PRESERVATIVE TREATMENTS FOR TIMBER PILING
Two-Year Inspection
Third Progress Report

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In May 1963 six timber pile clusters variously treated with creosote, pentachlorophenol, Boliden salts, and Osmosalts, were installed in the Pine River near the M 29 bridge in St. Clair for performance comparison as requested by the Committee for the Investigation of New Materials. Installation was described in Research Report R-400 (November 1962), and results of the first annual inspection were given in Research Report R-438 (September 1963).

The pile clusters were inspected again on July 20, 1964, approximately two years after installation. This report covers their condition at that time.

It was found that the water level had dropped about 2 ft during the intervening two years. A rather thick coating of green algae-like plant growth was seen to be adhering to all piles below the water level. All piles were sound and in good condition, but the beginning of surface deterioration could be observed in some just above the water line. This deterioration was by no means serious, as the wood was sound and hard underneath. It was not widespread, and it was not obvious--one had to look for it. But here and there the first stages of a possible differential effectiveness of the various treatments could be found in areas where the surface layer appeared to be weaker than the underlying structure to a depth of 1 to 2 mm. This was confirmed by scraping with the fingernails.

Pile cluster 1, treated with creosote, showed no visible deterioration. Two small abrasions were found, probably caused by impact from marine craft. A very moderate leaching out of the creosote was apparent, extending about 1 ft above the water line.

Pile cluster 2, also treated with creosote, had much the same appearance. There was some bleeding of the southernmost pile at the water line. No deterioration or damage was evident, but there was a very small amount of leaching of the other two piles at the water line.

Pile cluster 3, treated with Osmosalts, was generally light green in color. There was a considerable amount of leaching in this cluster, especially at the water line and extending up about 2 ft. Beginning of surface deterioration was found in these piles in the leached areas. Some rusting was noted of the metal parts of the junction box on top.

Pile cluster 4, treated with pentachlorophenol, showed leaching of the piles above the chain as well as a small amount at the water level. No deterioration or damage could be found.

Pile cluster 5, treated with Boliden salts, had fairly widespread surface deterioration near the water line. This cluster showed a considerable amount of abrasion of the kind seen in cluster 1.

Pile cluster 6, also treated with Boliden salts, was generally pale green in color. These piles showed beginning surface deterioration at and above the water line, with leaching extending 2 ft above water. No abrasion was seen, but there was a 5-in. diam brown spot 1 ft above the water line on the south side of the south-west pile. This spot showed surface deterioration to about 3mm, with sound wood beneath.

The accompanying photographs show the condition of all six clusters at the age of two years. They should be compared with corresponding photographs taken at the time of installation and contained in the 1962 report. When making this comparison, it should be kept in mind that the 1964 photographs were taken at a lower elevation than that at which the 1962 photographs were taken, due to the drop in water level, and this has resulted in an increased angle of view.

