Item 5401: Improve Clarity to section 2.7 in API RP 9B.

Original Wording:

2.3.12 Sheave Alignment

All Sheaves should be in proper alignment. The fast sheave should line up with the center of the hoisting drum.

Proposed Wording:

2.3.12 Sheave Alignment

All sheaves should be in proper alignment. The fast line sheave should be positioned about the hoisting drum center, such that fleet angle effects are minimized (Section 2.7.1)

Adding sections to 2.7

2.7 Casing-line and Drilling-line Reeving Practice

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a) minimum fleet angle from the drawworks drum to the first sheave of the crown block (Section 2.7.1), and from the crown block sheaves to the traveling block sheaves;

……..

2.7.1 Fleet angle on drawworks drum

When a wire rope is led from the drawworks drum onto the ~~last~~ fast line sheave it is perpendicular to the drum at one point only. As the rope departs from this point either way, an angle is created. This angle is called the drum fleet angle and is defined as the angle between the rope's position at the extreme end wraps on a drum and a line drawn perpendicular to the axis of the drum through the wireline contact point of the fast line sheave. Experience indicates the drawworks drum fleet angle, although necessary, should be held within a range of ½ to 1 ½ degrees. Fleet angles larger than the suggested limits can cause problems such as improper spooling, especially under light loads, excessive abrasive wear, and torque build-up on wire rope. Conversely, too small an angle can also cause improper spooling due to the rope pile up at the flange of the drum resulting in excessive wear on flange.

2.7.2 Fleet angle on fast line sheave

Conversely, when a wire rope is lead from the fast line sheave to the drum, it is perpendicular to the sheave center at one point only. As the rope departs from the sheave center either way, an angle is created. This

angle is called the fast line fleet angle and is defined as the angle between the rope's position at the extreme end wraps on a drum and a line drawn parallel to the groove centerline of the sheave. Excessive fleet angles (beyond 2 ½ degrees) should be avoided to prevent excessive wear on both the sheave and the wire rope.

2.7.3 Fleet angle between crown block sheaves and traveling block sheaves

Skipping of two sequential sheaves should be avoided when reeving a reduced string-up, in order to minimize fleet angle effects.

To check the fleet angle, Figure XXX can be referenced.

This figure shows the relationship between the critical dimensions used in calculating the fleet angle.

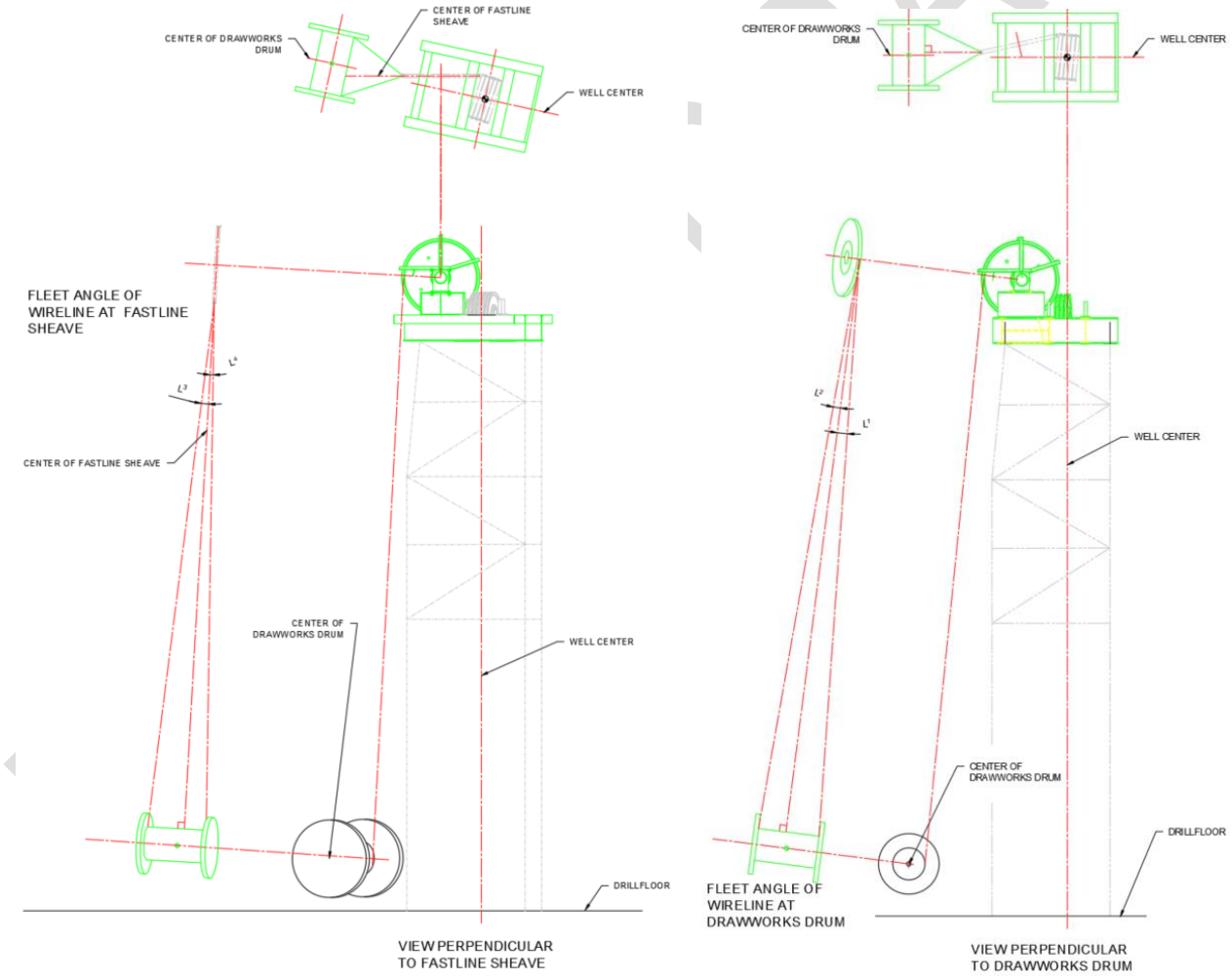

Figure XXX — Fleet Line Angle from Drum to Sheave and Sheave to Drum