

I-beams and a prefabricated deck girder span found in a railroad yard.²⁴

Fifty days after the breakthrough at St. Lo the rail net in the Third Army sector extended to Verdun on the Metz line and to Toul on the line to Nancy. In the First Army sector, the line was open from Paris northeast through Soissons, Laon, Hirson, Marienbourg, Charleroi, Gembloux, and Landen to Liege. (*Map 21*)

The first train to cross the border into Belgium was the regimental headquarters train of the 332d Engineer General Service Regiment. On 25 August Colonel Swenholt, the regimental commander (also commander of Group A), decided to move his headquarters and the administration section of Headquarters and Service Company to the La Hutte-Coulombiers area near Le Mans by train to save precious gasoline and tires. He used a German hospital train augmented with a few French cars and drawn by Transportation Corps locomotives. Pulling out of the village in some style after the townspeople had decked it with flowers, the train rolled over the Eure River bridge near Dreux on 9 September and continued to Paris via Versailles. Beyond Paris the engineers had to depend upon French locomotives and crews. Problems with the locomotives soon developed, and when the train reached the Belgian border more trouble arose, for the French crews objected to going into Belgium. Acquiring a German freight locomotive and recruiting crews from his own units, Colonel Swenholt got the twenty steel cars and five boxcars under way from Hirson shortly after midnight on 12 September and reached Charleroi,

Belgium, at 2000 the same day. After a stay of four days in Charleroi, during which the engineers were so mobbed by welcoming Belgians that the gendarmes had to be called out, the headquarters train arrived at Liege in the early morning of 17 September 1944.²⁵

Pipelines

By 12 August 1944, the day General Patton demanded railroad reconstruction from Folligny to Le Mans to carry gasoline in the dash toward Paris, the pipeline designed to bring bulk POL forward from the ports ran only as far as St. Lo. ADSEC engineer units, whose mission was to construct pipelines, storage tanks, and pumping stations and then to operate them, began landing on OMAHA Beach shortly after D-day.²⁶ The largest unit in the POL organization was the 359th Engineer General Service Regiment, with Company A of the 358th Engineer General Service Regiment attached. Other components were seven engineer petroleum distribution companies—the 698th, 786th, 787th, 788th, 790th, 1374th, and 1375th; two engineer fire-fighting platoons; and a squad from an engineer camouflage battalion. The 358th and 359th General Service Regiments were not assigned to bulk POL supply on the Continent until well after their arrival in England in late 1943. The regiments were generally inexperienced in pipeline operations and had insufficient time and equipment for adequate training. On the other hand, the petroleum distribution companies had been

²⁵ Hist 332d Engr GS Rgt, 1 Jan–31 Dec 44.

²⁶ Ruppenthal, *Logistical Support of the Armies, Volume I*, p. 510. For early POL planning in the ETO, see *Ibid.*, pp. 319–27.

²⁴ *Ibid.*, pp. 42–43 and fig. 13.

recruited largely from oilfield workers and had received specialized training in the United States. In late spring of 1944 the 787th Engineer Petroleum Distribution Company instructed the two general service regiments in pipeline construction and operation.

Most engineer POL units had the mission of installing and operating the Major POL System at Cherbourg, constructing or rehabilitating facilities for receiving, storing, and dispensing fuel. Most POL was to be delivered dockside by tankers, but some was to come in through British lines laid on the floor of the Channel from the Isle of Wight to the Continent, a system called PLUTO (Pipeline Under the Ocean). From Cherbourg south the engineers were to lay three six-inch pipelines, two for motor gasoline (MT 80) and one for aviation gasoline (avgas), with pump stations, tank farms, and dispensing facilities at La Haye-du-Puits, Coutances, Avranches, Fougères, and Laval. Lines for motor fuel were to extend from Fougères to Rennes and from Laval to Chateaubriant. But because construction for the major system could not begin until Cherbourg was captured, the engineers were to put the Minor POL System into operation shortly after D-day at two points east of OMAHA—Ste. Honorine-des-Pertes, the easternmost town in the American sector, and Port-en-Bessin, at the edge of the British beach area.²⁷

