

N-9924.2

21

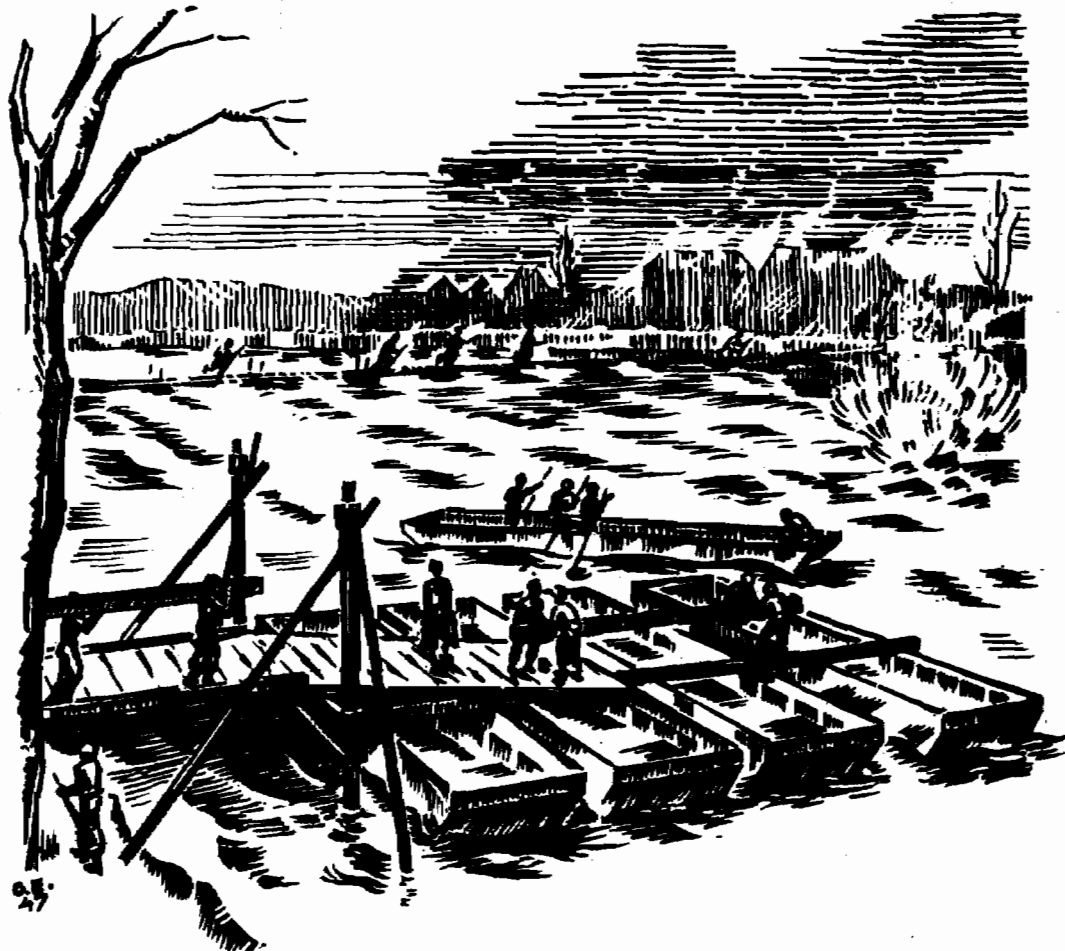
ARCHIVES
OF THE ARMY CENTER

OCT 3 1955

ACCESSION NO.
FOR REGISTER

ROER RIVER CROSSING

FEBRUARY 1945 • JULICH-GERMANY



HUBERT S. MILLER
COL. C.E.



