

INTRODUCING THE ESP RECOVERY TOOLBOX

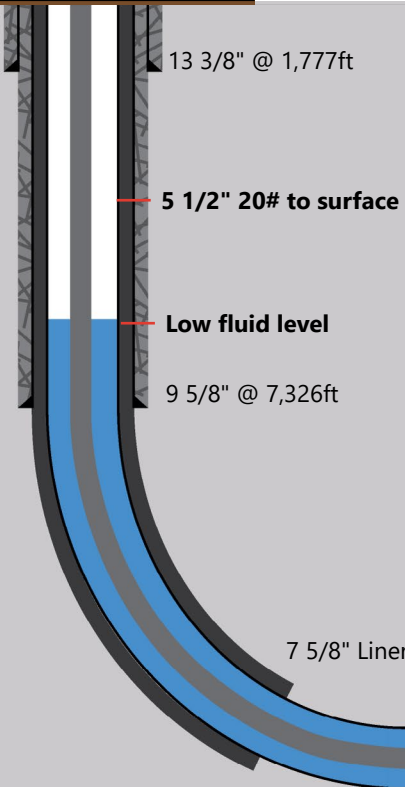
294k lbs available from the 4.44" DownHole Power Tool (DHPT) delivered directly at stuck point



Rig pull available at stuck point less than 88,000 lbs

ESP located 1,400ft into the perforated horizontal section

DHPT applied 221,000 lbs directly at stuck point to recover ESP



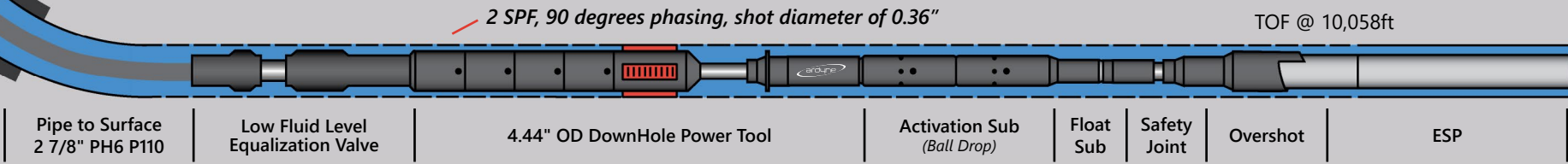
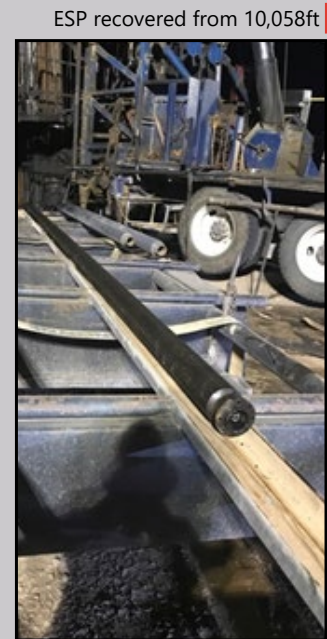
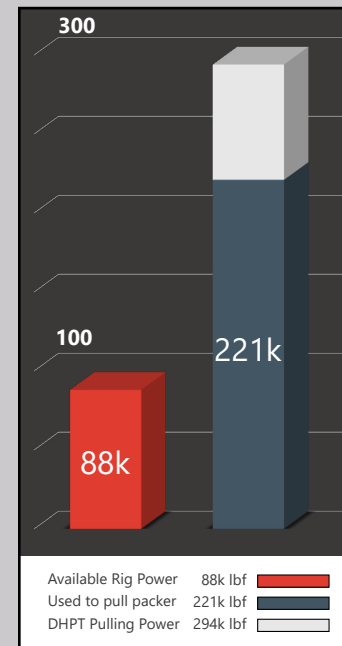
The Challenge

- ESP had failed
- Previous attempts to recover had failed
- Difficulty recovering due to location:
 - 1,400ft in the lateral
 - Limited rig power at stuck point
 - Located in perforated section
 - Low fluid level

The Solution

The Ardyne designed Equalization Valve allowed overcoming related hydraulic challenges associated with low fluid level wells.

