SMART FACILITY
ADVANCED SEPARATOR

BACKGROUND
Sand deposition is a chronic issue in oil and gas business that affects production performance, equipment reliability, operating cost, and waste management. Sand jetting is an existing commercialized technology that prevents sand deposition by water jetting. However, in certain cases, water jetting causes turbulence resulting in more sand being carried over to downstream separator. With aim to solve sand deposition issue, PTTEP filed a Thai and US patent to tackle this issue by using feed stream and internal impeller.

OBJECTIVES
To design and construct the prototype Advanced Production Separator (APS) for solving the production sand deposition and accumulation inside the production separator with aim to shorten separator downtime during annual maintenance period.

PTTEP U.S. Patent
No. 9,968,867 B2
“Separator system, a particulate-discharging subsystem for use in separator systems, and methods of and processes for separating components of an input mixture using a particulate-discharging subsystem in a separator system”

“Prototype Phase : TRL 5”
TECHNOLOGY DETAILS

Impellers are installed inside the production separator to prevent sand sedimentation and accumulation at the bottom of production separator by creating turbulence while maintaining oil-water separation with concerning areas that affect oil-water gas separation and avoiding turbulence at oil-water interface. The optimum conditions for separation of sand and crude oil will be examined with Computational Fluid Dynamics (CFD) model simulation to observe hydrodynamic flow relating to the experimental conditions.

BENEFITS

This technique helps prevent an accumulation of sand production inside the production separator, leading to minimizing the period of separator downtime during an annual maintenance period. Also, it allows more working volume inside the separator for gas-oil phase separation.