

Curiosity That Moved the CAT

By: *Matthew Arps*

It was an experience unlike any other. Our team was called out to California to do a subsurface investigation on the anchors of a guyed cellular tower. An anchor failure had occurred six months prior, and the tower owner deemed it necessary to inspect his other towers in the region.

During our investigation we came across an anchor that appeared to have severe corrosion. It was determined that it had a Corrosion Severity Factor of 6 on a 1 to 6 scale, which warranted further excavation down to the concrete block.

As a standard precaution during any subsurface investigation, temporary anchorage was put in place. With a CAT dozer on hand, which served as an excellent mobile temporary anchor, coupled with some heavy duty chain, the corroded anchor was secure.

Digging further revealed two anchor rods that had corroded down to approximately 1/4" in diameter. Their original size at the fan plate was 1 1/4", a significant loss. Suddenly, a loud "POP" was heard, and everything sprang into action. The immediate change in tension pulled the tower away from the broken anchor...the tower swayed, the guy wires jerked, and the chain on our CAT became taut!

The springing force was so great it moved our CAT dozer (weighing in at 18,000 lbs.), approximately 4 inches. Without this temporary anchorage, the tower would have toppled to the ground.

Over the past couple years investigations have revealed that up to 15% of the towers we have inspected have had structurally damaged anchors that

required replacement. A very high percentage of others have had significant corrosion but didn't warrant replacement. ▶



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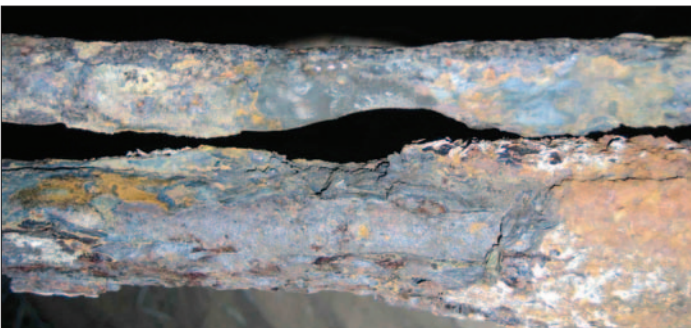
Curiosity



It is becoming increasingly clear that structural damage due to underground corrosion is not an isolated problem, but is widespread throughout the U.S. and Canada. Guy anchors are coming of age and if not inspected and protected soon, many more tower anchors are likely to fail.

Recommended Action

- Develop a plan to target towers most at risk, and investigate;
- Perform surface and subsurface investigation of the anchors to determine if structural damage has occurred;
- Install a corrosion control system that allows for continuous monitoring such as a sacrificial anode system; and
- Regularly inspect the corrosion control system to ensure it is working properly. 



Matthew Arps is the General Manager of AnchorGuard®, specializing in corrosion control systems for tower anchors. He can be reached at 800-653-3392 or visit www.anchorguard.com.

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