Draft: Long Trade Lake, Polk County
Endothall Concentration Monitoring Summary, 2013

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Long Trade Lake has an area of 150 acres, a maximum depth of 13 ft, and a mean depth of 8 ft. On 6 June 2013, 16 areas totaling 9.3 acres, and averaging 0.58 acres (Figure 1) were treated with a liquid formulation of endothall (Aquathol K) to control curly-leaf pondweed (*Potamogeton crispus*). The endothall was applied at a target concentration of 2000 ug/L (2 mg/L) active ingredient (ai). Endothall application rates are specified as active ingredient (ai) in the product label, while endothall chemical analysis concentrations are specified as acid equivalent (ae). A concentration of 2000 ug/L ai is equal to 1419 ug/L ae. A lake wide endothall concentration was calculate to be 18 ug/L ae assuming complete lake wide dissipation and mixing.

Water sample sites were established in five treatment areas and 3 untreated areas to monitor endothall concentrations (Figure 2). Water samples were collected from each sample site using an integrated water sample which collects water from most of the water column. Water samples were collected at intervals of approximately 0.125, 1, 2, 3, 5, 7, 10, 14, 21, 28, and 35 days after treatment (DAT). Based on endothall concentration data collected previously in WI, exposure times were expected to very short in the actual treatment areas because of the very small size. Based on information available prior to the treatment, the sum of all the treatments in the lake had potential to merge into a low concentration lake wide treatment. Sample intervals were selected based on the potential for a whole lake treatment. Samples were taken to shore after completion of each sample interval, and 3 drops of muriatic acid were added to each sample bottle to fix the endothall and prevent degradation. Samples were then stored in a refrigerator, until shipped to the US Army Engineer Research and Development Center (ERDC) laboratory in Gainesville, FL for analysis of endothall.

Endothall concentrations in the treated areas ranged from less than the detection limit to 77 ug/L ae at 3 HAT indicating the rapid dissipation in small treatment areas that have been observed previously in other lakes (Figure 3). The mean lake wide concentration was 18 ug/L ae at 24 HAT compared to the calculated mean lake wide concentration of 26 ug/L ae and the detection limit of 10 ug/L ae (Figure 4 and Figure 5).

Figure 1. Long Trade Lake Endothall Treatment Areas 2013 (SEH)