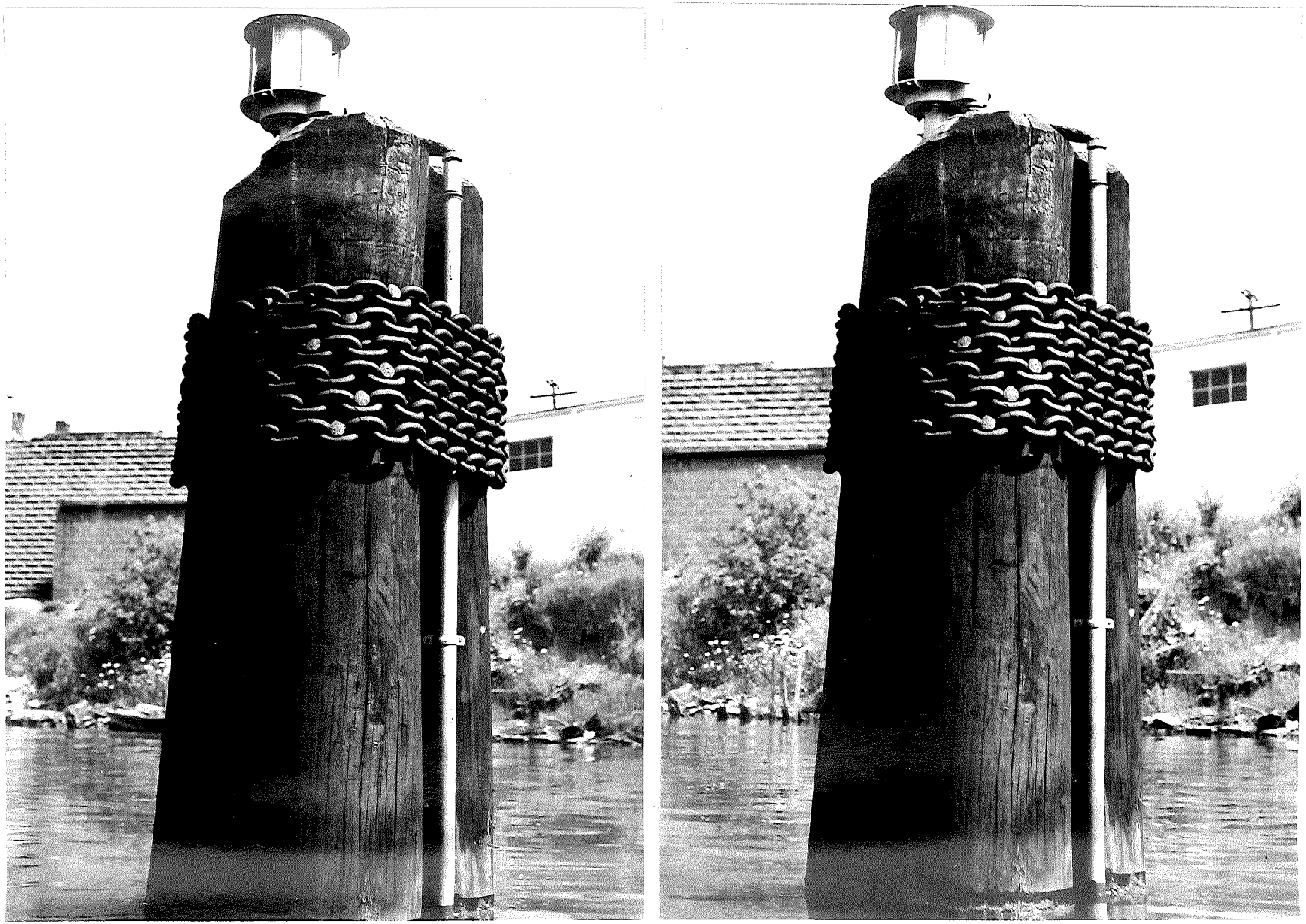

Figure 1. Pile cluster 1, treated with creosote. Slightly different views. No visible deterioration after two years. Moderate leaching near water line.

