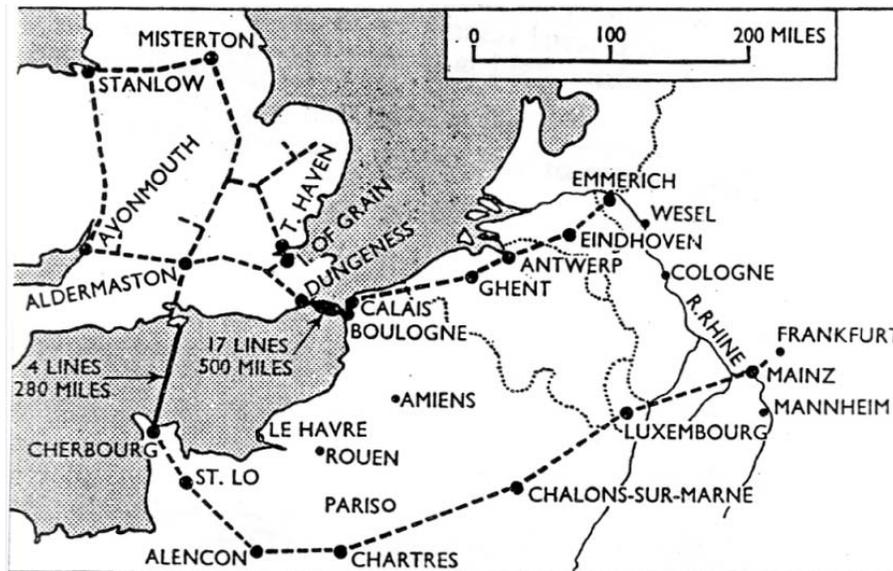


Fueling the Allied Invasion of Normandy (and Lessons for Today)

By Sharon E. Burke | October 21, 2013



Normandy, France -- The Pipe Line Under The Ocean (PLUTO) was an engineering miracle which pumped gasoline from the Isle of Wight to Cherbourg, France, enabling Allied mechanized armies to retake Europe (Universal News Reel - 1945)
Image Courtesy of CombinedOps.com

OEPP's Director for Innovation, John Jennings, recently sent me a link about OPERATION PLUTO, a neat bit of operational energy history. Dating back to WWII, PLUTO played an important but now little known part in the D-DAY invasion. Crossing the Channel and landing on the Normandy coast were incredibly difficult and major accomplishments -- it was the largest amphibious landing in history at the time. But the point of such an operation is what comes next: the ability to project power forward. More than 326,000 troops crossed the beaches, moving more than 100,000 tons of military equipment.

The D-DAY plan, OPERATION OVERLORD, estimated that the initial daily demand for fuel would be 5,000 tons per day, rising to 10,500 tons per day 90 days after the landing, with 60% of the consumption in the forward areas. The plan called for 10 Engineer Petroleum Distribution Companies and 1 General Service Regiment in order to get the fuel infrastructure in place, along with 37,400 long tons of equipment (Read the requirement as defined in the plans for OPERATION OVERLORD [here](#)). Interestingly enough, the plan also includes restoration of energy resources for both military and civilian reconstruction purposes.

So one key challenge was how to get that much fuel reliably to the front -- once Allied forces controlled French territory, they could reasonably expect to use the local distribution networks. Until then, however, supplying fuel in the large quantities required was going to be a challenge. So the Allies built PLUTO, which stood for Pipeline Under the Ocean. These pipelines went under the English Channel, some as long as 56 miles. While they were not without their difficulties and failures, [the pipelines successfully delivered up to one million gallons of fuel per day](#) from the United Kingdom to the French coast, enabling the push into Germany.

I hope that the United States and our allies never again face such a large amphibious operation or the need to support maneuver warfare on this scale, but it is certainly worth taking these lessons of history into

account, just in case. It took a great deal of fuel to support the movements of a modern military in 1944, and it takes even more fuel in 2013, but it also takes the expertise, the assets, and the infrastructure to make it possible to supply fuel on this scale -- especially in a contested and urgent situation. Part of making choices in an emergent strategic environment and constrained budget environment is being realistic about what it takes to actually execute a military operation, should the need arrive.

For additional material on PLUTO please refer to [Combined Ops](#) and for a YouTube video please go to <https://www.youtube.com/watch?v=pHINS8LGgzw>

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