Figure 15 - Tie #270 (KMG/white oak).

Figure 16 - Tie #270 (KMG/White oak).

Figure 17 - Tie #244 (white oak/CuNap).

Figure 18 - Tie #244 (white oak/CuNap).

Figure 19 - Tie #243 (red oak/borate/CuNap).

Figure 20 – Tie #243 (red oak/borate/CuNap).

Figure 21 – Tie #219 (red oak/CuNap).

Figure 22 - Tie #219 (red oak/CuNap).

Figure 23 - Tie #218 (white oak/borate/CuNap).

Figure 24 - Tie #218 (white oak/borate/CuNap).

Figure 25 - Tie #199 (Cedarcide/white oak).

Figure 26 - Tie #199 (Cedarcide/white oak) with decayed areas marked.

Figure 27 - Tie #198 (Cedarcide/red oak).

Figure 28 - Tie #198 (Cedarcide/red oak).

Figure 29 - Tie #189 (Lonza/White oak).

Figure 30 - Tie #189 (Lonza/white oak) with decayed area marked.

Figure 31 - Tie #179 (Lonza/red oak).

Figure 32 - Tie #179 (Lonza/red oak).

Figure 33 - Tie #156 (Nisus/white oak/borate).

Figure 34 - Tie #156 (Nisus/white oak/borate).

Figure 35 Tie #144 (Lonza/white oak).

Figure 36 - Tie #144 (Lonza/white oak).

Figure 37 - Tie #135 (Nisus/white oak/borate/oil A).

Figure 38 - Tie #135 (Nisus/white oak/borate/oil A).

Figure 39 - Tie #125 (Nisus/red oak/borate).

Figure 40 - Tie #125 (Nisus/red oak/borate).

Figure 41 - Tie #119 (Nisus/white oak/borate/oil B).

Figure 42 - Tie #119 (Nisus/white oak/borate/oil B).

Figure 43 - Tie #105 (Nisus/red oak/borate/oil B).

Figure 44 - Tie #105 (Nisus/red oak/borate/oil B).

Figure 45 - Tie #95 (Nisus/red oak/borate/oil A).

Figure 46 - Tie #95 (Nisus/red oak/borate/oil A).

Figure 47 - Tie #93 (Lonza/red oak).

Figure 48 - Tie #93 (Lonza/red oak) with decayed areas marked.

Figure 49 - Tie #80 (Boatright/red oak/borate/creosote 7pcf).

Figure 50 - Tie #80 (Boatright/red oak/borate/creosote 7pcf).

Figure 51 - Tie #70 (Boatright/white oak/borate/creosote to refusal).

