API RIG INSPECTIONS

Derrick/ Mast and Substructure

Mechanical and Structural Systems Only

Presented by W. Lee Guice
with Guice Engineering Inc.
Covers masts, derricks and accessories

Covers substructures and accessories

Does NOT address much on carriers and ancillary devices for portable masts, i.e. carrier frame, tires, anchor points, work platform, guying

Four Inspection Levels:
- **Cat I** is DAILY (no documentation required)
- **Cat II** is at rig-up (no documentation required)
- **Cat III** every 730 operating days (documentation required)
- **Cat IV** every 3650 operating days
Significant weakness in identifying capabilities of necessary qualifications of craftsmen (particularly welders) to perform repairs

Good definition of required records

Overlaps with RP 8B on crown blocks and sheaves and on dead line anchors. 8B has more rigid requirements and tighter frequencies

Does NOT address draw works or brakes, or rotary tables and components
Covers:

a. rotary tables
b. rotary bushings
c. rotary slips
d. rotary hoses
e. slush pump components
f. draw works components
g. spiders
h. manual tongs
i. safety clamps
Four inspection levels:

- **Cat I** is “fix it if it breaks”
- **Cat II** is “fix it if it’s bent or broken”
- **Cat III** is “take it apart and look at it before it breaks”
- **Cat IV** is “take it apart and conduct NDE on all load bearing parts before it breaks”
- Frequency: “Owner or user should develop his own frequency”

- Owner or user develops its own documentation procedure

- Validation of “qualified personnel” is equal to that required of a fortune teller or palm reader

- Issued in 1995, has not been updated or revised
API RP 8B

- Basically covers all drilling and production mechanical equipment hoisting equipment, including items also covered in API RP 4G

- Does NOT address top drives or top drive tracks

- Does NOT address mud system

- Does NOT address draw works or brakes
Four inspection levels:

- **Cat I** is basically watch it daily during operation
- **Cat II** is up-close visual inspection
- **Cat III** requires some disassembly and NDE of critical areas
- **Cat IV** requires removal and disassembly in controlled environment as well as NDE
- Cat IV included repair as per manufacturer’s recommendations

- Frequency ranges from daily to every five years, and is defined in Table 1. Most equipment requires a Cat III every six months

- Documentation required as desired, but should include records of repairs and qualifications of personnel performing repairs
Covers care and use of wire rope, including drill lines as well as raising lines, guy lines, etc.

This is very technical document that is usually well-obeyed in terms of drill line. Compliance for other uses is spotty, and depends on how well informed and responsible the equipment operator is.

Frequently ignored, particularly by smaller operators, with respect to guying and other ropes, and in attachment of clips.

There is a significant weakness in designing and using sheaves for raising line systems, as the usage is completely off the chart. Sheaves big enough to accommodate the required lines in terms of strength will not fit the applications.
This document addresses API compliance to OSHA requirements as they pertain to the drilling industry.

It includes fall protection, confined spaces, etc., each of which has its own particular requirements.
Suggestions:

- Issue and publish a monthly list of companies that have current inspections on all rigs in service.
- Add (voluntary) verbiage to standard IADC Drilling contract re. listing of current inspections and status thereof. This calls it to the attention of the production company.
- Establish standards for testing of welders including certification procedure.
  - Create a table (see attached ROUGH outline) listing components, standard under which each is addressed.

W. Lee Guice, P.E.