

A STUDY IN SERVICE LIFE

Marshall County, IA

INTRODUCTION

Throughout NCSPA's long history, numerous corrugated steel pipe (CSP) installations have been the subject of routine critical evaluation to establish accurate, predictable service life guidelines. This study of an aluminized type 2 (ALT2) installation in Marshall County, IA, was conducted with a coupon sampling at the 50-year mark to examine soil resistivity, water resistivity and overall condition of the pipe to determine the remaining projected service life.

CONCLUSION

Based on conservative pit penetration extrapolations from the Marshall County study, the projected service life of 16 gage ALT2 CSP **will exceed 100 years** in this environment.

SITE AND LABORATORY SUMMARIES

Site Location

Marshall County, IA, Site 3: 3.2 miles north of State Center, IA under S52 Road

Sampling

Six soils from A, B and C positions on both ends; no water sample; 1 ALT2 trepan

Parameters

Soil Resistivity: 1270 ohm.cm; pH 6.6; chlorides 10 ppm; sulfates 27 ppm

Water Resistivity: No water was available at this site

CSP Condition Observations

Surroundings on both ends were very densely vegetated with tall thick grasses covering the entire slope from the road to the crops. 36" diameter ALT2/galvanized tandem in good condition; visually round – no apparent ovality or buckling. ALT2 in very good condition. Sampled at the 6 o'clock position.

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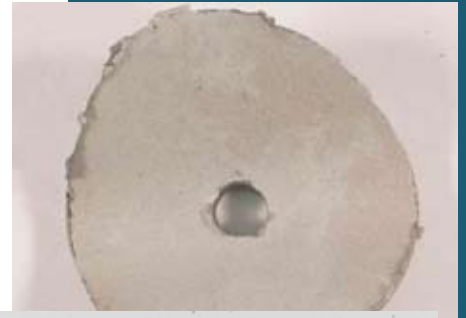
ALT2 End

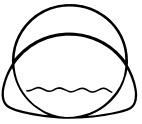


ALT2 Water Side



ALT2 Soil Side





Trepan Evaluation

ALT2 coupons were bead blasted to remove loose oxides and images were recorded of the remaining surface (see images on right). Coupons showed no pitting on either soil or water sides.

Micrometer readings were taken after bead blasting using a ball micrometer (general thickness) and a point micrometer (deepest pit depth).

Starting thickness: 00.115"

Micrometer results: Ball: 0.114", 0.115", 0.115" **Point:** 0.112" (0.003" deepest pit)

All site and lab information and testing provided by AK Steel.
(Type 2 Aluminized at this site was produced by what is now AK Steel Corp.)



ALT2 End



ALT2 Water Side



ALT2 Soil Side