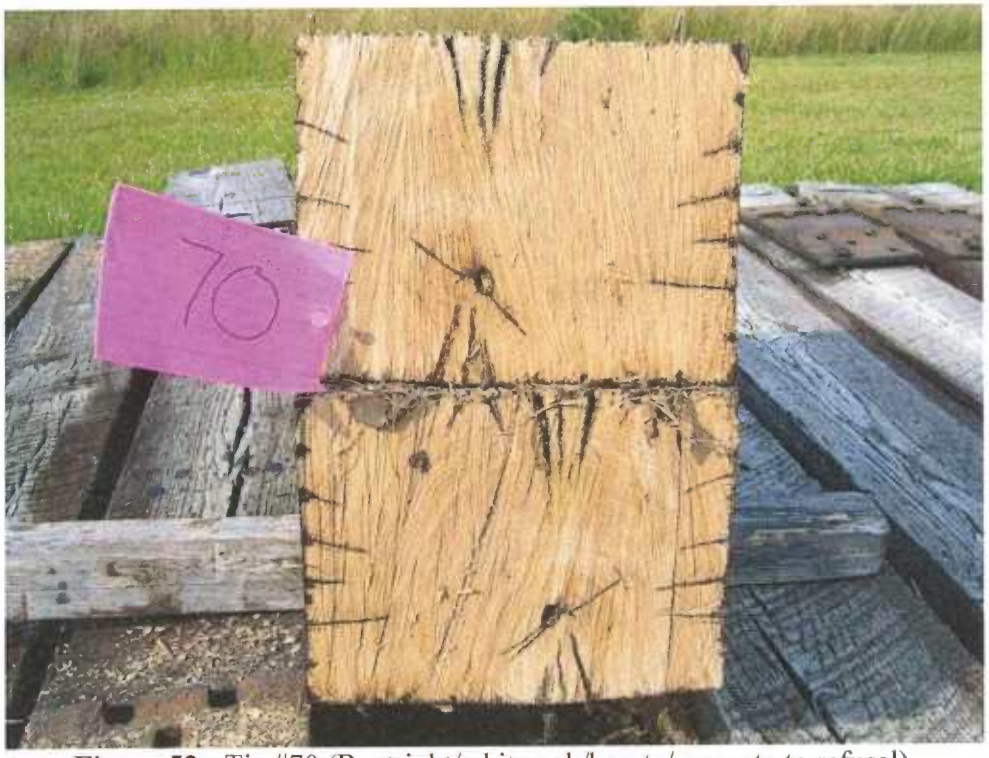

Figure 52 - Tie #70 (Boatright/white oak/borate/creosote to refusal).

Figure 53 - Tie #60 (Boatright/white oak/creosote to refusal).

Figure 54 - Tie #60 (Boatright/white oak/creosote to refusal).

Figure 55 - Tie #50 (Boatright/red oak/borate/creosote 5pcf).

Figure 56 - Tie #50 (Boatright/red oak/borate/creosote 5pcf).

Figure 57 - Tie #40 (Boatright/red oak/creosote 5pcf).

Figure 58 - Tie #40 (Boatright/red oak/creosote 5pcf).

Figure 59 - Tie #30 (Envirosafe/white oak).

Figure 60 - Tie #30 (Envirosafe/white oak).

Figure 61 - Tie #11 (Envirosafe/red oak).

Figure 62 - Tie # 1 (Envirosafe/red oak).

Figure 63 - Tie # 10 (Turada).

Figure 64 - Tie #10 (Turada).

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

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

			May-12				
			Decay	Termite	Decay	Termite	Comments
1	wo-2	Cedar	x	x	x	x	Cut 5/10
2	wo-3		8	10	x	x	Cut 5/12
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		8	10			
11	wo-21		8	9			live termites/DK top&bottom
12	ro-18		x	x	x	x	Cut 5/10
13	ro-19		8	9	x	x	Cut 5/12
14	ro-20		10	10			
15	ro-7		10	10			
16	ro-6		10	10			check
17	ro-5		10	10			alligator
18	ro-21		10	10			
19	ro-4		10	10			check
20	ro-3		10	10			check
21	ro-2		10	10			check
22	ro-1		10	10			check
23	5	Turada	x	x	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	x	x	Cut 5/12
33	SROBC-7	Seaman	x	x	x	x	Cut 5/10
34	SROBC-7		10	10	x	x	Cut 5/12
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		x	x	x	x	Cut 5/10
41	SROBC-7		10	10			
42	SWOCEF		x	x	x	x	Cut 5/10
43	SWOCEF		10	10	x	x	Cut 5/12
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		x	x	x	x	Cut 5/10
52	SWOC-5		x	x	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			check
58	SWOBCREF		10	10			
59	SWOBCREF		10	10			
60	SWOBCREF		10	10			
61	SWOBCREF		10	10	x	x	Cut 5/12
62	SROC5		x	x	x	x	Cut 5/10
63	SROC5		10	10	x	x	Cut 5/12
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	x	x	Cut 5/12
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			check
79	SROBC5		10	10			
80	SROBC5		10	10			check
81	SROBC5		10	10			
82	SWOBCREF		10	10			
83	SROBC5		10	10			
84	SROBC5		10	10			
85	wo-136	Lonza	x	x	x	x	Cut 5/10
86	wo-130		10	10	x	x	Cut 5/12
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		x	x	x	x	Cut 5/10
96	ro-104		10	10	x	x	Cut 5/12
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		x	x	x	x	Cut 5/10
106	wo-134		10	10	x	x	Cut 5/12
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			check
116	wo-181		8	10			
117	ro-114		x	x	x	x	Cut 5/10
118	ro-120		10	10			
119	ro-117		10	10	x	x	Cut 5/12
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	x	x	Cut 5/12
136	P3RO7-41		x	x	x	x	Cut 5/10
137	P3WO7-5		x	x	x	x	Cut 5/10
138	P3WO7-4		10	10	x	x	Cut 5/12
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/check	
148	Roctrl-43		9	9			check	
149	WO122	Nisus	10	10				
150	WO14		10	10				
151	WO128		10	10			check	
152	WO61		10	10			check	
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			check	
164	WO125		10	10			x	x Cut 5/12
165	WO29		10	10			x	x Cut 5/12
166	WO52		x	x	x	x	Cut 5/10	
167	WO137		10	10				
168	WO134		x	x	x	x	Cut 5/10	
169	WO44ctrl		8	10			fruiting body	
170	WO94ctrl		8	10	x	x	Cut 5/12	
171	RO6ctrl		7	9	x	x	Cut 5/12	

