OPERATIONAL NOTICE

Subject: **DELMAR PERFORMS PLATFORM TOPPLING FOR "RIGS-TO-REEF" PROGRAM**

Date: **June 2004**

This document contains basic information relating to the toppling operations conducted with anchor handling vessels (AHVs) in the Gulf of Mexico. Delmar recently conducted vessel operations for the pre-rigging planning and toppling of two platforms located in approximately 230' off the coast of Louisiana.

Delmar is providing the industry with a productive offshore disposal alternative and option that can lead to a reduction of abandonment costs, thereby generating more incentives for operators to convert platforms to reefs.

History:

In support of the National Artificial Reef Plan, the Mineral Management Services (MMS) adopted a national "Rigs-to-Reefs" policy that supports and encourages the reuse of oil and gas structures to designated artificial reefs. From research and assessment of the environmental effects of oil and gas leasing and development, the MMS has documented a profound and pervasive connection between fish, fishing, and oil and gas structures in the marine environment. Hence, installation and dismantling of petroleum structures has a positive effect on the offshore ecosystem environment.

Coastal states with approved, state-specific artificial reef plans can identify offshore areas and sites suitable for artificial reef developments. The Louisiana Department of Wildlife and Fisheries and the Texas Parks and Wildlife Department have approved state artificial reef plans and administer ongoing offshore rig-to-reef programs. The artificial reef coordinators from these states are prepared to assess the interest of their state in acquiring oil or gas structures offered for reef development, work with the structure operator or their agent in securing the required U.S. Army Corps of Engineers permit, negotiate an agreement for structure donation, and accept title and responsibility for the structure as a permanent state reef. Over the past 13 years, oil and gas companies have donated over 150 platforms for construction of reefs in the Gulf of Mexico. In addition to producing 98 percent of the gas and 91 percent of the oil on our Nation's Federal Outer Continental

Shelf (OCS), the Gulf of Mexico platforms provide the largest artificial reef complex in the world.

By using Delmar's conventional anchor handling rigging and methods, this scope of work can be accomplished safely and efficiently using existing vessels that are already working in the field. This method allows optimal utilization of existing assets and provides for increased flexibility during the planning stages.

Previous Methods:

The "standard" method using a crane vessel for toppling or lifting in conjunction with a heavy lift vessel for transportation is costly and limited in availability.

Figure 2 - Transport vessel

Figure 1 - Transport vessel

Site Conditions:

The existing platforms that Delmar most recently assisted with were severely damaged and beyond economical repair (Figure 3). However, the "standard" method using a crane vessel is a costly exercise. Delmar's experience with anchor handling vessels and our heavy rigging expertise proved invaluable in providing this new

Figure 3 – Existing platforms

"innovative" and economical alternative to the operation.

Figure 4 shows the general connection and operational hook-up used during offshore operations.

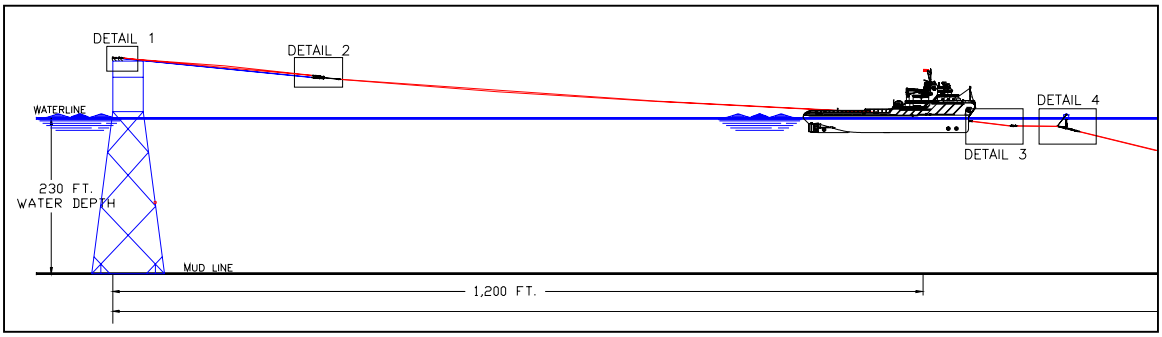

Figure 4 – Platform toppling operational overview

Figure 5 – Toppling rigging connected

In general, the enabling systems for this scope of work revolved around the engineering, planning, and vessel operations associated with the connection, underwater cutting operation, and tension control required for the sequential loading and break-over at a predefined point on the jacket structure. The planned geometry of the toppling for the structure is shown graphically in Figure 6. Delmar interfaced with a subsea contractor who provided the required underwater support, including the required cutting tool to perform the specific cut necessary to successfully control each phase of the toppling mission with considerable accuracy.