Serial 14

ROER RIVER CROSSING



GENERAL REPORT

COMMANDING GENERALS AND OFFICERS DIRECTLY COMMANDING
ENGINEER UNITS MENTIONED IN THIS REPORT

XIX Corps	Maj Gen Raymond L. McLain
29th Division	Maj Gen Charles H. Gerhardt
30th Division	Maj Gen Leland S. Hobbs
2nd Armored Division	Maj Gen Ernest N. Harmon
83rd Division	Maj Gen Robert C. Macon

Division Engineers

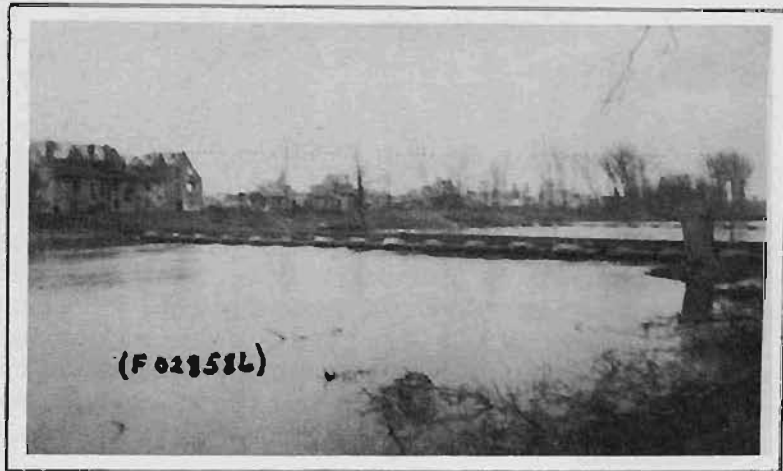
29th Division	Lt Col Robert R. Ploger
30th Division	Lt Col Carroll H. Dunn
2nd Armored Division	Lt Col Louis W. Correll

Corps Engineers

Col Hubert S. Miller

1104th Engr (C) Group	Colonel Hugh W. Colton
246th Engr (C) Bn	Lt Col Clarence W. Anderson
247th Engr (C) Bn	Lt Col Ralph E. Leighton
208th Engr (C) Bn	Lt Col Scott
554th Engr Hv Pon Co	Lt Col Groh
503rd Engr Lt Pon Co	

978th Engr Maint Co	Captain Roy C. Krueger
62nd Engr Topo Co	Captain Kent
1115th Engr (C) Group	Colonel George H. Hodges, Jr.
82nd Engr (C) Bn	Lt Col John C. Dalrymple
234th Engr (C) Bn	Lt Col Walter C. De Renne
295th Engr (C) Bn	Lt Col George T. Carter
512th Engr (C) Bn	Captain Carlos G. Klein
611th Engr L. E. Co	Captain Carl J. Hale
992nd Engr Maint Co	Captain William H. Linkhorn



(F02958L)

Completed bridge near Julich after
flood subsided. Constructed by 247
Engr C Bn and 992nd Engr Tw Br Co.



Completed bridge built by 246th
Engr C Bn and 992 Engr Tw Br Co.

THE ROER RIVER CROSSING

Introduction

In eleven months of combat from Omaha Beach to Magdeburg the XIX Corps experienced a great variety of river crossings. Many lessons were learned, one of which was that the width of a river is a very unreliable gauge of the difficulties to be expected in an assault crossing. The Roer River crossing illustrated most of the essentials of a successful crossing.

The unique academic value of this operation was realized at the time, February 23, 1945, and an attempt was made to preserve essential reports and data. The pressure of subsequent events delayed utilization of this information until now, two years later. In order that this report may be evaluated as accurately as possible, the sources of the data presented are indicated. Fortunately, copies of the original crossing order of the 1104th Engineer (C) Group, and after-action comments by Engineer group, battalion and company commanders are available. All other data is from memory by the writer (then XIX Corps Engineer). Although some inaccuracies may appear concerning actions of other than Engineer units, the Engineer operations can be given with unusual accuracy.

The XIX Corps had penetrated the Siegfried Line, taken Aachen and Corps reached the Roer River in November when the general advance was stopped. The plan to cross in December allowed far more time for planning than for any previous crossing. The German Ardennes offensive caused the XIX Corps to move to the right until that threat was over. However, the 29th Division remained in place along the Roer and became thoroughly acquainted with the terrain.

On 5 February the XIX Corps moved back to the previous sector where plans and special training continued for the Roer crossing. The conditions which permitted exceptional time for detailed planning also allowed the enemy unusual opportunity to prepare the defense. Both sides took advantage of this time to the limit of their ability.