172	RO-51ctrl		8	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	x	x	Cut 5/12
180	RO20		x	x	x	x	Cut 5/10
181	RO37		x	x	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			check
189	RO56		10	10			
190	RO25		10	10			
191	RO43		10	10			check
192	RO10		10	10	x	x	Cut 5/12
193	RO54		x	x	x	x	Cut 5/10
194	RO38		9.5	10	x	x	Cut 5/12
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		x	x	x	x	Cut 5/10
204	WO121		9	9	x	x	Cut 5/12
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	Merichem	x	x	x	x	Cut 5/10
214	MRO8		10	10			
215	MROB8		x	x	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	x	x	Cut 5/12
224	MWO8ctrl	7	10			
225	MWO8ctrl	10	10			
226	MRO8ctrl	10	10			
227	MRO8	10	9	x	x	Cut 5/12
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	x	x	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	x	x	Cut 5/12

Row 2 runs North - South (West row)

		May-12				
		Decay	Termite	Decay	Termite	Comments
245	6	x	x	x	x	Cut 5/10
246	14	10	10			
247	79	10	10			
248	73	10	10	x	x	Cut 5/12
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	x	x	x	x	Cut 5/10
258	26	10	10			
259	53	x	x	x	x	Cut 5/10
260	59	10	10			
261	52	10	10			
262	48	10	10			
263	45	10	10			
264	67	x	x	x	x	Cut 5/10
265	51?	10	10			

266	?		10	10			
267	88		10	10			
268	46		10	10	x	x	Cut 5/12
269	12		10	10			check
270	20		10	10	x	x	Cut 5/12
271	31		10	10	x	x	Cut 5/12
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	x	x	x	x	Cut 5/10
286	RO6		x	x	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		9.5	9.5	x	x	Cut 5/12
296	6	BioP					
297	1						
298	7						
299	8						
300	9						
301	10						
302	2						
303	3						
304	4						
305	5						
306	12						control?
307	9469						
308	9459						
309	9460						
310	9471						
311	9472						
312	9470						
313	9464						
314	11						control?

315	9468						
316	9466						
317	9467						
318	roctrl	Enviro	10	10			
319	roctrl		9	10			
320	woctrl		7	10			
321	woctrl		6	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		9	9.5	x	x	Cut 5/12
331	MWO8	Meri	10	10	x	x	Cut 5/12
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		x	x	x	x	Cut 5/10/heart rot

Plot Map RTA Ties (McNeill)

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

			May-12				
			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			large check
	5	5	10	10			
	6	6	10	10			
	7	7	10	10			
	8	8	9	10			DK present upon delivery
	9	9	8	10			
	10	10	8	10	x	x	cut 5/12
Envirosaf	11	11RO	9.5	10	x	x	cut 5/12
	12	15RO	10	10			large check
	13	14RO	10	10			large check
	14	13RO	10	10			large check
	15	12RO	10	10			large check
	16	20RO	10	10			
	17	19RO	10	10			large check
	18	18RO	10	10			large check
	19	17RO	10	10			large check
	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			large check
	24	32WO	10	10			large check
	25	31WO	10	10			large check
	26	40WO	10	10			large check
	27	39WO	10	10			large check
	28	38WO	10	10			
	29	37WO	10	10			large check
	30	36WO	9.5	9.5	x	x	cut 5/12
Seaman	31	SROC5	x	x	x	x	cut 4/10
	32	SROC5	10	10			
	33	SROC5	10	10			large check
	34	SROC5	10	10			pic 09/large check
	35	SROC5	10	10			large check
	36	SROC5	10	10			
	37	SROC5	10	10			
	38	SROC5	10	10			
	39	SROC5	10	10			large check
	40	SROC5	10	10	x	x	cut 5/12
	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			large check
	46	SROBC5	10	10			
	47	SROBC5	10	10			