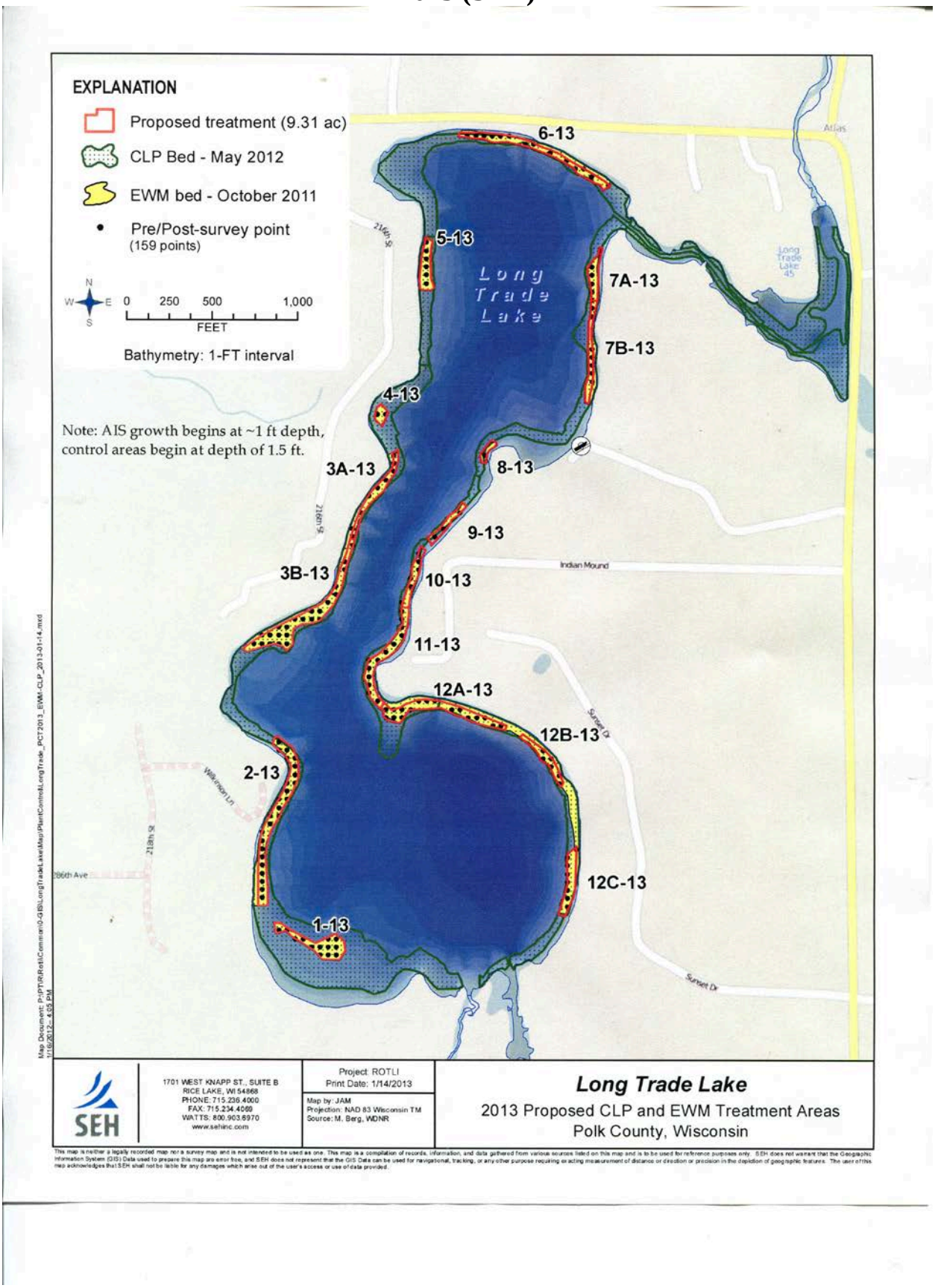


Figure 2. Long Trade Lake Endothall Sample Locations 2013

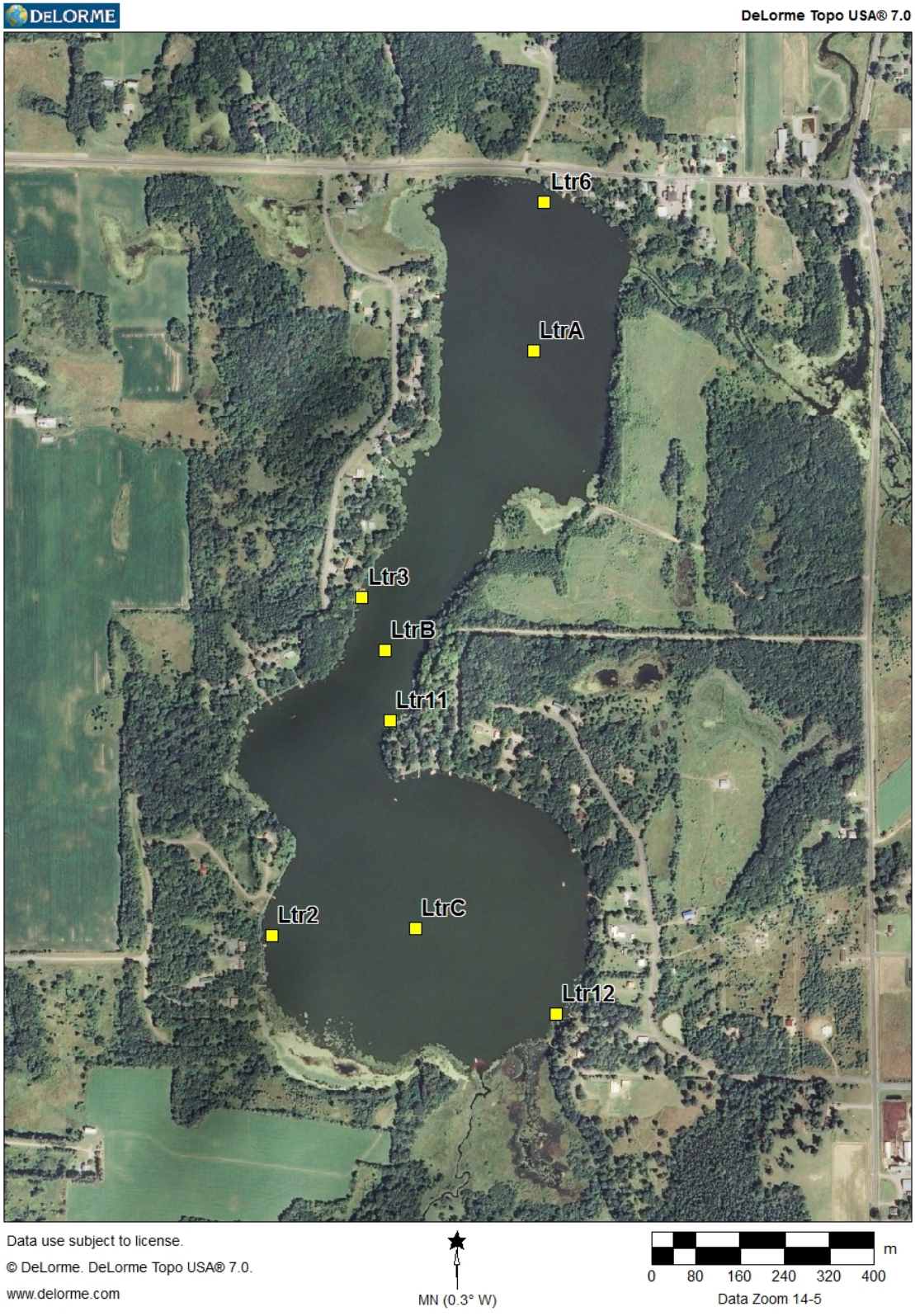