The Terrain

The terrain strongly affected this operation with all advantages to the defending enemy. From Julich to the north, high ground close to the river provided observation superiority to the enemy. Trees provided concealment in much of this area. For several miles on our side of the river there were no hills, no perceptible observation points and little cover. The ground gradually sloped to the swampy areas along the river. The city of Julich was built up close to the river and provided a serious obstacle to our advance. This, the northern sector, was assigned the 29th Division supported by the 1104th Engineer (C) Group.

In the Southern Sector, assigned to the 30th Division, supported by 1115th Engineer (C) Group, neither side had terrain advantage. It was all uniformly bad for any crossing. Neither side had any observation; both sides had flat, swampy ground. The enemy did have advantage in cover. We held bridges over the Inde River. Between there and the Roer the ground was only slightly higher. At this time of year after snow, ice and thaw, the cross country mobility was extremely low. Although not clearly shown on all maps, each road actually required three bridges in this sector because the Roer is paralleled by the small Muhlen River on the west and a ditch on the east.

The Roer River

The Roer River was an innocent appearing stream with tremendous potentiality. In the headwaters of this river are a series of dams, the largest of which is the Schuammanuel Dam. By a fortunate combination of circumstances, XIX Corps G-2 and Engineer Intelligence personnel acquired a complete engineering study of the capability of this impounded water. The story of these dams remains one of the unwritten technical dramas of the war. The maps, data and technical report which fell into our hands were prepared by the German Engineers who built the dams. They had prepared this remarkable and accurate study at the direction of the German General Staff. Briefly the situation was this: The German Army was fully aware of the capabilities of this impounded water - over 1,000,000 cubicmeters. By releasing it suddenly they could create a great flood barrier across the entire front of the 1st and 9th US Armies and the British Sector on our left.

The water barrier would average some thousand yards in width and would be very rapid along the stream line. Even after receding, a swampy barrier of mud and water would continue for a long time. The duration and height of flood depended upon many things, the most important being the rate of release of water from the dam. As long as the German Army held the dam they controlled this critical element. They could either destroy the dams and cause a tremendous flash flood or they could damage the gates so as to cause a lesser flood of longer duration. The XIX Corps made a staff report, each officer assuming the corresponding staff position in the German Army. The writer (speaking as a German Army Engineer) reported that the greatest damage the German Army could cause would be to release the water at a rate to make the river practically uncrossable for a period of about 10 days and timed to catch the US Army on both sides of the River. This meant that the German Army must retain control of the dams, if possible, until this critical moment arrived. If forced to withdraw from the dams, the gates should be destroyed at the last moment to create the latter type of flood. That is precisely what was done. Some of the bloodiest fighting of the war occurred in the Hurtgen Forest in our attempt to capture these dams. After the Ardennes threat was settled, the enemy still held the dams. Our Air Corps attempted unsuccessfully to destroy the dams by bombing. Our engineers established an elaborate flood warning system, radio controlled, and perfected plans for crossing. Finally our attack on the dam pressed close and the dams were captured but after the flood gates were damaged. The Germans created an unpassable barrier for the maximum time - an excellent job. Our flood warning system protected us from any losses by flooding and daily records kept us informed as to when the flood would pass.

Staff Planning

A dramatic staff meeting was held at 9th Army Headquarters during this period. General Bradley was the senior officer present to make the decision as to the Roer crossing. General Simpson (Ninth Army) and the Corps Commanding Generals of the VII, XIX, XIII and XVI Corps were present. The Corps faced the Roer River in the order named from right to left, the VII Corps in First Army, the others in the Ninth Army. The crossing plans affected two US Armies and the British on our left. As the XIX Corps was to make the main effort, that corps

plan was first called for. The plan was to cross before daylight the 23rd February, before the flood had subsided but after the crest had passed. That we must cross was entirely evident to friend and enemy. The probable crossing sites were very evident but some surprise might be had by jumping sooner than expected. The question was: was the chance of surprise worth the greater technical difficulties? After hearing the plans General Bradley asked just one question of the XIX Corps Engineer: "How do you know you can cross successfully under such difficulties?" The answer was: "Because we have done it. More than 300 of our men have crossed the Roer and returned." "The plan is approved." The Engineers had to make good.

