Jackup footprint, punch through studies underway

THE IADC SOUTH East Asia Chapter invited the Global Maritime - Fugro Alliance to give presentations on two subjects during their meeting held on 6 September 2002, at the Keppel FELS Golf Club, Singapore. The following is from those presentations.

The Global Maritime–Fugro Alliance is managing a joint industry funded project to investigate and reduce the problems associated with jackup drilling rig installations at sites where other rigs have previously operated.

IADC is not endorsing nor participating in the JIP.

During jackup installation there is often a tendency for the spud cans to move towards the locations of the previously installed rig or rigs.

Such movements can result in structural damage, both to the rig and the existing infrastructure on the installation site; unsatisfactory positioning often with significant lost time and cost implications; and potential injury to personnel.

The project aims to reduce the unpredicted occurrence of these adverse movements by developing a Best Practice Guideline document, which will be published following project completion. The project is being funded by a group of 10 participants.

Spud can-footprint interaction issues appear to be increasing in frequency, and this is thought to be due to:

• Increasing reliance on jack-ups for drilling and work-over activities for unmanned and sub-sea facilities
• Increased jack-up tender-assist operations
• Expanding jack-up operational areas due to increased environmental capabilities
• Operators wishing to protect their commercial position by maintaining a range of rig options and hence a choice of jack-ups for use at a single location
• Reduced installation period (in some cases rigs may be on location for as little as 10 days at a time), giving increased opportunities for alternative

The study is divided into three phases.

PHASE I
• Collect data on incidents from participants
• Develop questionnaire to be used for collection of incident data worldwide
• Distribute questionnaire and interview key industry personnel
• Collate all of the results from the data-collection phase
• Build web-site database
• Determine appropriate methods of mitigation for review in Phase II
• Identify further research objectives identified for Phase II and III

PHASE II
• Investigation and optimization of a range of mitigation methods considered
• Performance of a range of calculations, front end Analysis and physical model testing, as appropriate, to optimize methods

PHASE III
• Use Phase I and II results to develop procedures for safe jack-up emplacement
• Conduct cost-benefit analyses for the range of applicable methods
• Produce a detailed report and procedures for design to enable safe jack-up
• Emplacement at locations adversely effected by spud can/footprint interaction

The second presentation was SE Asia punch-through cases and borehole data to identify geographical, geotechnical and operational trends.

PHASE I
Investigate historical Southeast Asia punch-through cases and borehole data to identify geographical, geotechnical and operational trends.

PHASE II
Development of a “best practice” guideline for jackup site assessment, including recommended scope of work together with advice on bearing capacity prediction methods and installation procedures based on current knowledge.

PHASE III
Research Phase 2 topics to develop the science and feed back into the Recommended Practice.