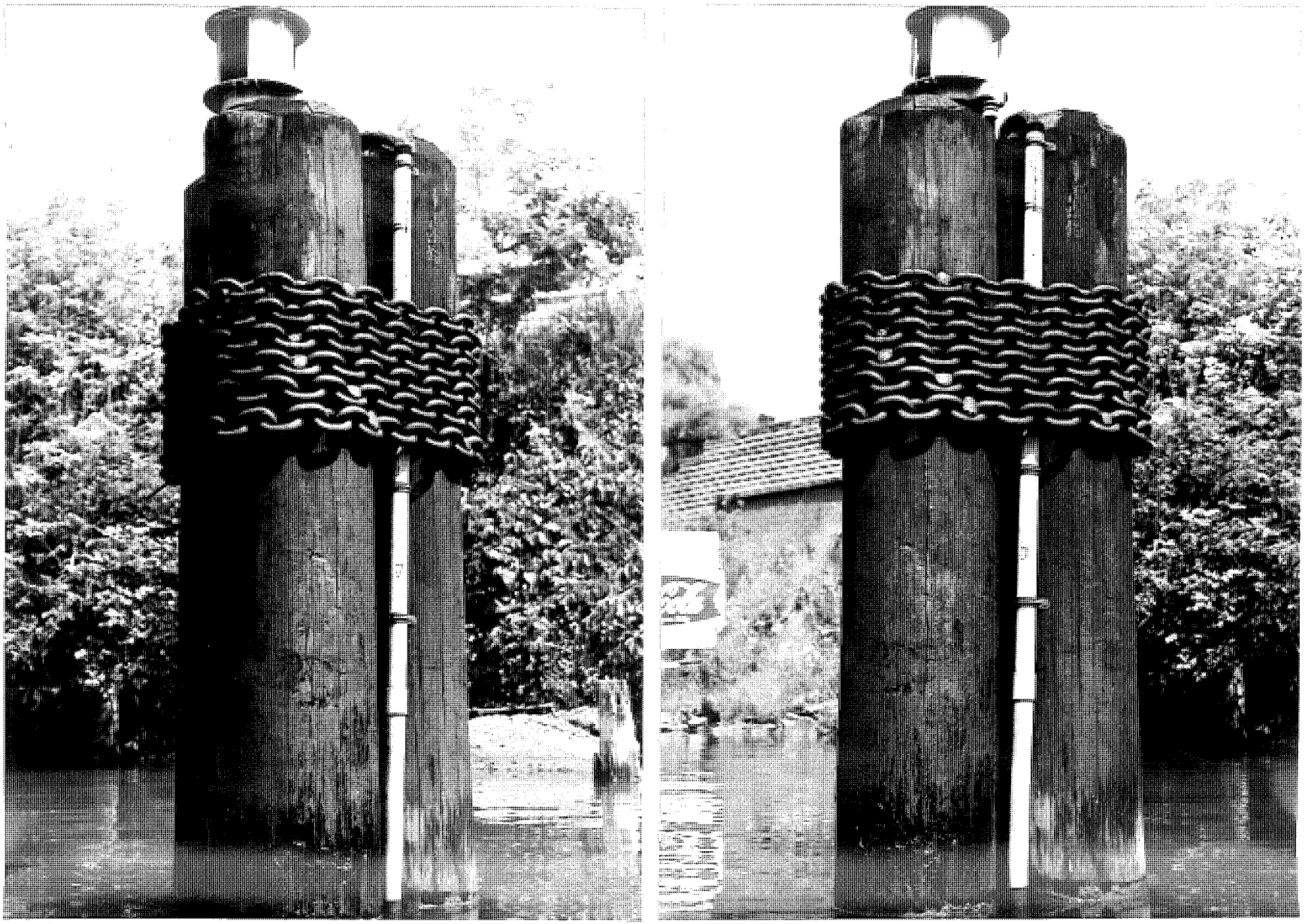

Figure 2. Pile cluster 2, treated with creosote. Slightly different views. No evident deterioration after two years. Some bleeding toward south near water line on south (left) pile. Very slight leaching near water line on right pile.