That is how the decision was made. It was an important one. Our armies had advanced from Normandy to the Siegfried Line. We had been delayed for a supply and troop build up and then been further delayed by the German Ardennes offensive. Our next objective would be the Rhine River and General Eisenhower had said, publicly, that we must defeat the enemy on the Rhine plains. Our intentions were no secret and if we stalled on the first step, the Roer Crossing, our entire offensive would falter.

Staff planning was by methods normal to the XIX Corps. There was only one Staff conference at Ninth Army Headquarters. Prior to this there had been one conference at Corps Headquarters attended by Division staffs. Later all details were worked out quite informally, the final plan actually growing out of joint corps - division staff work.

The Basic Plan

The basic plan called for an attack along the entire army front, XIX Corps making the main effort. The XIX Corps was to attack with the 29th and 30th Infantry Divisions abreast, the 30th on the right with the 2nd Armored Division in close support to exploit any opportunity. The 83rd Division was in reserve initially although one CT was attached to 29th Division.

As always in the XIX Corps, the Corps Engineers supported the assaulting divisions and the Division Engineers were left as free as possible for far shore operations. Detailed plans were worked out with Engineer Group Staffs and Division Engineer. The result was actually to pool Engineer resources and produce a plan with

definite responsibility fixed for each engineer task.

The Troops

Most of the units involved were battle experienced. The XIX Corps Headquarters, the Corps organizations, the 29th and 30th Infantry Divisions and the 2nd Armored Division had been in continuous action for eight months and had fought together most of this time. The 83rd Division was equally experienced. Other units temporarily attached to the corps had seen some combat. As a whole it was an exceptionally experienced force.

The Engineer Troops

The composition of the two corps groups was as follows:

1104th Engineer C Group
246th Engineer C Bn
247th Engineer Bn
208th Engineer Bn
503rd Engineer L Pont Co
554th Engineer Hv Pont Bn
978th Engineer Maint Co
62nd Engineer Topo Co

(All of the above, except the 208th Engineer C Bn and 554th Hv Pont Bn, had fought together for eight months. The two exceptions were less combat experienced but had seen some previous action with the 1104th Group and acquitted themselves well.)

1115th Engineer C Group
82nd Engineer C Bn
234th Engineer C Bn
295th Engineer C Bn
992nd Engineer Treadway Bridg. Co (with
1 plat Co E, 17th Armored Bridg. Co.
attached)

Summary of Situation

The above gives the picture of our troop strength: an interior corps making the major effort across the Roer, with the mission of breaking through and defeating the enemy between the Roer and the Rhine. We knew that the enemy defended Julich very strongly and had been increasing the strength of their position for months. We knew

the terrain in the 29th Division sector strongly favored the enemy. We knew the river was in a flood which would soon subside. The current velocity was very high, over 6.3 miles per hour at some sites by actual current meter velocity. By all standard estimates of the situation the 30th Division sector was impracticable, if not impossible, of a successful crossing; fast current, three separate channels, 1000 to 2000 yards of inundated approach, no observation. But this sector was known to be lightly defended. As an interior corps there was no wide latitude in choice.

The corps decision to attack both divisions simultaneously made no designation of main effort and kept control of the support strength to exploit the most favorable development. This was standard corps practice. The two division sectors could hardly have been more different - the 29th sector across a fast stream, directly into a strongly held city; the 30th Division sector across a wide, swampy, flat area against a weakly manned position. At Corps Headquarters it was hoped that the 30th Division could cross with light losses and outflank the strong Julich position. However it was no secret that few shared the engineer's confidence in overcoming the physical crossing problems.

The Orders

No copies of Army or Corps orders are available here. However both were brief mission orders, giving attachments, objectives and boundaries in the usual brief manner. As to Corps Engineers, the Corps order merely stated that the 1104th Engineer C Group would support the 29th Division and the 1115th Engineer C Group support the 30th Division. The group order was detailed and worked out in considerable detail jointly with Corps Engineer, the Group Commanding Officer and Division Engineer. A copy of the original 1104th Engineer Group order is attached (8). Battalion orders were also detailed written orders. No copies of Division orders are available.

