



MISSISSIPPI STATE
UNIVERSITY[™]

FOREST AND WILDLIFE RESEARCH CENTER

DEPARTMENT OF SUSTAINABLE BIOPRODUCTS

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

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This report covers the 10th 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 each treatment group, at both sites, were selected to be examined on all four surfaces and cross-cut for interior evaluation.

General Observations:

No unexpected results were found. Biological activity is progressing in the untreated ties as expected indicating virulent fungi activity and active termites at both sites. As noted in previous reports, Site 2 ties appeared to be a drier probably due to more direct sunlight exposure allowing for more checking. Formosan termite activity at this site continues to increase.

Ties at Site 1 are definitely more moist/wet due to the increased shade and leaf litter at this site and thus more signs of decay were noted at this site.

General photographs documenting the condition of the sites can be seen below (Figures A &B).

The tie number denotes the position of exposure as recorded on the plot-maps and inspection forms. Copies of the inspection forms and photographs of the segmented ties are included in the appendix.



Figure A - Site 1 (MSU Dorman Lake Test Site) at the time of inspection.



Figure B - Site 2 (MSU Formosan Termite Research Facility) at the time of inspection.

APPENDIX:

Site 1 – Dorman Lake Test Site



Figure 1 - Tie #3 white oak/borate/creosote 6# (Koppers).



Figure 2 - Tie #3 white oak/borate/creosote 6# (Koppers).



Figure 3 - Tie #13 red oak/borate/creosote 7lbs (Koppers).



Figure 4 - Tie #13 red oak/borate/creosote 7lbs (Koppers).



Figure 5 – Tie #23 untreated red oak with heavy decay and moderate termite damage.



Figure 6 – Tie #23 untreated red oak with extensive decay and moderate termite damage.



Figure 7 - Tie #33 red oak/creosote 7lbs (Koppers).



Figure 8 - Tie #33 red oak/creosote 7lbs (Koppers).



Figure 9 - Tie #43 white oak/borate/creosote 7lbs (Koppers).



Figure 10 - Tie #43 white oak/borate/creosote 7lbs (Koppers).



Figure 11 - Tie #53 red oak/borate/creosote 6lbs (Koppers).



Figure 12 - Tie #53 red oak/borate/creosote 6lbs (Koppers).



Figure 13 - Tie #63 red oak/1 step creosote borate with trace decay (Stella Jones).



Figure 14 - Tie #63 red oak/1 step creosote borate (Stella Jones).



Figure 15 - Tie #73 white oak/creosote (Stella Jones).



Figure 16 - Tie #73 white oak/creosote (Stella Jones).



Figure 17 - Tie #83 white oak/one step creosote borate (Stella Jones).



Figure 18 - Tie #83 white oak/one step creosote borate (Stella Jones).



Figure 19 – Tie # 93 untreated white oak width moderate decay and termite damage.



Figure 20 – Tie #93 untreated white oak with obvious decay visible.



Figure 21 – Tie #103 untreated Douglas fir which failed due to decay.



Figure 22 - Tie #103 severely decayed untreated Douglas fir.



Figure 23 – Tie #113 Douglas fir/DOT/ACZA (Lonza).



Figure 24 - Tie #113 Douglas fir/DOT/ACZA (Lonza).



Figure 25 – Tie #123 red oak/DOT/ACZA/oil (Lonza).



Figure 26 - Tie #123 red oak/DOT/ACZA/oil (Lonza).



Figure 27 – Tie #133 red oak/ACZA/oil (Lonza).



Figure 28 - Tie #133 red oak/ACZA/oil (Lonza).



Figure 29 – Tie #138 white oak/ACZA/oil (Lonza).



Figure 30 - Tie #138 white oak/ACZA/oil (Lonza).



Figure 31 – Tie #143 white oak/DOT/ACZA/oil (Lonza).



Figure 32 - Tie #143 white oak/DOT/ACZA/oil (Lonza).



Figure 33 - Tie # 153 red oak/DOT/ACZA/oil (Lonza).



Figure 34 - Tie # 153 red oak/DOT/ACZA/oil (Lonza).



Figure 35 – Tie #163 red oak/ACZA (Lonza).



Figure 36 - Tie #163 red oak/ACZA (Lonza).



Figure 37 – Tie #173 white oak/ACZA (Lonza).



Figure 38 - Tie #173 white oak/ACZA (Lonza).



Figure 39 – Tie #183 Douglas fir/P2 creosote (Lonza).



Figure 40 - Tie #183 Douglas fir/P2 creosote (Lonza).



Figure 41 – Tie #193 white oak/ACZA/ET (Lonza).



Figure 42- Tie #193 white oak/ACZA/ET (Lonza).



Figure 43 – Tie #203 Douglas fir/ACZA/DOT/ET (Lonza).



Figure 44 - Tie #203 Douglas fir/ACZA/DOT/ET (Lonza).



Figure 45 – Tie #213 red oak/ACZA/ET (Lonza).



