

Production maintained - Autonomus operation on NUI South China Sea, 2025

55 321 h

Estimated unmanned
operational time

Zero

HSE Incidents
or manual handling

0 h

NPT

1 572 kg

Solids separated

Challenge

In 2017, An NOC Operator encountered severe sanding issues on a normally unmanned installation (NUI) in the South China Sea. The platform faced stringent space constraints, necessitating a compact design for additional systems. The proposed solution needed to manage production from both high- and low-pressure wells, while strict weight limitations on the offshore crane demanded a modular design for the desander system. The sand particle sizes showed significant variation; hence, a system that could manage it was necessary.

Solution

FourPhase engineered a custom-built, autonomous bulk desander, leveraging its expertise and core technologies in solids separation. The unit operates autonomously, requiring personnel only for bagging the separated solids every fortnight. It removes particles ranging from 20 microns to 10 mm from liquid or gas media with 99.8% efficiency (DNV qualified). The system uses multiple cyclones, which can operate simultaneously or independently, depending on production requirements. With compact dimensions of 6.2 x 6 x 4 meters, it can handle approximately 1,700 m³/day of fluid and 1.8 MSm³/day of gas, processing up to 400 kg/hour of sand.



Result

The autonomous bulk desander was delivered in 2018 and has been in operation since. By 2024, it has separated 500 kg of solids monthly and secured millions of dollars in revenue by enabling optimal production rates from solid producing wells which typical are choked back. The system also eliminates solids smaller than 20 microns during the topside process, significantly reducing erosion-related maintenance and lowering operational expenditures (OPEX).