Plan in 30th Division Sector

In the 30th Division sector (1115th Engineer Group) the plan was as follows: two footbridges were to be constructed, one by the Division Engineers and one by the 82nd Combat Battalion. Two one-way, class 40 bridges were to be provided in this sector, one by the 82nd Engineers and one by the 295th Engineers. A great deal of approach road work was involved in each bridge. (2)

The 234th Engineer Combat Battalion had an unusual mission in supporting both divisions by the operation of amphibious equipment (3). Due to the wide area under flood, and other difficult technical considerations, it was evident that bridging would be unusually slow. It was therefore decided to provide amphibious support until the bridges were in. This battalion was provided with "Alligators", 17 LVTs and 2 M 29 Cs. In addition each division had one company of dukws. Ten LVTs were assigned to the 30th Division sector (6 LVT4 and 3 LVT2) and 7 to the 29th Division sector.

Operation in the 30th Division Sector

D-day, H-hour, was 23 0330 February 1945.

H-45

Heavy artillery concentration
82nd Engineers started footbridge
295th Engineers started first Treadway Bridge

(No record here of hour division bridge was started but it was shortly after dark at the most favorable site, technically).

H hour

Ferrying operations commenced and continued 24 hours
231830 foot bridge completed at second site
231500 2nd treadway bridge started
240100 1st treadway bridge completed
241930 2nd treadway bridge completed

At 0330 hours one alligator operated by 234th Engineer C Battalion, loaded with troops, started across. The swampy inundated area was traversed, as were numerous small water-covered islands. Numerous barbed wire, three strand fences were over run effectively and dry land reached. Upon signal, three other troop-loaded alligators followed, meeting no enemy resistance except ineffective light mortar and artillery fire. However the infantry found many SP mines upon landing. The alligators returned with casualties and continued operating. By 0530 two infantry companies had been crossed which, in the opinion of the infantry battalion commanding officer, were adequate at that location. By that time a foot bridge crossing elsewhere was available. Ferrying of supplies began about 1200 hours when 10 alligators were sent over, loaded with cargo. Both the 119th and 120th Infantry regiments provided a representative at the transfer point in PIER

and on far shore at KRAUTHAUSEN and loading details on both shores. The infantry representatives told the engineers what the supply priority was and the engineers provided the transportation. Supplies crossed included jeeps, $\frac{1}{4}$ ton trailers, 105 MM anti-tank guns, weasels (M-29), rations, water, ammunition, lumber, gasoline and oil. Wounded and prisoners were evacuated at each trip. By 0430 on the day after D-day 53 loads had been ferried across. From that time on all supplies crossed on the treadway bridges. The above outline of events in the 30th Division sector make it clear that in this particular situation alligators were an outstanding success. The Dukws were not used at all. Later on we will see that alligators had greater difficulties in the other sector.

The treadway bridge construction was noteworthy for several reasons. The 992nd Treadway Bridge Company did not have adequate bridge for the requirements. To make up this deficiency, one platoon of Company E, 17th Armored Engineer Bn, 2nd Armored Division was attached to the 992nd. This gave an additional 432 feet of bridge. An additional 216 feet of bridge was obtained from Army and placed in an accessible bridge dump.

In the 1115th Engineer C Group sector there was no room for efficient construction because the bridge was built at the end of a long fill, making traffic control absolutely necessary.

In this crossing the pontoons were inflated and saddles placed in the rear area. This made it necessary for only one dump truck at a time to drive up, dump the float and withdraw. Due to space limitations mentioned and artillery fire, this procedure definitely saved lives and time.

Smoke was used continually after daylight.

Once the treadways and roads were open the entire division and supporting troops crossed without incident, Julich was outflanked and the advance was rapid.

In this sector the unusual features were:

- a. Width of inundated area and current velocity in channel.
- b. Use of alligators.
- c. Actual surprise achieved due to choice of crossing site.

d. Continual use of smoke.

e. Complete integration of Division Engineer and Corps Engineer plans, without corps units attachment to Division, was normal in XIX Corps but was not general throughout the army.

f. This is the only case in XIX Corps operations where a Corps Group CP was at Division CP during crossing. This was done because complete integration was imperative.

g. It will be noted that the 234th Engineer C Battalion, equipped with alligators, supported both divisions without attachment to either and without splitting the battalion between groups. This was normal in the XIX Corps because the Corps Engineer, by definite order exercised command over all Corps Engineer units. This permitted a quick shift of engineer support to follow advantages anywhere in the front. In this case it was particularly doubtful where the advantage would occur - that is, where the 2nd Armored Division would be crossed.

h. The 992nd Treadway Bridge Co (with a platoon attached from Division Engineers) likewise served both groups and supported both Divisions.

i. An unusual communication net was prepared.

