CHALLENGE
Conventional surface water injection flooding proved unsuitable as a result of agricultural area overlays. Existing natural dump floods not meeting required injection targets.

SOLUTION
ESP power injection using Zenith bypass systems.
ESP on single wellbore provides water supply from upper water zone and injection into lower oil zone.

BENEFITS
- Minimizes environmental impact by reducing footprint of single-well production/injection operations.
- Allows economic development of field by saving drilling/completion of additional wellbores.
- Eliminates cost of conventional water injection equipment — tanks, flow line, surface facilities and maintenance.
- Intervention/logging can be simply carried out during both production and injection processes.
- Provides easy wellbore access for ESP troubleshooting.

ESP power injection using Zenith bypass systems enables efficient and cost-effective water injection operations, enhancing recovery from depleted reservoirs where conventional water flood proved unsuitable.

“ESP power injection with Zenith bypass systems has proved highly effective; positively impacting offset oil production, demonstrating stable performance and delivering cost savings for the operator.”
Ahmed El-Shafey
Sales & Operations Manager
GE Oil & Gas

A. Blanking Plug
Set in swivel nipple to prevent recirculation of fluid from the wellbore when the ESP is pumping and enable logging operations during production to surface.

B. Locking Blanking Plug
Set in swivel nipple to route produced fluids directly down hole and allow logging during dump/flood operations.

C. No Plug
Allows water injection on same wellbore to lower injection zone and directs remaining water to another injector well using surface manifold.

Grounded Tubing Sub
For management of full string weight during install.

Bypass Support Clamp
Supports string weight, holds bypass tubing in line with ESP, secures cables and lines.

Bypass Tubing
Connects the ESP to the bypass manifold, allowing water injection from an auxiliary source along with slippage and slickline operations.

Saddle Assembly
Includes the patented saddle assembly in Zenith ESP bypass systems bringing benefits including:
- Simpler, safer system build
- Reduced installation time
- Reduced tensile/compressive forces on the ESP
- Allowance for thermal expansion

Tail Pipe
Bypass tubing suspended below ESP.

Re-entry Guide
Enables unobstructed access for logging tools to enter bypass tubing.

Coupling
Connection to operator tubing.

Crossover
For ease of handling of the bypass during assembly on the rig floor.

Top Nipple
Enables setting of locking blanking plug.

Y-Block
Offsets ESP in the wellbore to allow access below through bypass tubing.

Swivel Nipple
Enables setting of blanking plug.

Crossover
Connects Y-block to the pump discharge head.

Applies power injection with Zenith™ ESP bypass to boost field development & production.

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Power injection with Zenith™ ESP bypass boosts field development & production

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