The Minor POL System

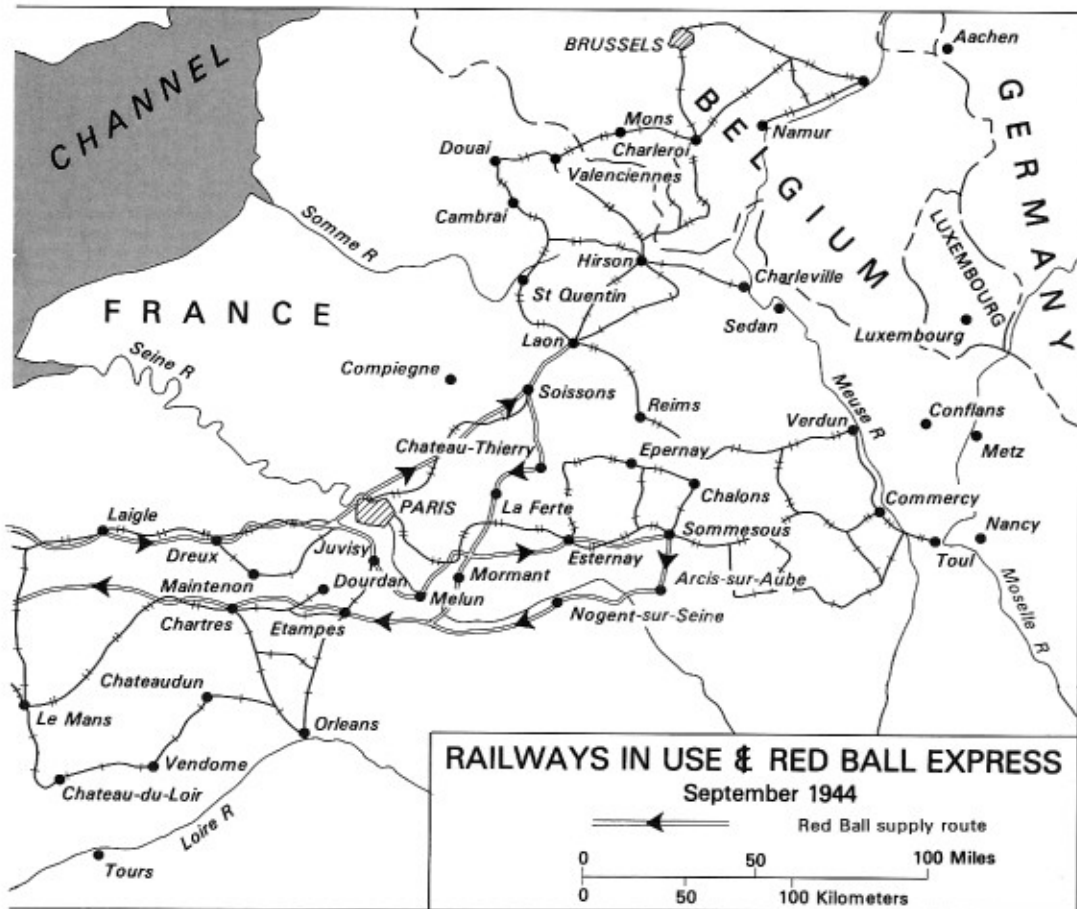
The first POL engineers ashore at



MAP 21

OMAHA were two companies of the 359th General Service Regiment and two petroleum distribution companies, the 698th and 786th. An advance party of officers landed early in the evening of 9 June and proceeded east to the assigned bivouac area—an apple orchard near the village of Huppain, somewhat inland and about halfway between Ste. Honorine-des-Pertes and Port-en-Bessin. In the next two days a convoy with the rest of the first elements came in over the narrow cliffside road to Huppain. As the last men of the 786th

²⁷ Coll, Keith, and Rosenthal, *The Corps of Engineers: Troops and Equipment*, pp. 417–37. See also Hists, 359th Engr GS Rgt, 1943–45, and 787th Engr Pet Dist Co, 22 Feb 44–Dec 45.



Engineer Petroleum Distribution Company landed at OMAHA on 11 June, they saw that the "wet, flat strip of sand was littered up and down the coast as far as the men could see. Machinery, guns, tools, clothes, and the innumerable odds and ends that came ashore with the assault were scattered and strewn as tho by some incredible wind. Broken landing boats [were] flung beside burnt-out tanks whose tracks were already bright with rust. [DUKWs,] bent like metal toys, spotted the foot of the sheer cliffs descending from the fortified hills." That night after the petro-

leum engineers had settled down in the bivouac at Huppain, German fighter-bombers roared low over them but dropped no bombs.²⁸

At that time, the engineers had a scant ten days to get the first POL system in operation. Bulk deliveries of POL, which had been handled in cans during and immediately after the invasion, were scheduled to begin on D plus 15.²⁹

At Ste. Honore-des-Pertes the engi-

²⁸ Hist 786th Engr Pet Dist Co, Feb-Dec 44.