Figure 3

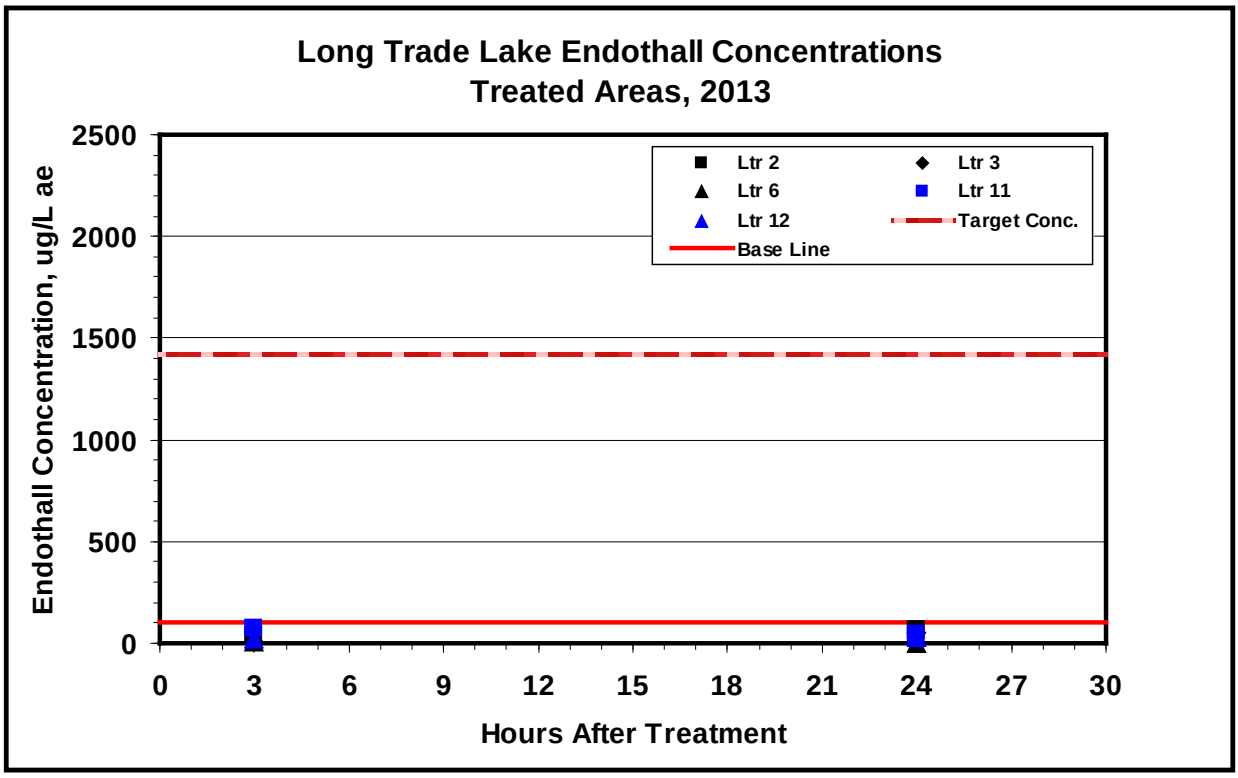


Figure 4

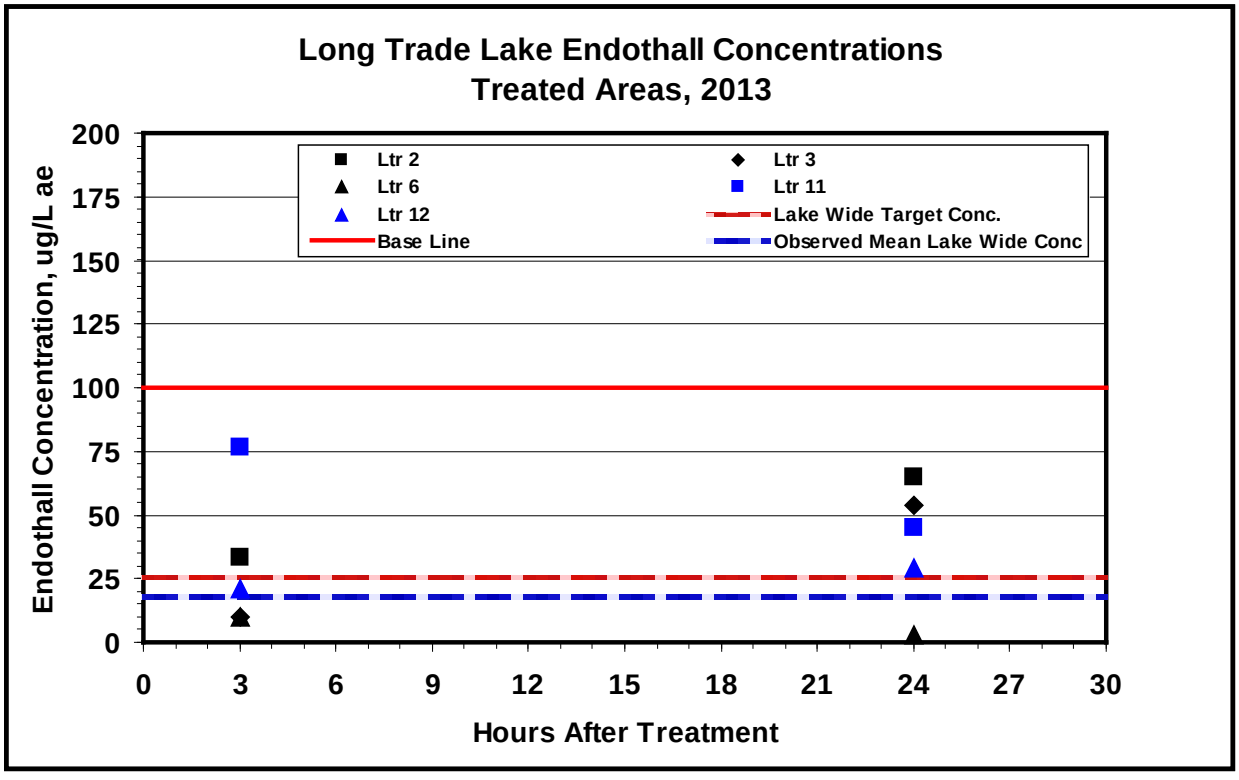
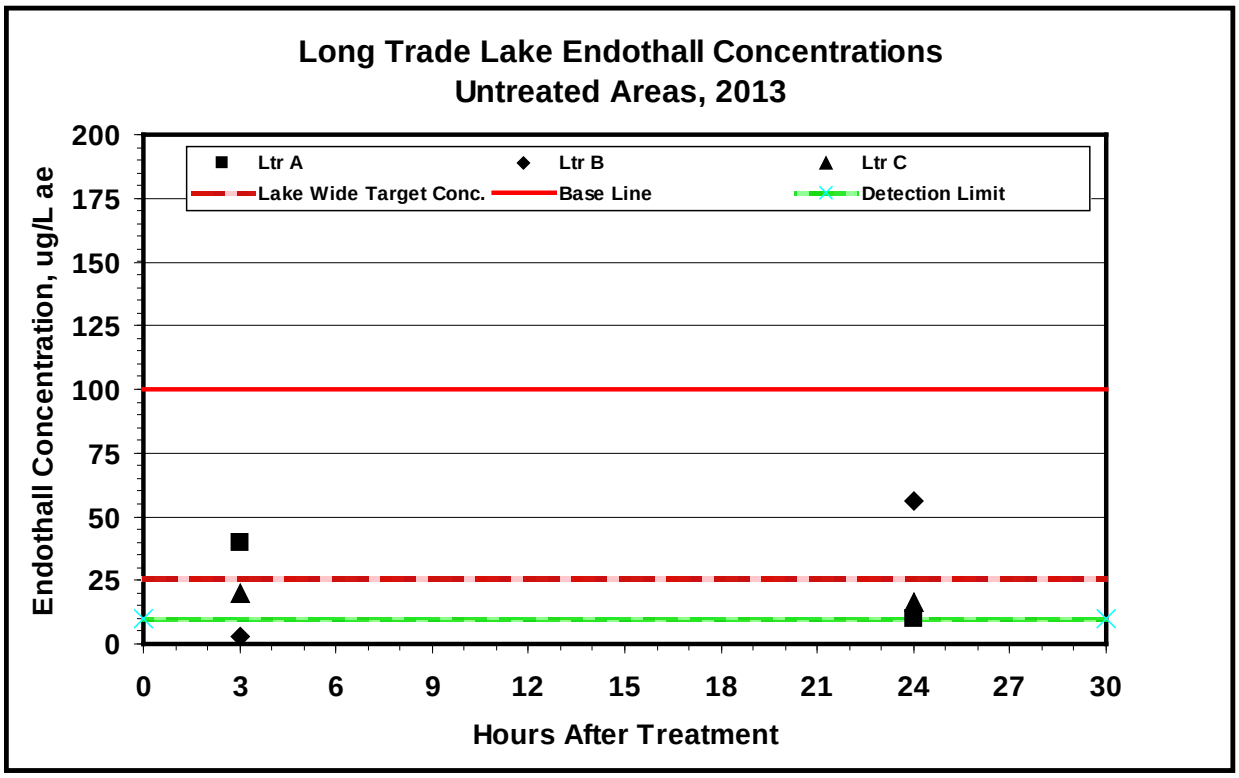


Figure 5


Long Trade Lake Endothall Concentrations
Untreated Areas, 2013
Endothall Concentration, ug/L ae
200
175
150
125
100
75
50
25
0
Ltr A
Ltr B
Ltr C
Lake Wide Target Conc.
Base Line
Detection Limit
0
3
6
9
12
15
18
21
24
27
30
Hours After Treatment