Tower Site Inspection Procedures
Owners of towers should perform initial and periodic tower inspections and maintenance to assure safety and to extend the service life. It is recommended that major inspections be performed when:

A.) After every severe wind and/or ice storm or any other extreme conditions.

B.) One-year maximum interval for Class III structures. Refer to Table 2-1 of TIA/EIA RS 222-G for a definition of each class. Most guyed broadcast towers will be Class III.

C.) At the completion of any major installation/maintenance performed on the tower. Have the work inspected to insure the installation was performed in accordance with the design. Also, damage to tower members can occur from the rigging required for installation. The two most common damages are bent members due to improper rigging connections to the tower and burning grooves in tower members due to the load line being close to the tower face.

D.) Use the maintenance and condition assessment guidelines from Annex J of TIA/EIA RS 222-G.

E.) Include an inventory of existing equipment with the inspection.

Some of the items listed below apply to new and existing tower infrastructures.

I. **Tower Conditions** (guyed and self-supporting)

   A. Members
      1. Bent members (legs and lacing)
      2. Loose members
      3. Missing members
      4. Climbing facilities, platforms, catwalks—all secure
      5. Loose and/or missing bolts

   B. Finish
      1. Paint and/or galvanizing condition
      2. Rust and/or corrosion conditions
      3. FAA or ICAO color marking conditions
      4. Water collection in members (to be remedied, e.g., unplug drain holes, etc)

   C. Lighting
      1. Conduit, junction boxes and fasteners weather tight and secure
      2. Drains and vents open
      3. Wiring condition
      4. Controllers functioning
         a. Flashers
         b. Photo control
         c. Alarms
      5. Light lenses
      6. Bulb condition (Option: change all bulbs at one time)
D. Grounding
   1. Connections checked and secure
   2. Corrosion observed and remedied
   3. Lightning protection secure (as required)

E. Tower Base Foundation
   1. Ground Conditions
      a. Settlements or movements
      b. Erosion
      c. Site condition (standing water, drainage, trees, etc)
   2. Base Condition
      a. Nuts and lock nuts tight
      b. Grout condition
   3. Concrete Condition
      a. Crackling, spalling or splitting
      b. Chipped or broken concrete
      c. Honeycombing
      d. Low spots to collect moisture

Guy wires must be kept clean and clear of dirt and debris.

F. Tower Base Foundation
   1. Ground Conditions
      a. Settlements or movements
      b. Erosion
      c. Site condition (standing water, drainage, trees, etc)
   2. Base Condition
      a. Nuts and lock nuts tight
      b. Grout condition
   3. Concrete Condition
      a. Crackling, spalling or splitting
      b. Chipped or broken concrete
      c. Honeycombing
      d. Low spots to collect moisture

II. Guyed Towers
A. Anchors
   1. Settlement, movement or earth cracks
   2. Backfill heaped over concrete for water shedding
   3. Anchor rod condition below earth (12” minimum)
   4. Corrosion
   5. Grounding
   6. Anchor head clear of earth

B. Tower Guys
   1. Strand
      a. Type (1x7 EHS, 1x19 bridge strand, etc)
      b. Size
      c. Breaking Strength
d. Elevation  
e. Condition (corrosion, breaks, nicks, kinks, etc)

2. Guy Hardware  
   a. Turnbuckles (or equivalent) secure and safety properly applied  
   b. Cable Thimbles properly in place (if required)  
   c. Service sleeves properly in place (if required)  
   d. Cable connectors (end fittings)  
      1. Cable clamps applied properly and bolts tight  
      2. Preformed wraps properly applied, fully wrapped and sleeve in place  
      3. Wire serving properly applied  
      4. Strandvices secure  
      5. Poured sockets secure and showing no signs of separation. (Note: Connectors should show no sign of damaged cable or slippage)  
   e. Shackles, bolts, pins and cotter pins secure and in good condition

3. Guy Tensions  
   a. Tension should be checked by manufacturer’s recommendations

Notes:  
1.) Variations in guy tensions are to be expected due to temperature and wind. These are minor variations. Should there be significant tension changes, the cause should be determined immediately and proper remedial action taken. Possible causes may be initial construction loosening, extreme wind or ice, anchor movements, base settlement or connection slippage.

2.) Tension variations at a single level are to be expected because of anchor elevation differences, construction deviations, and wind effects.

Caution: Do not check or adjust guy tensions during times of excessive winds.

III. Antennas and Feedlines  
A. Antenna Mounts and Antennas  
   1. Members  
      a. Bent, broken or cracked  
      b. Loose  
      c. Missing  
      d. Loose and/or missing bolts  
   2. Adjustments secure and locked  
   3. Elements  
      a. Bent, broken, cracked or bullet damaged  
      b. Loose  
      c. Missing  
      d. Loose or missing fasteners  
   4. Corrosion condition  
   5. Radomes or cover conditions
B. Feed lines (waveguide, coax, etc)
   1. Hangers and supports
      a. Condition
      b. Quality
      c. Corrosion condition
   2. Flanges and seals (check integrity)
   3. Line Condition
      a. Dents
      b. Abrasions
      c. Holes
      d. Leaks
      e. Jacket condition
   4. Grounds
      a. Top ground strap bonded both ends
      b. Bottom ground strap bonded both ends
   5. Feedline support (ice shields)
      a. Properly attached
      b. Loose and missing bolts
      c. Members straight and undamaged

Specified by the FCC, proper signs should be posted on the tower or near it, aside from those in plain view by the public at the gate of the premises.

Physical changes in the antenna system can affect a directional array, but it is equally important to inspect tower fences and clear ground vegetation.

It is important to check the tower base insulator, spark gaps and tower feedline regularly.

Stainless steel cotter pins are best. This anchor plate is cold galvanized for protection from rust.

Guy anchor showing the turnbuckle safety in figure-eight formation as required by TIA/EIA 222.