Gulf of Mexico Jackup Operations for Hurricane Season

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Foreword

This recommended practice (RP) is under the jurisdiction of the API Upstream Executive Committee on Drilling and Production Operations (ECDPO) and was developed with guidance from and in cooperation with the International Association of Drilling Contractors' (IADC) Jackup Rig Committee and the Offshore Operators Committee's (OOC) Drilling Technical Subcommittee. Additionally, the Minerals Management Service (MMS) and the U.S. Coast Guard (USCG) provided general guidance and assistance in the development of the RP.

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Gulf of Mexico Jackup Operations for Hurricane Season

1 Scope

The purpose of this recommended practice (RP) is to present an approach to siting Jackup Mobile Offshore Drilling Units (MODUs) and to recommend certain operational procedures to enhance jackup survivability and stationkeeping during hurricane season in the Gulf of Mexico during drilling, workover, and while stacked (idled) at a non-sheltered location. This document provides guidance and processes and, when combined with an understanding of the environment at a particular location, the characteristics of the unit being utilized, and other factors, may be used to enhance operational integrity. This RP was developed through a cooperative arrangement with the International Association of Drilling Contractors' (IADC) Jackup Rig Committee. The information presented herein is premised on the existence of an evacuation plan, the intent of which is to assure timely evacuation of all rig personnel in anticipation of certain climatic conditions.

2 Overview

Recent hurricanes in the Gulf of Mexico have caused damage and loss of jackup rigs. However, the industry's practice of "shut-in and evacuate" has successfully resulted in no loss of life, minimal injuries, and no significant pollution associated with such incidents. Preliminary analysis of the damage and losses indicates the likely causes to be wave inundation and/or foundation failure leading to wave inundation. Additionally, the preliminary results of investigations of surviving jackups that experienced forces in excess of design criteria validate the premise that structural assessment methodologies tend to be conservative. Rig survival is a function of the environmental conditions (water depth, wind loading, wave heights, current, foundation, etc.) at the location. Based on the studies conducted to date, recommended practices contained in this document include, but are not limited to, site optimization (data), preloading procedures, air gap analysis, storm preparation, and post-storm recovery enhancements.

Historically, mat supported jackups have responded differently to wave impingement than independent leg units. Generally, these units have not experienced catastrophic failure. Rather, they have tended to slide for limited distances along the seabed during repeated wave impingement. Accordingly, only certain elements of this RP, such as the optimization recommendations set forth in Section 4, storm preparation, and setting an air gap for storm survival (see Section 6) may apply to such units.

Several recommended methods of assessment and analysis are contained in this RP. This RP should not be viewed as an endorsement of a particular methodology or product. Other scientifically valid methods are options that may also be considered.

3 Terms and Definitions

3.1
air gap
The distance from the lowest astronomical tide (LAT) to the underside of the hull.

3.2
API
American Petroleum Institute

3.3
drilling contractor
The individual, partnership, firm, or corporation retained by the owner or operator to perform drilling and/or well workover operations.