²⁹ Ruppenthal, *Logistical Support of the Armies, Volume I*, p. 322.

neers were to install two six-inch ship-to-shore submarine pipelines known as TOMBOLAs to receive gasoline and diesel fuel from tankers at a deepwater anchorage and carry it to five bolted steel tanks onshore. One tank, holding 10,000 barrels of gasoline, was for Army use; four 5,000-barrel tanks, one for gasoline and three for diesel fuel, were for the Navy. Pump stations and four-inch lines would carry the Army gasoline to an inland tank farm at Mt. Cauvin, a hill about two miles south of Huppain and equidistant from Ste. Honorine-des-Pertes and Port-en-Bessin. The Navy fuel was to go to the MULBERRY at OMAHA.

Port-en-Bessin had two moles where shallow-draft tankers could tie up. While the British used the easternmost, the engineers were to install two six-inch discharge lines at the other—one for motor gasoline and one for aviation gasoline—and to erect two 1,000-barrel tanks, one for each type. Two pump stations were required, as well as two six-inch delivery lines running to the tank farm at Mt. Cauvin.

Mt. Cauvin needed considerable work, including tankage for 30,000 barrels of motor gasoline, a six-inch gravity line and six tank truck filling risers, pump stations, and two four-inch lines connecting with British lines. In addition, one four-inch pipeline was to be constructed south to Balleroy, with a booster station on the way at Crouay. Balleroy, an important filling station, would have two terminal storage tanks (one holding 1,000 barrels and the other 5,000 barrels), dispensing lines and connections to permit loading six tank trucks simultaneously, and decanting connections where quartermaster troops could fill five-gallon cans.

Plans for expansion of the Minor POL System were partly shaped by the fuel needs of U.S. aircraft on the Continent. For aviation fuel, a four-inch line was to extend from Mt. Cauvin about twenty-eight miles west to Carentan, with booster stations on the way. At Carentan French fuel tanks with a capacity of 4,200 barrels were to be rehabilitated and dispensing facilities constructed. A similar line for motor vehicle gasoline was to run from Mt. Cauvin to St. Lo and Coutances, where the Minor and Major POL Systems would connect. At both St. Lo and Coutances, storage tanks and facilities to serve a quartermaster decanting station were to be constructed.³⁰

Lack of supplies seriously handicapped the POL engineers who landed on OMAHA beginning 9 June. Construction materials expected to come in aboard a commodity-loaded coaster on 10 June did not arrive. By scouring OMAHA and UTAH beaches the engineers found enough scattered material to make a small start on 13 June. Two days later the first of eight LCTs, loaded with construction materials and sent forward when it became evident that the capture of Cherbourg would be delayed, arrived at Port-en-Bessin. Unfortunately, a storm that raged along the coast for three days wrecked two of the LCTs.

Mines the Germans had sown in the area also handicapped early operations. They had not been cleared because the combat engineers charged with this work had landed elsewhere. From one field

³⁰ OCE ETOUSA Hist Rpt 13, Petroleum, Oil, and Lubricants, app. 10c, POL Plan, OVERLORD, pp. 12–13; Ruppenthal, *Logistical Support of the Armies, Volume I*, pp. 316–17, map 9.

behind Ste. Honorine-des-Pertes the POL engineers removed more than a thousand mines, suffering six casualties, one fatal. Casualties would undoubtedly have been higher except for a "kindly, sharp-sighted little Frenchman," Eugene Le Garre, who had a summer home near the beach at Ste. Honorine-des-Pertes. From his front porch he had watched the Germans plant their mines and had noted their locations. On fishing trips he had discovered underwater mines near the beaches and furnished information for which Allied engineers were grateful.³¹ The engineers also faced German snipers, whose bullets sometimes punctured pipelines. They often found that the elevations marked on their contour maps were incorrect, forcing drastic changes to the plans for tank sites. Nevertheless, by 23 June, the day the first tanker arrived at Port-en-Bessin, the POL engineers had their transmission, storage, and dispensing facilities ready. When the first TOMBOLA was launched at Ste. Honorine-des-Pertes three days later the engineers had extended a pipeline to the Balleroy storage area, where the POL troops had erected one tank and were installing dispensing facilities.³²

