

# World Oil®

## WELL COMPLETION TECHNOLOGY

Advances improve stimulation, lower costs

### FORMATION EVALUATION

Applying ultra-deep LWD resistivity in SAGD

### SHALETECH: PRACTICES

Natural gas-powered fracturing at the wellsite

### REGIONAL REPORT: BRAZIL

Intent to restore its allure to operators



Gulf Energy<sup>i</sup>



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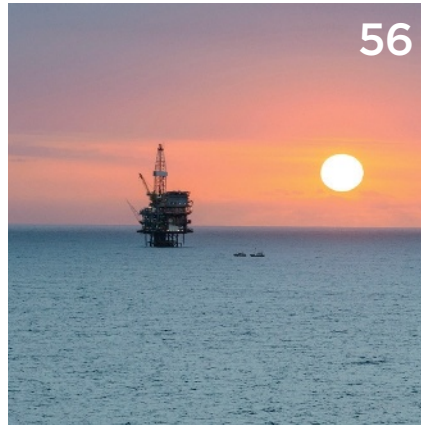
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Illustrating our Well Completion Technology theme, a Deep Well Services crew uses Hydraulic Completion Unit 10 during June 2018 to drill out frac plugs in a Utica shale well. The well was drilled to 28,600 ft, MD, with a 19,500-ft lateral, near the town of St. Clairsville in Belmont County, Ohio. The crew drilled out 118 plugs in 112 hr, using only one single bit in one single run. Image: Deep Well Services.



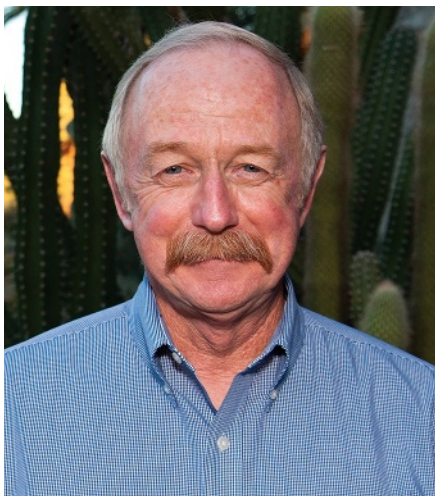
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# Can a major war be won?



■ TRENT LATSHAW, President, Latshaw Drilling Company. Photo: IADC/*Drilling Contractor* magazine.

The recent tightening of oil export sanctions by the Trump administration against Iran has caused me to do some thinking. I don't claim to be an expert historian on World War II (WW II), but I do have more than a passing interest in it. I own and fly a few WW II combat planes, including a P-51D Mustang, a F4U-4 Corsair, and a B-25 Mitchell bomber. In studying WW II history, there were three main things that helped us and our allies win the war, things that the Axis powers did not have.

**#1—Manufacturing might.** Thanks to Henry Ford, and his assembly line process for building automobiles, that particular industry was able to retool, to build aircraft, tanks, jeeps, trucks, etc. During the 11-year period from 1934 to 1945, the Germans built 25,500 Panzer tanks, while in a five-year period, from 1942 to 1946, the U.S. built 49,324 Sherman tanks.

The same holds true for aircraft. In 1939, the U.S. had only 3,000 aircraft, but by the end of the war, the country had produced 300,000. This compares to 119,907 built by Germany and 76,320 by

Japan. The Ford-built Willow Run plant in Michigan was spitting out a B-24 Liberator bomber every 63 minutes, 24 hours a day, seven days a week.

The U.S. also built more than 6,000 ships and 640,000 Jeeps during this period. WW II was the greatest military industrial effort in history, and the U.S. was the undisputed king of manufacturing might.

**#2—Oil production.** The U.S. was self-sufficient in oil production during WW II, something that neither Germany nor Japan could claim. History states that when the U.S. put an oil embargo on Japan in July 1941, that this was one of their reasons for attacking Pearl Harbor. Does this have parallels to the oil embargo being put on Iran? In both cases, the embargo was/is meant to put a stranglehold on their economies. Oil is the essential ingredient that powers both economies and militaries.

During WW II, East Texas was the largest known oil field in the world. In 1931, it was producing 900,000 bopd from 1,200 wells. During the war, the "Big Inch" pipeline was built, running from East Texas to the refineries in Philadelphia, to support the war effort. In 18 months, between March 1944 and the end of the war, over 350 MMbbl of oil were shipped through this line for an average 650,000 bpd. Not being self-sufficient, Germany and Japan relied heavily on imported oil, mostly from areas that they had captured.

**#3—Righteous indignation.** The war in Europe had been underway for over two years before the U.S. finally got involved. During this time, there were those that thought the U.S. should get in, while others thought it was a European problem only. The surprise attack at Pearl Harbor on Dec. 7, 1941, changed all of that. The next day, when President Franklin D. Roosevelt asked Congress for a Declaration of War with Japan, he stated in closing, "No matter how long it takes us to overcome this premeditated invasion, the American people in their righteous might will win through to absolute victory..... with the unbounding determination of

our people, we will gain the inevitable triumph, so help us God."

**Today's challenge.** So, what does all of this have to do with today's world and the oil industry? I believe that the U.S. will have to fight some form of WW III one day. I don't know when, or what will start it, but I believe it will happen. Rest assured that even if the war is not about oil, every major country fighting it will be trying to control the Middle Eastern oil fields. There will be countries, such as China, that won't have sufficient oil reserves of their own to fight a major war, just as Germany and Japan didn't.

Even though the U.S. is still not self-sufficient in oil, it has made unbelievable progress in the last ten years, going from 5 MMbpd to over 12 MMbpd and still climbing, due to horizontal drilling and fracing. The closer the U.S. is to being self-sufficient in oil production, the better chance it has to fight a war and be victorious.

The U.S. will need to have manufacturing might similar to what it had 75 years ago, to build the equipment needed to fight a world war. Unfortunately, over the last few decades, the U.S. has closed factories and outsourced considerable manufacturing to countries with much lower labor costs, such as China, which might be an actual opponent in a WW III. During WW II, the U.S. was the world's largest steel producer, but is now #5. In 2018, China produced almost 11 times the tonnage in steel production as that of the U.S. During the war, the U.S. was the world's largest shipbuilder, but it doesn't even make the current top five. The U.S. has become a service economy of hamburger flippers and strip malls.

I have no doubt that the American people, given the right circumstances, could have that same will and determination to fight. I know our industry will be doing its part. [WO](#)

TRENT LATSHAW is the President of Latshaw Drilling Company, the second-largest privately owned drilling contractor in the U.S. He is a petroleum engineering graduate of Texas A&M University and serves on the Texas A&M Petroleum Engineering Industry Advisory Board.