

DRILLING AHEAD

Hughes Glomar Explorer a mark of world-class engineering history

Linda Hsieh, Associate Editor

THIRTY-FIVE YEARS ago, at the height of the Cold War, the US government drew a plan to retrieve part of a sunken Soviet submarine from the Pacific Ocean. And to realize that plan, the government turned to the drilling industry.

Specifically, the Central Intelligence Agency turned to **Global Marine** in Houston. CIA agents showed up at the company in November 1969 and asked it to do what, at the time, seemed an impossible task: lift a 2,000-ton asymmetrical object from about 17,000 ft of water.

But **Curtis Crooke**, then Global Marine's vice president of engineering, believed the task was possible, and so the company was recruited into a government "black" program – completely classified – and built the Hughes Glomar Explorer.

The secret sub-retrieving mission – now known as The Jennifer Project – demanded that the Explorer use designs well beyond the state-of-the-art. The design and capabilities created are still used today for deep offshore drilling. Some of the major innovations used included:

- A large well opening in the hull and a means of sealing it off so the object could be examined in dry conditions;
 - A hydraulic lift system capable of hoisting a large, heavy load;
 - A tapered heavy lift pipe string, including tool joints, designed, constructed and proof-tested to exceptionally demanding standards;
 - A "claw" with mechanically articulated fingers, which used surface-supplied seawater as a hydraulic fluid;
 - A motion-compensated and gimbaled work platform system that effectively isolated the suspended load from the roll, pitch and heave motions of the ship;
 - A "docking leg" system that supported the weight and controlled the motion of
- the "claw" and load during the transition from dynamic open water conditions to the shelter of the ship's center well.

A COVERT MISSION

To hide the ship's real mission, a story was concocted that billionaire **Howard Hughes** built it for deep sea mining. It was a great cover-up, Mr Crooke said. "Who knew what a mining ship really looked like? It could look like whatever we wanted it to look like!"

The Explorer was completed in July 1973 at a cost of more than \$200 million, and the salvage mission commenced a year later in July 1974, taking just 5 weeks to complete.

In 1996, Global Marine leased the vessel and converted it into a deepwater drillship. It is now capable of drilling in water depths up to 7,800 ft and is operating in the Gulf of Mexico.

Before 1996, however, the ship stayed out of service for many years post-The Jennifer Project, and Mr Crooke said that even to this day, there are things he's not allowed to discuss.

"But I can tell you that The Jennifer Project was never the name of the project," he said, despite what many books have claimed.

ASME LANDMARK

The unique engineering that went into the Explorer is already well known, but on 20 July, it was formally recognized. The American Society of Mechanical Engineers (ASME) officially designated it as a Historic Mechanical Engineering Landmark in a ceremony held at GlobalSantaFe's Houston office.

"The Hughes Glomar Explorer is truly a world-class engineering project," GlobalSantaFe chairman **Robert E Rose** said at the ceremony.

Former president of ASME **Keith Thayer**, who presented the plaque to GlobalSantaFe, said, "It's wonderful to make a bit of engineering history." ♦