	48	SROBC5		10		10		
	49	SROBC5		10		10		
	50	SROBC5		10		10	x	x	cut 5/12
	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	x	x	cut 5/12
	61	SWOBCREF	x		x		x	x	cut 4/10
	62	SWOBCREF		10		10			large check
	63	SWOBCREF		10		10			large check
	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			large check
	70	SWOBCREF		10		10	x	x	cut 5/12
	71	SROBC7	x		x		x	x	cut 4/10
	72	SROBC7		10		10			large check
	73	SROBC7		10		10		
	74	SROBC7		10		10		
	75	SROBC7		10		10			large check
	76	SROBC7		10		10		
	77	SROBC7		10		10			large check
	78	SROBC7		10		10		
	79	SROBC7		10		10			large check
	80	SROBC7		10		10	x	x	cut 5/12
	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			large check
	86	204		10		10			large check
	87	201		9		10	x	x	
	88	208		10		10			large check
	89	203		10		10		
	90	205		10		10			large check
	91	207		10		10		
	92	210		10		10			large check
	93	202		9		10	x	x	cut 5/12
Nisus	94	240	x		x		x	x	cut 4/10
	95	237		10		10	x	x	cut 5/12
	96	243		10		10		
	97	238		10		10			large check
	98	245		10		10			large check

	99	239		10		10			large check
	100	247		10		10			large check
	101	241		10		10			
	102	233		10		10			large check
	103	242		10		10			large check
	104	203	x		x		x	x	cut 4/10
	105	227		10		10	x	x	cut 5/12
	106	207		10		10			large check
	107	200		10		10			large check
	108	229		10		10			
	109	206		10		10			large check
	110	216		10		10			large check
	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			large check
	116	287		10		10			large check
	117	253		10		10			large check
	118	283		10		10			large check
	119	219		10		10	x	x	cut 5/12
	120	276		10		10			large check
	121	292		10		10			
	122	269		10		10			large check
	123	289		10		10			large check
	124	225	x		x		x	x	cut 4/10
	125	204		9		10	x	x	cut 5/12
	126	234		10		10			large check
	127	215		10		10			large check
	128	231		10		10			large check
	129	213		10		10			
	130	205		10		10			large check
	131	208		10		10			large check
	132	210		9		10			split
	133	226		10		10			
	134	305	x		x		x	x	cut 4/10
	135	201		10		10			large check
	136	313		10		10			
	137	294		10		10			
	138	308		10		10			large check
	139	301		10		10			
	140	291		10		10			large check
	141	309		10		10			large check
	142	296		10		10			
	143	314		10		10			
Lonza	144	236		9		10	x	x	cut 5/12
	145	232		10		10			
	146	238		10		10			
	147	234		10		10			
	148	231		10		10			large check
	149	233		10		10			large check

	150	235		10		10		large check
	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		9.5		10	x	x	cut 5/12
	157	297		10		10		
	158	295		10		10			split
	159	267		10		10			split
	160	299		10		10		
	161	261		10		10		
	162	214		10		10		
	163	275		10		10		
Lonza	164	281		8		10			fruiting body
	165	282		8		10			fruiting body/loose plate
Nisus	166	315		10		10			large check
	167	316		10		10		
	168	249		10		10		
	169	248		8		10			pic 09/DK active

Row 2 runs East - West (middle row)

