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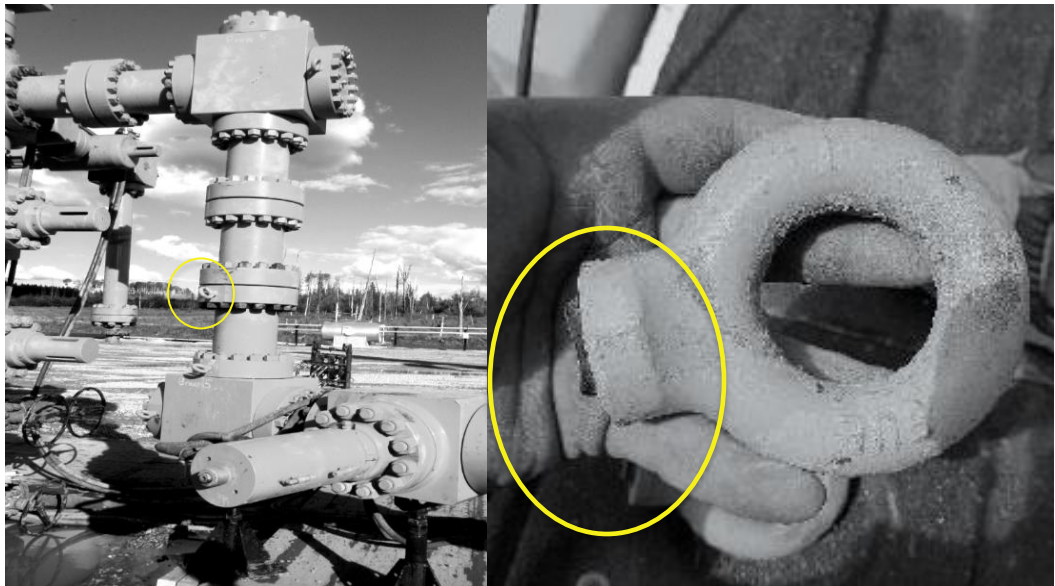
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# SHOULDER EYE BOLT FAILURE DURING EQUIPMENT LIFT

## DESCRIPTION:

A fracturing ("frac")/ wellhead assembly was lifted approximately half an inch to adjust a support (levelling jack) stand. The lift was conducted using the horizontally - attached shouldered eyebolts on the equipment. The orientation of the eyebolts required an angular lift. The lift took place and the eyebolt shanks sheared off. The wellhead equipment was secured and no other damage occurred.



EYEBOLT LOCATED ON WELLHEAD

BROKEN PORTION OF EYEBOLT SHANK

## CAUSE:

The lift exceeded the angle load capacity which caused excessive strain on the eyebolts resulting in failure.

## CONTRIBUTING FACTORS:

Angular lift significantly reduces lifting rated capacities.

**Avoid the hazard of not knowing.**

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**CONTINUED ON NEXT PAGE**

**CORRECTIVE ACTIONS:**

- » Pre-plan each lift and understand engineering limitations of each component, including eyebolts
- » Before lifting, check with manufacturer specifications for rated load capacities and guidelines of eyebolt angle. Investigate appropriate methodology if using angled lifts. ie. safety swivel hoist rings
- » Shoulder eyebolts should not be used for angular lifts greater than 45°
- » Before use, inspect eyebolts for damage or alterations (grinding, nicks, gouges, distortions, worn, bent, etc.)
- » Check that eyebolts are stamped with name or trademark of manufacturer, size or capacity and grade. All information should be legible
- » Eyebolts should not be painted or otherwise coated when used for lifting; such coatings make it difficult to inspect for defects or wear indicators
- » Do not shock load eyebolts; use a gradual lift
- » No greater load should be applied to an eyebolt than the rated capacity