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Asset Management in the
Oil, Gas and Mining Industry

by Ir Al-Khairi bin Mohd. Daud

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THE oil and gas industry in Malaysia started with the first production of oil in Miri, Sarawak, more than a century ago. When the oil derrick was closed 63 years later, she had produced 650,000 barrels of oil. Now, the oil derrick, nicknamed the 'Grand Old Lady', has become a state monument equipped with an observatory platform and a Petroleum Science Museum built next to it. The Grand Old Lady is an icon of a well-managed asset throughout its lifecycle.

Malaysia's oil and gas industry has progressed tremendously from a mere upstream sector with offshore oil production platforms to complex refineries, gas liquefaction plants and petrochemical plants activities. Many of the oil and gas platforms and processing plants were built in the 1990s. After more than 20 years, these plants need upgrading and retrofitting work to rejuvenate the plants' performance. As the plants get older, serious attention has to be given to ensure that the safety and integrity of the asset is not compromised. Various methodologies such as Risk Based Inspection and Fitness for Service have been introduced to address the asset risk factors.

In 2008, the world experienced a major energy crisis when oil price increased drastically. The rise sent economic shock waves which impacted the whole world. The event opened the world's eye on the sustainability of petroleum as the main energy source. For now, the dependency on petroleum continues until a reliable alternative energy supply materialises. As for the industries, it is paramount that the management of the asset is given priority in order to support the economic requirement by maximising the productivity of the plants.

The development of any oil and gas facilities incurs a huge capital investment. Assets have to be managed effectively to avoid losses to the company due to failure in facilities and equipment. In Malaysia, recent events involving fires on an oil platform and refineries have prompted the industry to evaluate the performance and standard of the asset management of the companies concerned.

On a bigger scale, we were shocked to witness the explosion of a drilling rig on Deepwater Horizon in the Gulf of Mexico causing the lost of lives and leading to major environmental disasters to marine and wildlife ecosystems. For engineers, the incidents tested the competencies and safety standards in dealing with equipment and procedures, especially on new frontiers such as deep sea exploration. The incidents pushed engineers to think not only how to improve the design, but more importantly how to ensure that the incident will not recur in the lifecycle of the facilities.

In the mining industries, we witnessed the miracle rescue of 33 miners trapped 700 metres underground from a copper-gold mine in San Jose, Chile. The rescue efforts were successful due to support from an international collaboration team. Both of the companies involved in the two incidents have questionable safety records and sub-par operation and maintenance standards. The management was not serious in the proper management of the asset. The results of the incidents are clear. Asset management should be taken seriously for the sustainability of the organisation as well as the environment that we live in.

Asset management can be defined as a process that guides the gaining of assets, along with their use and disposal, in order to make the most of the assets and their potential throughout the life of the assets. While doing this, it also manages and maintains any costs and risks associated with the assets. It is not something that you can buy, but rather a discipline you must follow in order to maintain your assets.

Thus, in light of the importance of managing assets effectively, we would like to stress that engineers must be able to evaluate their current standard of asset performance and improve the management of the asset lifecycle more effectively. It is not enough that engineers only design and build facilities and plants. Engineers must also ensure that the facilities are operated, maintained and disposed of properly. We hope that engineers learn from the two unfortunate events and embrace good asset management practice holistically. ■