Plan in 29th Division Sector

In the 29th Division sector on the left a crossing was under way simultaneously, under very different conditions (7). Here the river was narrower and swifter, here the enemy had all the advantages of observation and position and Julich was immediately on the far shore. Here our attack was expected and strong defensive positions were prepared. The 30th Division sector gave possibility of a surprise crossing but here it could only be done by blunt force.

The one main road in the Corps Sector, which would eventually become a main supply road, passed through Julich.

Advanced Engineer reconnaissance had been very thorough but not as complete as in the other sector, due to a much tighter enemy screen. Here also the Corps Engineer Group detail plans were closely integrated with the division. This was routine as these units had fought together for several months.

Essentially, in this sector, the plan called for three foot bridges and three vehicular bridges initially, with another foot bridge and two additional vehicular bridges to follow after the assault.

Division Engineers

The 121st Engineer C Battalion (Division Engineers of 29th Division) was to man assault boats furnished by the 1104th Engineer C Group and establish an Infantry bridgehead by ferrying two platoons at Site no 2 and one platoon at Site no 3. This assault wave was to start at H-hour and foot bridge construction to start concurrently. Division Engineers were to evacuate casualties until foot bridge were open (7).

The Division Engineers were also to operate assault boat ferries at a point between Site No 3 and Site No 5. At Site No 5, the Infantry was to be crossed in LVTs. Road routes through Julich were to be cleaned of mines by the Division Engineers.

The bridging schedule was planned as follows: (7)

<u>Type Bridge</u>	<u>Site</u>	<u>Time of Starting</u>
3 Footbridges	2	H Hour
Inf Support Bridge	3	H Hour
Treadway	" 2	H / 1
Hv Pont	" 2	H / 1
Bailey	" 2	When flood receded to allow work on piers.
Treadway Bridge	5)	When flood receded to permit work.
Footbridge	5)	

This schedule was unique, largely due to the fact that the assault was made over a flooded river which we knew would soon recede. Site 5 was for the purpose of taking return traffic until the final Bailey was installed on the MSR. The Infantry Support Bridge was used here because unloaded vehicles would not require as heavy a bridge. There was not sufficient treadway for another treadway bridge and the site was very poor for a Bailey Bridge. This site did not figure as a possible strong assault crossing and could be considered somewhat as a feint, although that word did not appear in orders.

It will be recalled that part of the 234th Engineer C Battalion (of 1115th Engineer C Group) supported the

crossing of the 30th Division very successfully by LVTs (Alligators). Company C of this same Bn supported the 29th Division. This Company assumed control of 7 alligators at 2400 of D-1. They were moved to KOSLAR the night before, 50 caliber machine guns were mounted and life belts provided. A great deal of work had gone into maintenance, special training and detail planning with the Infantry. Six alligators with 35 men each, were to carry the assault wave. Two 105 mm Howlitzers, plus crews, were to remain on call.

Operation in 29th Division Sector

The Artillery preparation started at H-45 (0330 A) as in the 30th Division Sector.

At H-20 under cover of the artillery preparation, a tank-dozer lead off from the transfer point with four men riding on top, two men to handle a tow cable, one guide and the engineer company commander (Co C 234th Engineers). The alligators followed at 75 yard intervals. (3) The road was found to be blocked with vehicles which had hit mines. One alligator hit a mine and was disabled. The dozer hit another mine and was also disabled.