Figure 46 – Tie #213 red oak/ACZA/ET (Lonza).



Figure 47 – Tie #223 white oak/ACZA/DOT (Lonza).



Figure 48 - Tie #223 white oak/ACZA/DOT (Lonza).



Figure 49 – Tie # 233 white oak/DOT/ACZA/ET (Lonza).



Figure 50 - Tie # 233 white oak/DOT/ACZA/ET (Lonza).



Figure 51 – Tie #243 red oak/ACZA/DOT/ET (Lonza).



Figure 52 - Tie #243 red oak/ACZA/DOT/ET (Lonza).

Site #2 McNeill Site



Figure 53 – Tie #4 white oak/creosote (Stella Jones).



Figure 54 - Tie #4 white oak/creosote (Stella Jones).



Figure 55 – Tie #13 red oak/one step creosote borate (Stella jones).



Figure 56 - Tie #13 red oak/one step creosote borate with decay in cross-section (Stella jones).



Figure 57 – Tie #23 white oak/one step creosote borate (Stella Jones).



Figure 58 - Tie #23 white oak/one step creosote borate (Stella Jones).



Figure 59 – Tie #33 untreated white oak with decay and termite damage.



Figure 60 - Tie #33 untreated white oak with decay visible in cross-section.



Figure 61 – Tie #43 white oak/DOT/ACZA/ET (Lonza).



Figure 62 - Tie #43 white oak/DOT/ACZA/ET (Lonza).



Figure 63 – Tie #53 red oak/DOT/ACZA/ET (Lonza).



Figure 64 - Tie #53 red oak/DOT/ACZA/ET (Lonza).



Figure 65 – Tie #63 Douglas fir/DOT/ACZA/ET (Lonza).



Figure 66 - Tie #63 Douglas fir/DOT/ACZA/ET (Lonza).



Figure 67 – Tie #73 white oak/ACZA/ET (Lonza).



Figure 68 - Tie #73 white oak/ACZA/ET (Lonza).



Figure 69 – Tie #83 red oak/ACZA/ET (Lonza).



Figure 70 - Tie #83 red oak/ACZA/ET (Lonza).



Figure 71 – Tie #93 Douglas fir/DOT/ACZA (Lonza).



Figure 72 - Tie #93 Douglas fir/DOT/ACZA (Lonza).



Figure 73 – Tie #103 untreated Douglas fir with decay and termite damage.



Figure 74 - Tie #102 untreated Douglas fir with damage seen in the cross-section.



Figure 75 – Tie #113 white oak/ACZA (Lonza).



Figure 76 - Tie #113 white oak/ACZA (Lonza).



Figure 77 – Tie #123 red oak/ACZA (Lonza).



Figure 78 – Tie #123 red oak/ACZA (Lonza).



Figure 79 – Tie #133 white oak/ACZA/DOT (Lonza).



Figure 80 - Tie #133 white oak/ACZA/DOT (Lonza).



Figure 81 – Tie #143 red oak/DOT/ACZA/oil (Lonza).



Figure 82 – Tie #143 red oak/DOT/ACZA/oil (Lonza).



Figure 83 – Tie #153 red oak/ACZA/oil (Lonza).



Figure 84 - Tie #153 red oak/ACZA/oil (Lonza).



Figure 85 – Tie #158 white oak/ACZA/oil (Lonza).



Figure 86 – Tie #158 white oak ACZA/oil (Lonza).



Figure 87 – Tie #163 red oak/DOT/ACZA/oil (Lonza).



Figure 88 - Tie #163 red oak/DOT/ACZA/oil (Lonza).



Figure 89 – Tie #173 white oak/DOT/ACZA/oil (Lonza).



Figure 90 – Tie #173 white oak/DOT/ACZA/oil (Lonza).



Figure 91 – Tie #183 Douglas fir/P2 (Lonza).



Figure 92 - Tie #183 Douglas fir/P2 (Lonza).



Figure 93 – Tie #193 white oak/borate/creosote/6lbs (Koppers).



Figure 94 - Tie #193 white oak/borate/creosote 6lbs (Koppers).



Figure 95 – Tie #203 white oak/borate/creosote 7lbs (Koppers).



Figure 96 - Tie #203 white oak/borate/creosote 7lbs (Koppers).



Figure 97 – Tie #213 red oak/borate/creosote 7lbs (Koppers).



Figure 98 - Tie #213 red oak/borate/creosote 7lbs (Koppers).



Figure 99 – Tie #222 red oak/borate/creosote 6lbs (Koppers).



Figure 100 - Tie #223 red oak/borate/creosote 6lbs (Koppers).



Figure 101 – Tie #233 red oak/creosote 7lbs (Koppers).



Figure 102 - Tie #233 red oak/creosote 7lbs (Koppers).



Figure 103 – Tie #246 untreated red oak with failed due to decay and Formosan termites.

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Applicable Standards:
None: