

## A STUDY IN SERVICE LIFE

El Dorado County, CA

### 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 El Dorado County, CA, 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 El Dorado County study, the projected service life of 16 gage ALT2 CSP **will exceed 100 years** in this environment.

### SITE AND LABORATORY SUMMARIES

#### Site Location

El Dorado County, CA, Site 19: Pipe is 6.3 miles east of Georgetown, CA, having a culvert marker "6.31"

#### Sampling

Two soil samples were procured from the A and B positions on the inlet end; no water sample; 1 ALT2 trepan

#### Parameters

**Soil Resistivity:** 6430 ohm.cm; pH 6.6; chlorides 20 ppm; sulfates 24 ppm

**Water Sample:** No water was available at this site

#### CSP Condition Observations

18" diameter ALT2 on the inlet end; galvanized outlet was not accessible. Currently dry – no recent rainfall. Pipe is silted to approximately half full. It has a low overburden and some ovality is evident in the middle of the road. Aluminized pipe end is only 2' from the edge of the pavement; not much vegetation nearby. ALT2 is in very good condition; previous hole saw cuts are intact with no appreciable "creep".

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Aluminized End

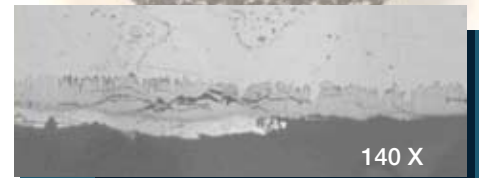


ALT2 Water Side



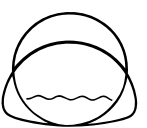
140 X

ALT2 Soil Side



140 X





### Trepan Evaluation

Coupons were bead blasted to remove loose oxides and images were recorded of the remaining surface (see images on right).

Water side is smooth; there is some minimal pitting present on the soil side. The iron-aluminum alloy layer still remains on most of the soil side.

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

**Starting Thickness:** 0.068"

**Micrometer Results – Ball:** 0.068", 0.068", 0.067" **Point:** 0.061" (0.007" deep)

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.)



Aluminized End



ALT2 Water Side



ALT2 Soil Side