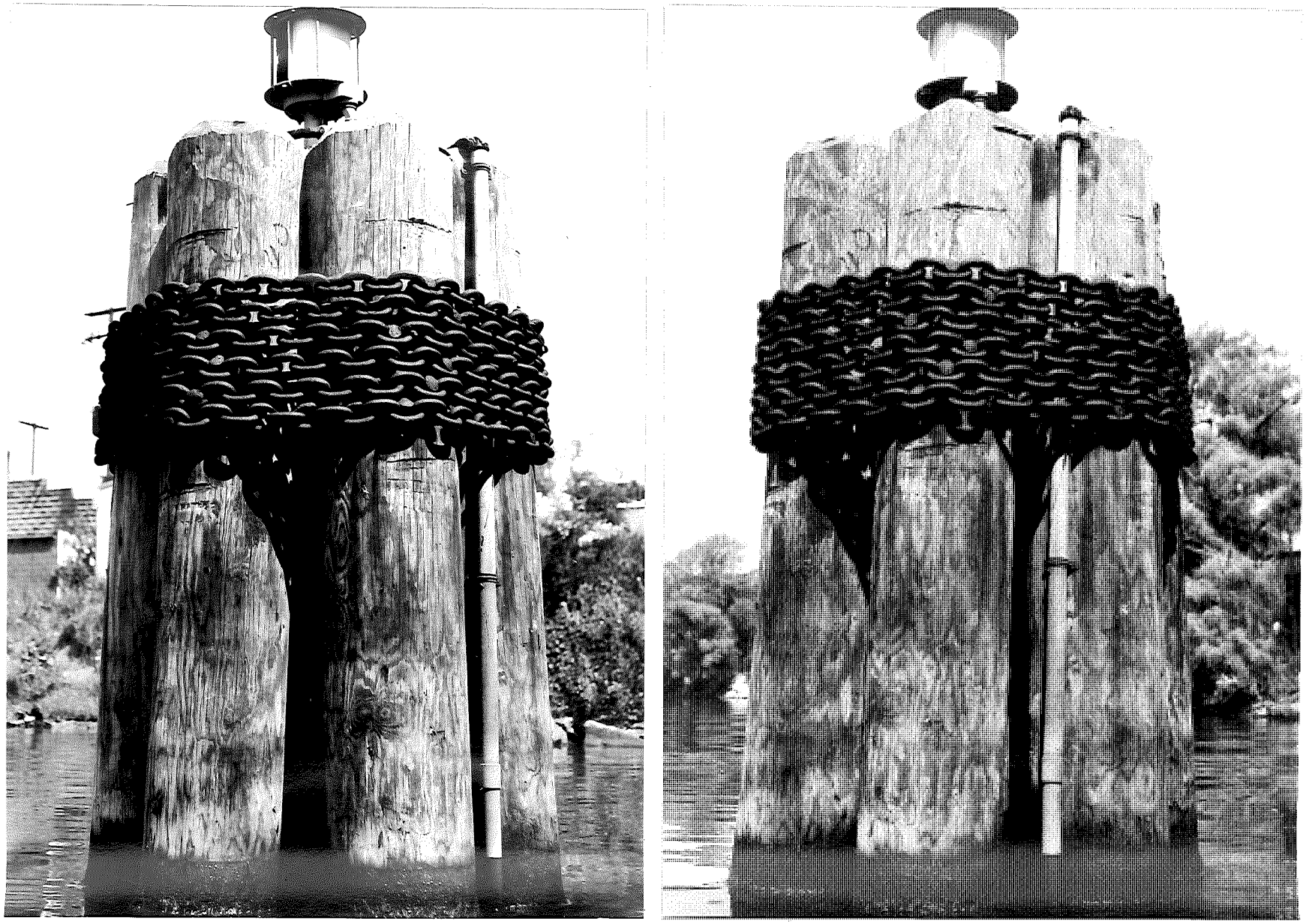

Figure 3. Pile cluster 3, treated with Osmosalts. Considerable amount of leaching after two years. Beginning slight surface deterioration in the leached areas (see text).