The Ardyne DHPT applied 221,000 lbs directly at the ESP, which was located 10,058ft in the well, and recovered it to surface.



DOWNHOLE POWER TOOL SPECIFICATIONS



Superior force, locally delivered “beyond the curve”

Deploying the DHPT close to the stuck point and the concentrated power generated, greatly increases the ability to recover stuck objects.

SAFETY BENEFITS

- Avoids jarring
- No excessive overpull at surface
- Less wear & tear on rig equipment & workstring

EFFICIENCY GAINS

- Extreme pulling forces applied directly to stuck fish
- Certainty on amount of overpull applied to fish
- Pressure indication when fish has moved
- Allows application of force beyond rig capacity, workstring strength and without well friction

TYPICAL APPLICATIONS

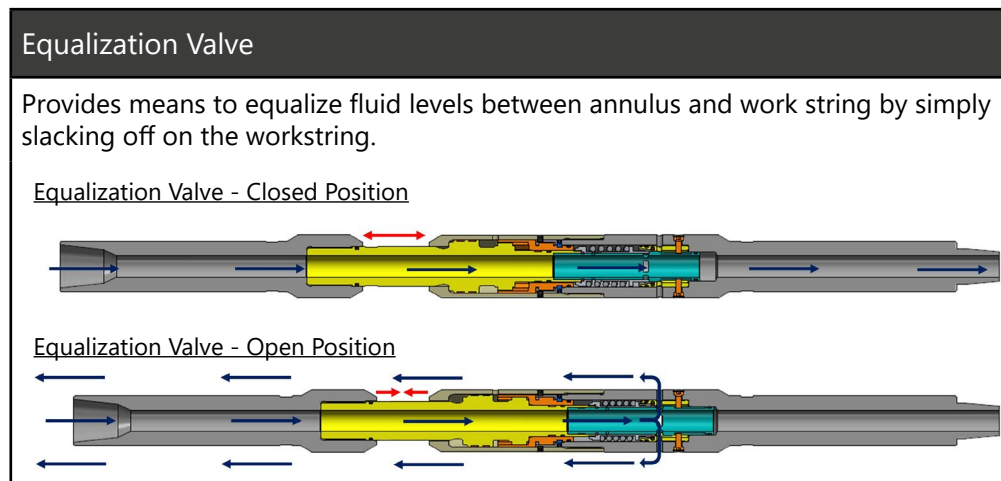
- Recovering stuck casing
- Retrieving stuck liner hangers
- Recovery of stuck fishing BHA
- Retrieving stuck drilling BHA's
- Shifting Sleeves
- Pulling stuck packers / plugs

DHPT Specifications

Description	DownHole Power Tool (DHPT)				
	3.500 in	4.440 in	5.750 in	8.125 in	11.250 in
DHPT OD	3.500 in	4.440 in	5.750 in	8.125 in	11.250 in
Setting ID Range	3.640 to 4.670 in	4.670 to 5.920 in	5.920 to 8.500 in	8.500 to 10.500 in	12.250 to 22.000 in
Power Section ID	0.938 in	1.50 in	1.50 in	2 in	1.50 in
Max. Pressure	5,000 psi	8,728 psi	6,355 psi	6,979 psi	5,919 psi
Pull (lbs) per psi	22.494	33.462	82.173	147.932	293.273
Max. Force Generation*	169,746 lbf	294,017 lbf	518,719 lbf	1,032,159 lbf	1,735,858 lbf
Tool Joint	NC 26 Box x NC 26 Pin	NC 26 Box x NC 26 Pin	NC 38 Box x NC 38 Pin	6 5/8 API Full Hole Box x NC 50 Pin	XT 57 Box x 6 5/8 Reg Pin

*At 100% of yield, no safety factor

Strengths and dimensions for reference only



The full range of Ardyne DHPT case studies are available to view on our website - to view just click one of the images below

