

## HSE information sheet

### Jack-up (self-elevating) installations: rack phase difference

#### Offshore Information Sheet No 4/2007

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## Introduction

This information sheet draws the industry's attention to previous findings on rack phase difference (RPD) in truss legs of jack up (self-elevating) installations. This information sheet replaces Safety Notice 4/2002 (SN4/02) (issued August 2002) which has now been withdrawn.

## Background

Several incidents have occurred on the United Kingdom continental shelf (UKCS) over the past two years, which have resulted in damage to bracings of truss framed legs of jack-up installations. To date this is only known to have occurred on those using fixation systems.

On at least two occasions the initiating cause was eccentric spudcan support due to hard, uneven seabed conditions. However, more importantly, the common cause of failure was the introduction of an imbalanced loading in the leg chords, producing a racking effect in the bracings (commonly referred to as RPD), which subsequently caused their failure in compression. The full extent of the imbalance was only realised during jacking.

## Actions

Duty holders must ensure that on-board operating procedures prescribe appropriate limits to which the installation can be operated to prevent this phenomenon. Such limits should address all relevant failure modes. The limits may be established from the original design specification; however duty holders must ensure that they remain appropriate for each specific site.

Duty holders must ensure that the prescribed limits are not exceeded, and that suitable monitoring arrangements are in place, such as pinion load monitoring or measurement of RPD.

## Relevant legal requirements

The relevant legal requirement is:

- The Offshore Installations and Wells (Design and Construction, etc) Regulations 1996, regulation 7.

## Further information

Any queries relating to this notice should be addressed to:

Health and Safety Executive  
Hazardous Installations Directorate  
Offshore Division  
Lord Cullen House  
Fraser Place  
Aberdeen  
AB25 3UB

Tel: 01224 252500  
Fax: 01224 252648

This information sheet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do