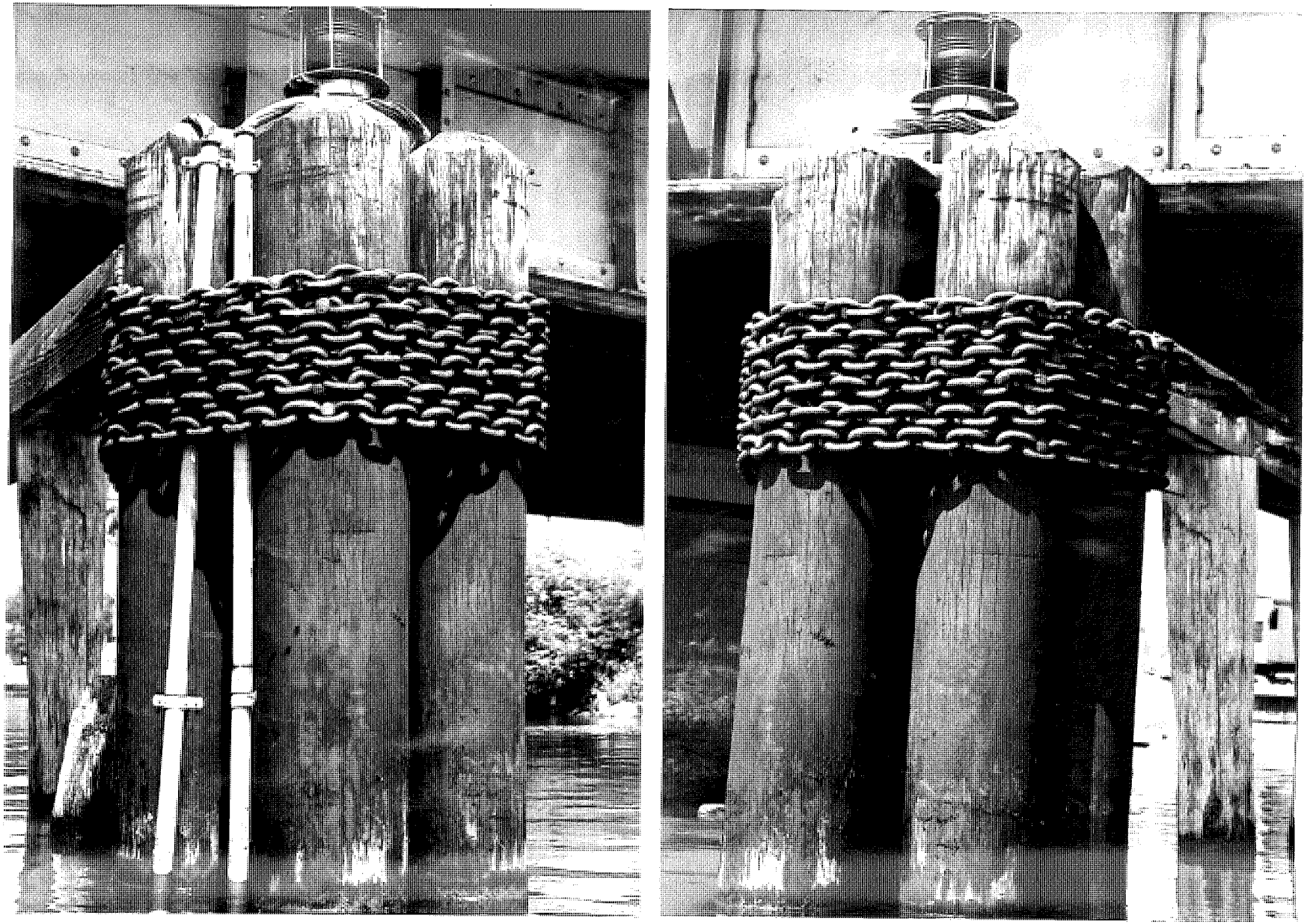

Figure 4. Pile cluster 4, treated with pentachlorophenol. Shows considerable leaching above the chain as well as near water line after two years. No evident deterioration.

Figure 5. Pile cluster 5, treated with Boliden salts. Considerable leaching above water line with widespread surface deterioration after two years. See text.