After the capture of Cherbourg most POL engineers left work on the Minor POL System and proceeded toward Cherbourg via Bricquebec, where elements of the POL organization were already located. Company A of the 358th General Service Regiment and the 787th Engineer Petroleum Distribution Company, for example, did not

reach Huppain until 22 June and stayed only three days before moving west. After 1 July responsibility for the Minor POL System passed entirely to the 786th Engineer Petroleum Distribution Company, the only engineer POL unit remaining in the area.

As the transfer to Cherbourg began, the 786th was pushing pipelines westward, following a railroad bed that ran from Bayeux to Carentan via St. Jean-de-Daye. Although trucks and trailers negotiated the rough railroad bed with difficulty, it was the most direct and level route west. By 9 July construction had advanced to Govin, within five miles of St. Jean-de-Daye, but there enemy small-arms fire halted the work. St. Jean-de-Daye had not yet been captured, and the line that was to run through the town had to be abandoned. After a temporary suspension of all construction, the 786th Engineer Petroleum Distribution Company pushed a line for aviation fuel north from Govin to Carentan, arriving there on 24 July. South from Govin engineers constructed two pipelines, one for aviation fuel and another for motor gasoline, to tie in with the Major POL System at St. Lo. Early in August elements of the 1374th Engineer Petroleum Distribution Company, which had reached Huppain in mid-July, worked at Carentan repairing civilian gasoline tanks and at St. Lo building a 10,000-barrel tank.

The Major POL System

Gasoline from the Cherbourg area began to flow into St. Lo on 11 August. While elements of the 359th Engineer General Service Regiment, with the 787th, 698th, and 1375th Engineer Petroleum Distribution Companies, recon-

³¹ Hist 359th GS Rgt, pp. 145-46.

³² Col A. G. Viney, Dep ADSEC Engr, Rpt to Engr Fwd Echelon, HQ, COMZ, 26 Jun 44, quoted in OCE ETOSA Hist Rpt 13, Petroleum, Oil, and Lubricants, pp. 65-66.

structed POL facilities at Cherbourg, troops of the 359th General Service Regiment surveyed the pipeline route south.

Work on the pipelines to the front, beginning at the Hainneville tank farm in Cherbourg and undertaken mainly by the 2d Battalion of the 359th, proceeded expeditiously, thanks to an increase in supplies and manpower. Close behind the combat troops, the engineers extended the lines to La Haye-du-Puits and Lessay by the beginning of August. The route of the pipelines changed with the breakthrough. Instead of swinging south via Coutances and Avranches to Laval, the pipelines were to run southeast to St. Lo, Vire, and Domfront, and then east to Alençon, Chartres, and Dourdan, to cross the Seine near Corbeil and go to Coubert near Paris.

The major system consisted of three pipelines, two for 80-octane and one for 100-octane aviation fuel. Construction of the 80-octane lines got priority because of the greater demand for motor fuel. Except at highway and railroad crossings, where welded lines went underground, engineers laid the pipelines on the ground and connected each section with victaulic couplings. Whenever possible, the route followed a hard-surfaced road along which POL construction material could be transported. In the early days in Normandy the pipelines followed road shoulders because the engineers did not have time to break through the hedgerows and remove mines from the fields. But here the lines fell victim to errant drivers, and traffic accidents nearly always involved a section of the pipe. The engineers soon learned to lay the pipelines on the other side of the hedgerows,

