

## Evaluate Guy Wires and Anchorage Structures and Soils to Avoid Catastrophic Failures

Guy wires are used extensively as an economical method to provide lateral load resistance to tall and slender structures such as flare stacks, cell phone towers, radio transmission towers, and other similar structures. Loss of tension in the wires, damage to the turnbuckles, and deterioration of the soil and deadmen that anchor the wires are typical items for evaluation. For critical operational and safety systems, it is recommended to evaluate these items on an annual basis to avoid potential catastrophes such as tower collapses (Example: OSHA Hazard Information Bulletin, June 12, 1991). Brindley has a long history of conducting these evaluations and designing repairs when necessary.

### BE the Solution

Special investigation techniques for the wire rope, turnbuckles, and deadmen attachments are used to help ensure the mechanical components have the proper tension and are holding up to corrosion and wear. Experienced evaluation of the deadmen and soils that anchor these components ensure that the structures are sound and soil conditions have not affected proper anchorage (such as after a flooding event). Brindley has the inspection tools, methods, and experience to conduct these inspections and determine proper repairs when necessary.

### Our Challenges

Typical challenges are related to access. Many guy wire anchors are in water bodies. Guyed flare towers typically have minimum safe-distance criteria due to the potential for activation during unit upsets. Inspection techniques are also challenging due to the variety of materials involved such as wire rope, mechanical turnbuckles, concrete anchorage, concrete, and supporting soils.

### BE the Result

An effective Reliability Program establishes the qualifications and cadence of inspections on critical and supporting infrastructure to proactively reduce maintenance costs and risks over the long-term life of the facility. Brindley Engineering develops and implements these programs for Facility Owners.

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Typical Guyed Flare Tower



Typical Guy Wire Anchorage