In brief conference with the infantry battalion commander, it was decided to leave the road and cross the fields, known to be covered with Schu Mine Fields. It was just getting daylight and thick smoke was in use at this time. Visibility was almost zero. The first alligator set off four Schu Mines but successfully crossed the mine field. The engineer commanding officer returned and lead four more alligators through the mine field, exploding three more mines. They now were back on the road, 200 yards from the river. At the Infantry Commander's request they waited 30 minutes for the smoke to lift before entering the water. This time was spent in mine removal. All five alligators crossed the stream with difficulty. The current was running about 7 miles per hour and much of the river was under enemy observation after the smoke lifted. Enemy machine gun fire from BROICH covered a part of the distance traversed. From another hill, enemy observed machine gun fire was on both approaches but the range was too great for accuracy. There was some sniper fire. Soon both mortar and artillery fire was received. However, the infantry was safely unloaded in the lee of a hill about 200 yards from the river and started working forward. All alligators returned to the near shore and two again crossed the river with the remainder of the Infantry company. One more alligator hit

a mine and was disabled, leaving five in operating condition. During the rest of the morning the remainder of the Infantry battalion was crossed by sending one alligator at a time to avoid congestion. Long range small arms fire continued but had little effect. In one alligator three shots penetrated the outer shell but not the inner metal. There was artillery fire but no hits. During the afternoon a second Infantry battalion was crossed by using four alligators. Also crossed were some Engineer, Signal and miscellaneous small parties. One alligator was hit by artillery on a return trip, disabling the 50 caliber MG but not impairing the use of the vehicle. One alligator was assigned for medical use and evacuation.

Near dark two alligators were assigned to ferry over a cannon company and one to transport ammunition and gasoline. During the night six 105 mm Howlitzers and five M-29s were crossed. A Signal Corps jeep was crossed, stringing wire as it went.

After 18 hours of operation, mechanical deficiencies became serious. One more alligator was put out by artillery fire and the operators were almost exhausted. But the crossing was made and it held until the falling river made it possible to construct bridges for further support.

Site No. 3

Footbridges were begun at H Hour at the same time the Division Engineers started across with ferried Infantry in assault boats. As in the other sector, the current velocity caused severe trouble in placing the anchor cables. One footbridge was completed at 0424 but was soon swept out by a boatload of Infantry soldiers. All three bridges were in at 0700. This time seems slow by academic standards but both technical and tactical conditions were very severe. Small arms fire was on the bridge almost continually, although in the darkness it was relatively ineffective. The defense was so close that the Engineers suffered handgrenade casualties. One footbridge was practically unused after completion because it was covered by machine gun fire until H / 4. As the Infantry advanced, the enemy infiltrated back and an Engineer bridge head had to be reestablished. AP mines were extremely dense. However, by daylight that phase of the crossing was assured.

The heavy ponton bridge was started at H / 1 (0430) at Site 2. Although this bridge was under continuous long range small arms fire until 0800 and under sporadic mortar

and artillery fire the rest of the day, it was open for traffic at 1600 and a few armored vehicles crossed before darkness.

The Treadway Bridge at site no.2 was also started at H / 1 and was under continuous small arms fire until about 0900 and from then on under observed mortar and artillery fire. (6) At about 0930, with 132 feet of bridge complete, seven rounds of artillery landed on the bridge itself sinking all floats and damaging the treadway. This one incident caused the death of two officers and four enlisted men while one officer and 17 men were wounded.

As the enemy very evidently had this site zeroed in, the center line was moved upstream about 100 yards, equipment salvaged and a new bridge started at 1400 and completed at 1100, D / 1. It was shelled intermittently until after being opened to traffic.

The Infantry Support Bridge at Site No 3 was known to be a gamble. Nevertheless it was generally expected that this would be the first vehicular bridge in. The reverse was true. The site was under intense small arms fire all of D Day and D / 1. It was impossible to move any equipment to the river. There was no bridge head. Although the Division Engineers reported the road to the site demined, the first vehicles were wrecked. It was then found that the enemy has used non-metallic "topf"-mines on the road and shoulders, our first experience with non-metallic mines which our mine detectors could not locate. This is the same situation that interfered with our alligators. Some six hours were spent probing this road. Still the enemy fire was directly on the site and, due to the road net, no other site was possible. The Corps Artillery supporting group commander saw the situation after conference with Engineer Group Commander and gave some unusual support. Upon Engineer request, an L-5 plane actually convoyed each individual vehicle to the site, while watching for muzzle flashes. At one time eleven L-5 planes were over this one site. Eventually the enemy could hold back no longer. They fired; they were spotted and knocked out promptly by our artillery. The long delay in securing a bridge-head shows how ineffectual the first thin infantry bridge-head was in this case. One perfectly camouflaged 88 was firing point blank at the bridge from a range of a few hundred yards. The bridge was opened to traffic at 1530 of D/1.