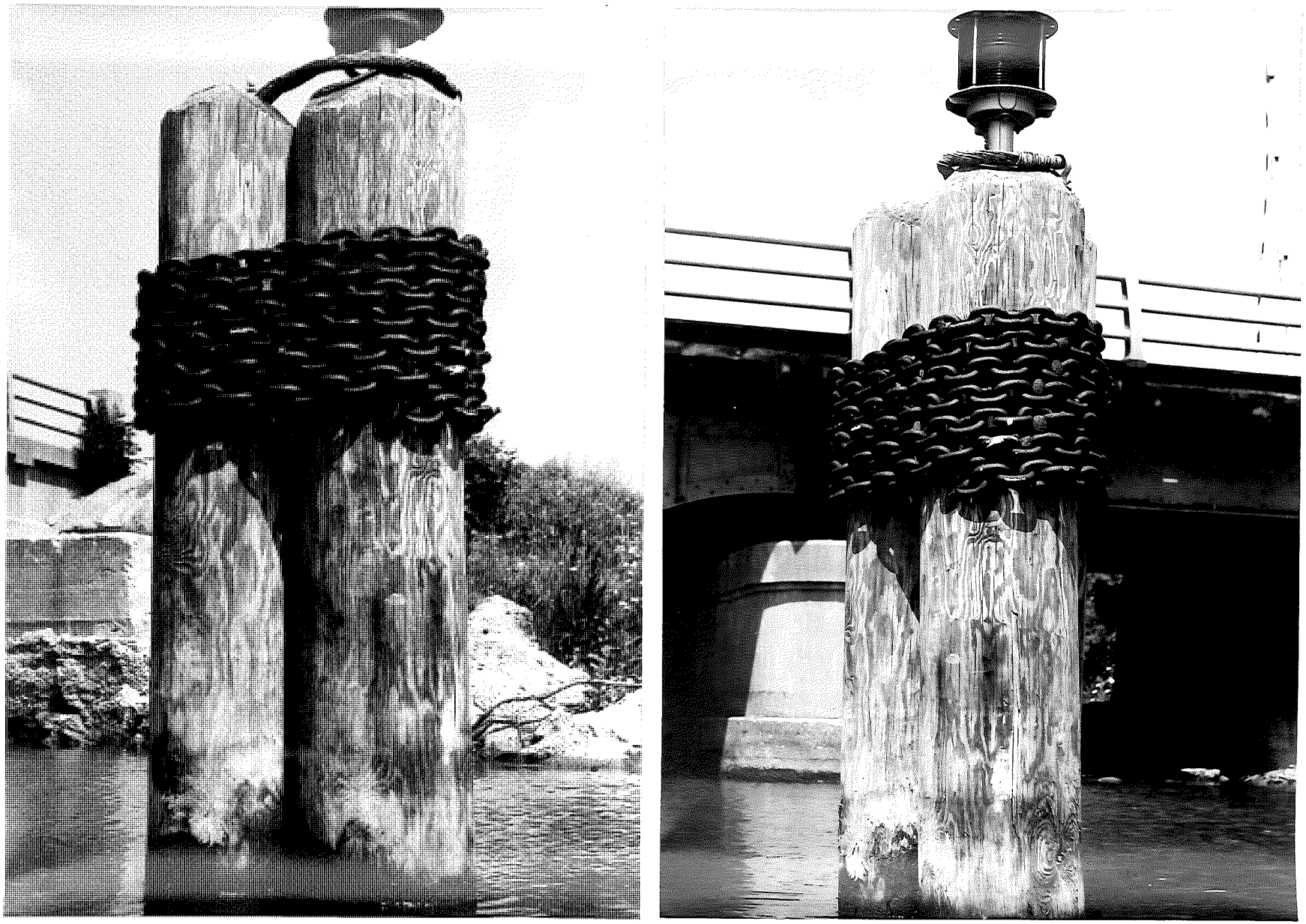

Figure 6. Pile cluster 6, treated with Boliden salts. Beginning surface deterioration at and above water line after two years with considerable leaching. Brown spot on southwest pile (see text).