			May-12				
			Decay	Termite	Decay	Termite	Comments
Lonza	170	220	x	x	x	x	cut 4/10
	171	218	10	10			
	172	214	10	10			large check
	173	219	10	10			
	174	212	10	10			
	175	217	10	10			large check
	176	216	10	10			large check
	177	211	10	10			
	178	213	10	10			large check
	179	215	10	10	x	x	cut 5/12
	180	224	x	x	x	x	cut 4/10
	181	228	10	10			large check
	182	221	10	10			
	183	222	10	10			
	184	230	10	10			large check
	185	225	10	10			large check
	186	226	10	10			large check
	187	229	10	10			large check
	188	223	10	10			large check
	189	227	8	10	x	x	cut 5/12
Cedarcide	190	19W	x	x	x	x	cut 4/10
	191	20W	10	10			large check
	192	15W	10	10			split
	193	16WC	10	10			large check
	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	9	10	x	x	cut 5/12
	199	11W	9	10	x	x	cut 5/12
	200	12W	10	10			split
	201	13W	10	10			split
	202	14W	10	10			split
	203	11R	10	10			cross grain/shake
	204	12R	10	10			split
	205	13R	10	10			split
	206	14R	10	10			
	207	15R	10	10			split
	208	16R	9	10			split
	209	17R	10	10			alligator
	210	22R	10	10			large check
	211	22W	10	10			split
Merichem	212	MWOB8	x	x	x	x	cut 4/10
	213	MWOB8	10	10			large check
	214	MWOB8	10	10			large check
	215	MWOB8	10	10			
	216	MWOB8	10	10			large check

	217	MWOB8		10		10		large check
	218	MWOB8		10		10	x	x	cut 5/12
	219	MRO8		10		10	x	x	cut 5/12
	220	MRO8	x		x		x	x	cut 4/10
	221	MRO8		10		10			large check
	222	MRO8		10		10			pic 09
	223	MRO8		9.5		10			large check
	224	MRO8		10		10			
	225	MRO8		10		10			large check
	226	MRO8		10		10			split
	227	MWOB8		10		10			
	228	MWOB8		10		10			large check
	229	MRO8		10		10			
	230	MRO8		10		10			large check
	231	MWO8		10		10			
	232	MWO8	x		x		x	x	cut 4/10
	233	MWO8		10		10			
	234	MWO8		10		10			large check
	235	MWO8		10		10			
	236	MWO8		10		10			
	237	MWO8		10		10			
	238	MWO8		10		10			large check
	239	MWO8		10		10			large check
	240	MWO8		10		10			
	241	MROB8	x		x		x	x	cut 4/10
	242	MROB8		10		10			split
	243	MROB8		10		10	x	x	cut 5/12
	244	MWO8		10		10	x	x	cut 5/12
	245	MROB8		10		10			large check
	246	MROB8		10		10			
	247	MROB8		10		10			large check
	248	MROB8		10		10			large check
	249	MROB8		10		10			large check
	250	MROB8		10		9			spike kill
	251	MROB8		10		9			pic 09/DK
	252	MROCONT		10		10			
BioPres	253	MWOCONT		10		10			pic 09/DK top side
	254	MWOCONT		10		10			
	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	x	x	cut 5/12
	271	14	10	10			large check
	272	12	10	10			large check
	273	16	10	10			
	274	15	10	10			large check
	275	18	10	10			
	276	19	10	10			
	277	10	x	x	x	x	cut 4/10
	278	30	x	x	x	x	cut 4/10
	279	33	10	10			large check
	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			large check
	286	13	10	10			large check
	287	31	10	10	x	x	cut 5/12
	288	9	10	10			large check
	289	25	10	10			
	290	22	9	10			
	291	44	10	10			large check
Koppers	292	11	10	10	x	x	cut 5/12
	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			large check
	300	47	x	x	x	x	cut 4/10
	301	44	10	10			large check
	302	41	10	10			
	303	55	10	10			large check
	304	60	10	10			
	305	43	10	10	x	x	cut 5/12
	306	51	10	10			
	307	?	10	10			
	308	76	10	10			large check
	309	65	10	10			
	310	61	x	x	x	x	cut 4/10
	311	70	10	10			
	312	72	10	10			
	313	71	10	10			
	314	64	10	10			
	315	2?	10	10			large check
	316	?	10	10			
	317	34	x	x	x	x	cut 4/10
	318	38	10	10	x	x	cut 5/12
	319	?	10	10			
	320	29	10	10			

	321	?	10	10			
	322	21?	10	10			
	323	31	10	10			
	324	35	10	10			
	325	23	10	10			large check
	326	66	10	10	x	x	cut 5/12
	327	67	10	10			
	328	42	10	10			
	329	49	10	10			
	330	7	10	10			
	331	8	10	10			
	332	WO	7	10	x	x	cut 5/12
	333	RO	8	9	x	x	FST Alate wings found/cut 5/12
	334	RO	6	9.5			pic 09/DK/large check
Enviro	335	ctrl	8	10			large check
	336	ctrl	10	10			large check

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Applicable Standards:
None: