



## PILTUN-ASTOKHSKOYE-B PLATFORM (PA-B)

### Location and Function

The Piltun-Astokhskoye-B (PA-B) platform was installed in July 2007 in the Piltun area of the Piltun-Astokhskoye oil field, 12 km offshore, at a depth of 32 m.



The platform is a drilling, processing and production platform that will extract oil and associated gas from the Piltun reservoir.

### Design

PA-B was designed incorporating cutting edge project solutions to ensure its year-round operation taking into account low temperatures, ice, wind and wave conditions, as well as possible seismic events.

The platform's substructure is a four-legged concrete gravity base – which supports the topside facilities. The platform is one of the largest movable man-made structures in the world.

Parameters of the PA-B platform's concrete gravity base substructure:

- Height – 53 m;

- Dimensions – 94 m x 91.5 m x 11.5 m;
- Weight – 90,000 tonnes;
- Leg height – 56 m.

The south-eastern leg will be used as the well bay, the north-eastern leg for the pipeline risers/J-tubes and the remaining legs for pumps and tanks.

The integrated topside facility was manufactured for the PA-B in South Korea. The topsides include drilling and hydrocarbon liquids separation facilities, storage for chemicals and a living quarters module. Main working areas are enclosed, temperature controlled and ventilated. Equipment located in the open has ice protection. The living quarters can accommodate 100 permanent and 40 temporary staff.

The dimensions of the PA-B platform's topsides are:

- Weight – 28,000 tonnes;
- Flare stack height – 98.6 m;
- 45 well slots.

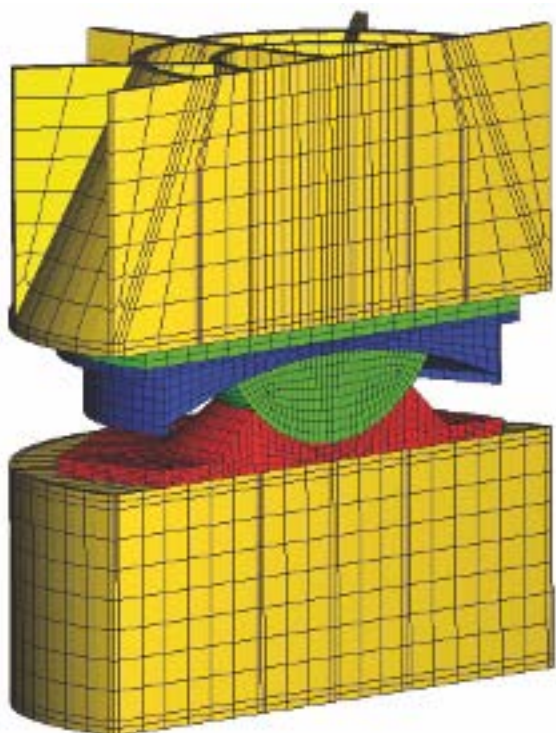
A unique T-shaped transport barge measuring 190 x 92 metres was specially built to transport the platform topsides to





the Sakhalin Shelf. The massive topsides were then lowered over the four legs using the 'float-over' technique by ballasting the transport barge. By successfully 'mating' the 28,000 tonnes topsides to its gravity base, previously placed on the seabed, Sakhalin Energy broke its own world record set by the Lun-A topsides installation in 2006.

Platform topsides were fixed to the concrete gravity base structures using cradle mechanisms called friction pendulum bearings. Sakhalin Energy is the first oil and gas company to use these types of bearings on offshore platforms. During an earthquake, the bearings allow the topsides to move while the substructure stays firmly anchored to the seabed. The sliding joint travels on the concave surface allowing small pendulum movements and a reduction in seismic movements. In normal conditions, the bearings help in reducing ice and wave loads on the platform and its equipment.



### **Drilling**

The PA-B will be used for extended reach drilling of deviated wells with a maximum horizontal displacement up to 6 km and a vertical projection of 2,250 m.

The PA-B has 45 well slots.

In 2008, the first well drilled from the PA-B was a re-injection well designed for the re-injection of waste drilling mud and cutting, as well as of the associated produced water.

The current reservoir development plan indicates that 33 wells is the optimum number of wells (between oil producers + water injectors) to develop Piltun. Nine additional oil producing wells may be drilled in a second development phase to increase ultimate recovery.

### **Production Capacity**

Oil – ca. 70,000 barrels (11,130 cubic meters) per day,

Associated gas – ca. 2.6 mln cubic meters per day.