CASE STUDY

HALLIBURTON

Middle East

# High-pressure water injection system delivered in record time

Summit ESP® reduced pump count and accelerated facility startup by six months

### CHALLENGE

- Short delivery timeline
- High-pressure water injection
- Limited flexibility of API-610 pumps
- Long lead times for engineered systems
- Complex multi-pump installation

### SOLUTION

- Four Hercules™ SH13500 pumps at 60 Hz
- Larger shaft sizes reduced pump count
- Low voltage VSD enabled quick delivery
- Parallel configuration simplified maintenance
- Shorter system length

### RESULT

- Reduced pump count
- Simplified installation
- Streamlined pipework and controls
- Minimized system footprint
- Cut infrastructure costs by 25–50%
- Accelerated startup by six months

## Overview

A customer required a high-pressure pumping system for a water injection facility with a short delivery timeline. The system needed to handle flow rates of 50,000 bpd at 5,300 psi. Traditional multi-stage API-610 pumps were not viable due to long lead times and limited flexibility. Halliburton's Summit ESP® team delivered a horizontal pumping system (HPS) solution that met the pressure requirements, reduced complexity, and accelerated project delivery.

## Challenge

Water injection at extremely high pressures presents significant design and delivery challenges. Conventional multi-stage API-610 pumps offer limited operating range and flexibility, and their engineered-to-order nature results in lead times exceeding one year. To meet the pressure demands, a multi-pump HPS configuration, either in parallel or series, was required. However, such designs can be costly, complex, and difficult to install.

## Solution

Summit ESP® - a Halliburton service addressed the challenge with a design using four Hercules SH13500 pumps operating at 60 Hz (3,600 rpm). These pumps feature larger-than-standard shaft sizes, enabling them to handle high horsepower and pressure requirements. This design reduced the pump count from seven or eight units to four. The pumps operated in parallel using a low voltage variable speed drive (VSD), which adjusted to a 60 Hz output despite a 50 Hz supply. This configuration allowed for faster delivery, simplified maintenance, and a shorter overall system length. Although the pumps remained long due to high discharge pressure, they were shorter than if sized for 50 Hz (3,000 rpm).

SUMMIT ESP

A HALLIBURTON SERVICE

## Result

The optimized solution reduced pump count and simplified installation. The customer benefited from streamlined pipework and controls, a shorter system footprint, and reduced infrastructure requirements. Estimated cost savings ranged from 25–50%. Most notably, the water injection facility became operational six months earlier than alternative solutions, enabling faster production and return on investment.

Hercules SH13500 HPS with minimal infrastructure footprint.

Four Hercules SH13500 HPS run in parallel.

**For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com**



**halliburton.com**

HALLIBURTON