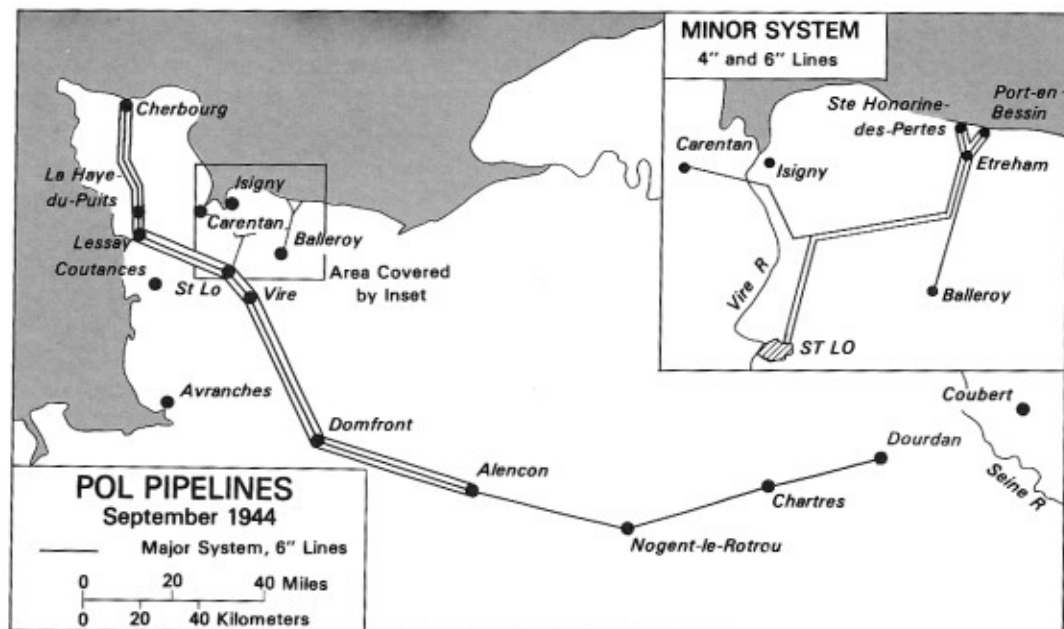
where they escaped damage and still followed the line of communications.³³

Construction from St. Lo went on simultaneously along three segments of the route: St. Lo to Vire, Vire to Domfront, and Domfront to Alençon. By the end of August the engineers had pushed one 80-octane line, the "Pioneer" six-inch line, as far as Alençon, eighty-one miles from St. Lo; a second 80-octane line had reached Domfront, and the aviation gas line was approaching Domfront. The need for speed and the inexperience of some of the POL engineers resulted, at times, in poor construction. Breaks occurred when the engineers were careless with couplings or left openings through which small animals entered the line or into which other troops threw such objects as C-ration cans. Breaks in the line north of Domfront on 29 August made it necessary for combat forces to draw all gasoline at St. Lo until repairs could be made. Interruptions to the work were inevitable when the engineers ran into minefields and suffered casualties or encountered pockets of enemy resistance. Fuel losses from holes punched in the line by black market operators and saboteurs became frequent as the lines moved east, while breaks resulting from ramming by trucks and tanks increased as the traffic built up.³⁴

When the advance party of the 359th General Service Regiment reached the bombed-out city of Alençon on 20 August, it ran into clouds of dust from hundreds of vehicles rolling over the rubble in the streets. A tremendous acceleration of traffic came a week later with

³³ Moore, *Final Report*, pp. 312–13.

³⁴ Ruppenthal, *Logistical Support of the Armies, Volume I*, pp. 510–11 and map 16; History of the ADSEC Engineer Section, Incl 13.



MAP 22

the inauguration of the Red Ball Express, an around-the-clock operation to carry supplies (except bulk POL) to the front. The engineers soon felt the effect of Red Ball on pipeline construction. Faced with the urgent needs of the advancing armies, COMZ chose to divert to Red Ball many truck units needed to carry pipeline construction materials to the POL engineers. At the end of August COMZ gave high priority to the rail movement of POL engineer materials, and within ten days the engineers received enough material in the Alencon-Chartres area to permit construction to continue. But by then the slowdown of pipeline construction had already contributed to the critical gasoline shortages that developed early in September.³⁵

New POL Organization

By the third week in August the engineer force working on the major and minor pipeline systems included three general service regiments, the 358th, 359th, and 368th; a battalion of a fourth, the 364th; and nine petroleum distribution companies, the 698th, 786th, 787th, 788th, 790th, 1374th, 1375th, 1376th, and 1377th. With attached truck companies, welding detachments, and fire-fighting platoons, the force numbered more than 7,000 men. On 23 August ADSEC organized this engineer force into the Military Pipeline Group (Provisional) under the command of Col. John L. Person of the 359th. (Map 22)

Enough troops were available to operate the systems, but by mid-September, after a brief spurt of moving construction materials by rail had ended, transportation to move the pipe forward was

³⁵ Ruppenthal, *Logistical Support of the Armies*, Volume I, p. 513; Moore, *Final Report*, p. 313.