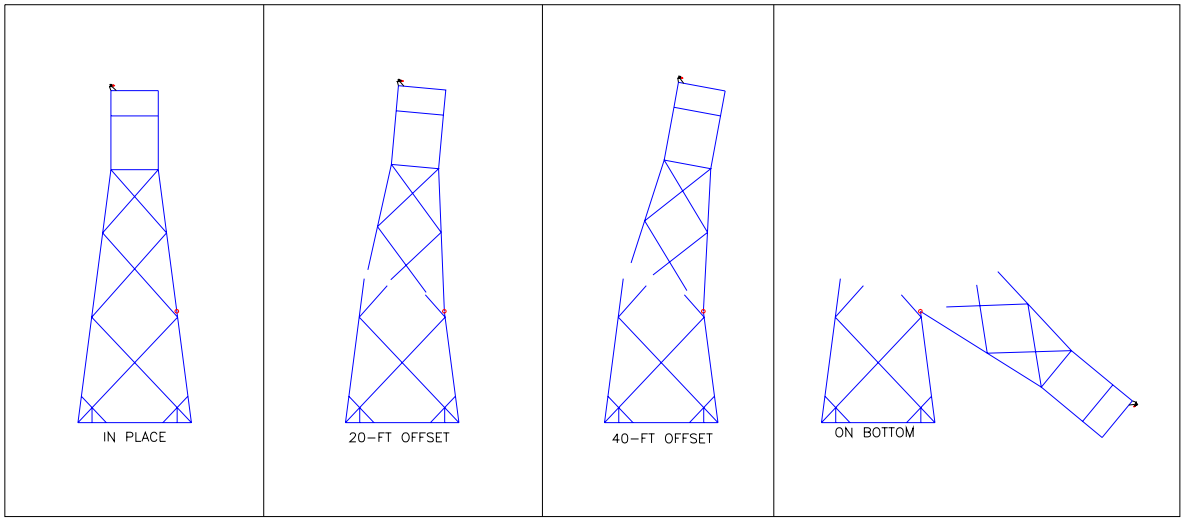

Figure 6 – Platform toppling sequence

Delmar's effective execution of a topple-in-place platform continues our long held belief in providing innovative cost-effective solutions to the oil and gas industry. Our methods and personnel provide net value and allow our clients to minimize life-cycle costs.

For additional information contact Delmar Systems – Technical and Engineering (281) 596-9000.

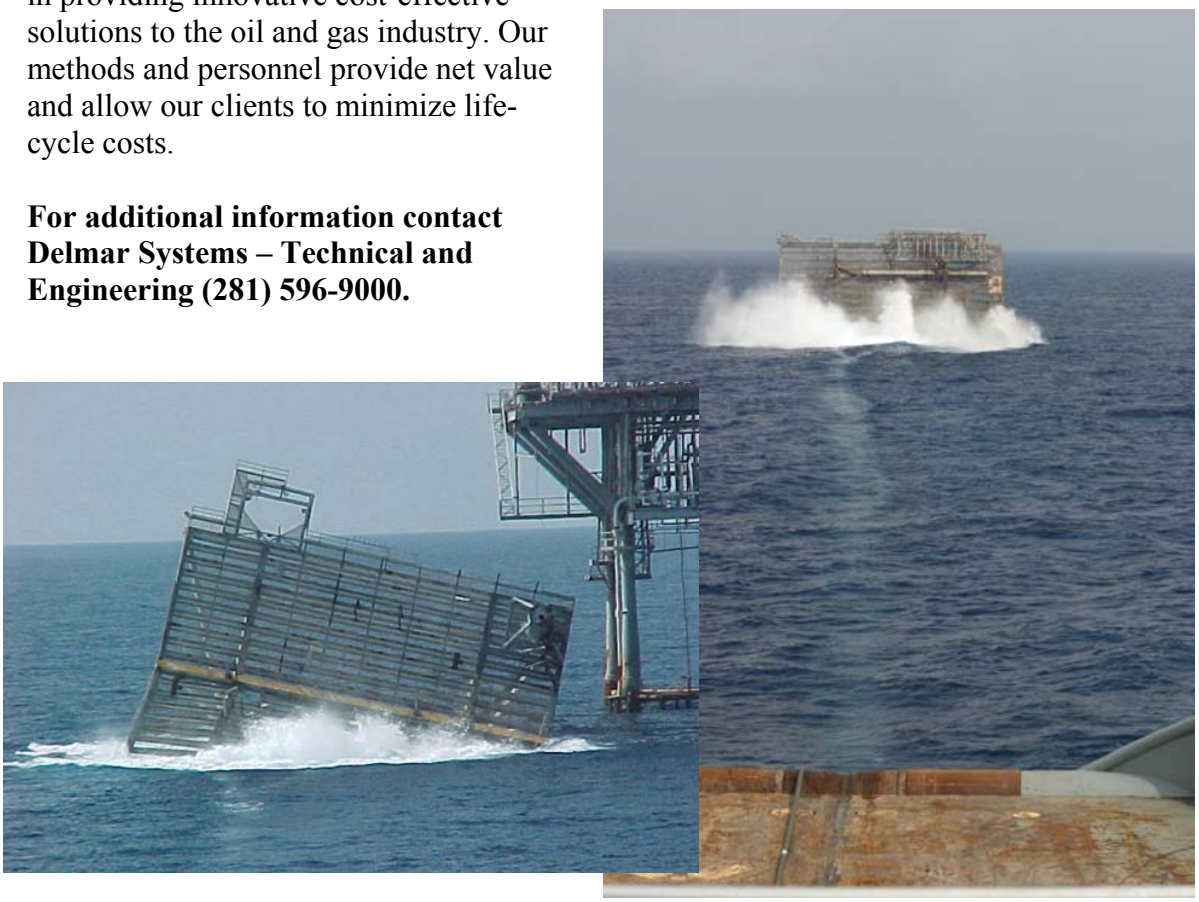

Figure 7 – Platform topples on location