Baker Hughes, a GE company (BHGE), provides comprehensive saltwater disposal (SWD) services for the Bakken play and surrounding areas of the Williston basin. You'll meet your disposal targets without compromising performance.

We are your single point of contact, offering a comprehensive SWD management system that incorporates HPump™ horizontal surface pumping systems, Electrospeed™ variable speed drives (VSD), and RESTORE™ stimulation fluids for an integrated solution you can depend on.

Our SWD services help you manage problems related to poor water quality caused by oil-in-water carryover, frac flow back emulsions, incompatible mixed waters, scale, or solids. Effective management and treatment of these problems can optimize your operation by increasing injectivity and eliminating costly workovers and mechanical interventions. With our dedicated local team of engineers and field service technicians, we address the water-quality issues and disposal efficiencies in your operation.

### Horizontal saltwater disposal system

The core of the HPump system is the electrical submersible pump (ESP). The adapted, multistage centrifugal pump is combined with a horizontal thrust chamber (HTC) and an industrial-quality, foot-mounted electric motor, then secured to a solid, structural steel skid. The spacer coupling, when paired with the HTC, lowers maintenance costs and reduces field replacement time by more than 50% since the seal or HTC can be replaced without moving the motor, pump, or piping.

Fields that require saltwater disposal can experience frequently changing conditions, so the HPump system adapts to changing pressure and flow to match actual conditions. We'll evaluate your operational challenges and implement the **BHGE TOTAL SYSTEMS APPROACH™**, which includes reservoir expertise, chemicals, HPump systems, and pumping capabilities as well as software applications and monitoring.

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**Applications**

- Saltwater disposal and injection

**Features**

- Features reliable, low-maintenance components that lower operating expenses
- Handles capacities from 800 to 130,000 BFPD
- Improves run life in harsh conditions and extends operating range
- Recovers oil that would have been disposed
- Increases injection volumes, controls bacteria, reduces workover and disposal costs through TOTAL SYSTEMS APPROACH
BHGE offers effective treatment solutions

As part of the TOTAL SYSTEMS APPROACH, RESTORE stimulation fluid helps you optimize injection rates, maintain unobstructed flow, and inhibit corrosion or bacteria. Since RESTORE water injection aid removes deposits and inhibits corrosion, you can inject higher water volumes and increase production.

TOTAL SYSTEMS APPROACH testing capabilities include but are not limited to:

- Complete water analysis:
  - Cations-inorganic metals by inductively coupled plasma (ICP)
  - Anions-testing by ion chromatography
  - Chloride and alkalinity-testing by automated titration
  - Inorganic acids-testing by ICP
  - pH/conductivity testing by probe
- Chemical residuals
- Corrosion coupons by weight loss
- Hydrocarbon analysis testing by gas chromatography
- Total suspended solids gravimetric method
- Scaling-tendency and saturation index program
- SSP scale-modeling software
- Oil-in-water analysis

Achieve integrated solutions with TOTAL SYSTEMS APPROACH

As part of the TOTAL SYSTEMS APPROACH, Electrospeed VSDs increase the uptime and reliability of your SWD system. The VSD's software reduces power and downtime costs while maximizing production. Our engineers designed the Electrospeed VSD to solve the most common daily HPump problems: difficulty starting, power consumption, and power sags.

We can proactively identify where the system is underachieving, analyze water quality, provide economical treatment solutions, and increase injectivity with our team of locally positioned account managers, technicians, and service representatives.

We have a water-treatment lab located in Williston, North Dakota to serve a wide range of production chemical needs. Our dedicated team of engineers addresses the water-quality issues and disposal efficiencies in your operation. We deliver fast turnaround on analyses using our local facilities in Minot, Williston, Watford City, and Dickinson, and we work with you to find a viable solution to lower your overall costs of disposal.

The HPump system provides a reliable, efficient alternative to positive displacement (PD), split case, and other surface pumping options. The HPump's design lowers operational and maintenance costs and is rated to 6,250 psi (430.92 bar) with a flow range from 800 to 130,000 BFPD. HPump systems can handle solids up to 100 ppm with our AR technology and proprietary stage coatings. These stages adapt to changing fluid conditions, prevent buildup of asphaltenes and scale, and increase run life in aggressive and corrosive fluids.

The HPump system, when compared with PD pumps, offers a lower initial investment, lower maintenance costs, increased uptime, and improved system efficiency. The typical SWD application only requires standard HPump equipment, ensuring shorter delivery times and ease of maintenance.

Contact your BHGE representative today or visit bhge.com to find out how our integrated solution for saltwater disposal can help you enhance injectivity while meeting disposal targets.