On D / 1 the flood had subsided sufficiently to construct a treadway bridge at Site No. 5. This was started at 1600 D / 1 and completed at 1200 D / 2. The current, though restricted in channel, was extremely swift. While under construction this bridge was subject to artillery fire and attack by enemy jet propelled airplanes. The loss of a quickway crane seriously handicapped this construction job.

On D / 2 the river level had receded so that work could start on the intermediate piers for the Bailey bridge over the demolished structure at Site No.2. Work was started on D / 2 at 0700 and open for traffic at 1710 D / 4. This bridge was a 300 foot double Bailey of three continuous spans. As ample bridges were in, no attempt was made to work at night. Here the enemy had utilized three 500 pound American air bombs (which had been duds) for mining the bridge abutment. Those had to be removed before construction could start. All engineer troops were nearly exhausted at this time and there were many other jobs to be done.

There is one Engineer job of the greatest importance that is rarely mentioned. We call it "town clearing" - the clearing of a usable road through demolished cities. In this case, town clearing was a tremendous problem and an immediate necessity. The vehicular bridges were useless as they led directly into an impassable city. Julich was one of the most completely destroyed cities in Europe. Not one structure was left inhabitable. All streets were totally blocked. Engineer prior planning from air photos and maps had resulted in a detailed plan of road clearance and traffic routing. The drainage system was totally destroyed and flood waters had inundated the western and southern sectors. Some badly needed roads were under two feet of water. The first vehicle to cross the first bridge, the heavy ponton bridge, were bulldozers. By the morning of D / 1 there were three routes through Julich open to traffic and by that evening the fourth route was clear. All of this work was done under artillery fire from the east and from Hambach Forest. This artillery and air bombing continued to cause casualties to men and equipment.

Comparison of Sectors

The crossing in the 29th Division sector was similar to the 30th Division on the right in only a few respects. Both faced excessively fast water in flood, both used

alligators satisfactorily, neither could ferry armored support prior to the completion of bridges and both had the same artillery preparation and support. However the 29th Division faced excessively heavy opposition on the far bank, the 30th Division almost none. The 30th Division Sector used smoke all of D Day, the 29th used smoke only in early morning. Once on the far shore the 30th Division pushed ahead readily while the 29th Division had to fight through Julich and up wooded hills. Casualties were far heavier in the 29th Division Sector.

The rapid advance of the 30th Division on the right soon helped to ease pressure on the 29th and the entire corps was again in a rapid advance.

Special Problems

One of the most remarkable features of this operation was the absence of losses by drowning. Realizing that a fast, flooded stream at night offered the maximum hazard, exceptional precautions were taken. Navy life belts were secured and worn by men in the assault crossing. Life lines with life preservers attached were provided and engineer details in boats were placed down stream to help any who fell in the river. At the Corps Engineers request the Corps Surgeon later checked all aid stations, all casualty reports, and questioned all unit surgeons without finding a single proven case of drowning. This positively proved the value of the extra precautions.

The construction of log mine and debris booms upstream from the bridges was a precaution not always taken. Here it was especially necessary due to drift wood.

The final Engineer task here was that of salvage. Previously detailed crews searched the entire Corps Sector and returned assault boats, parts of foot bridges and other equipment, and evacuated this collection to the Corps Maintenance Company for check, repair and reissue. The Maintenance Company itself picked up all damaged motor equipment and either repaired and returned it to the proper unit or evacuated to Army.

The Corps Engineer

The engineer picture may be completed by stating the actions of the Corps Engineer during the actual crossing. As he commanded all Corps Engineer Units his job did not end with planning and coordinating. He must

make it work. His CP remained at Corps Headquarters. Three separate telephone lines were laid to the 1104th Engineer (C) Group advanced CP near the river edge. His duties, as usual, were to keep in close touch with G-3 in order to shift Engineers promptly to follow the play, to keep planning ahead and to follow the hot spots when difficulties developed. About daylight the last of the three phones to the 1104th Group was shot out and reports had not been very encouraging. The Corps Engineer visited the Group CP and then the advanced CP on the river. The Group Commander had been shot through the cheek but was on the job and had the situation well under control although there was trouble at all bridge sites. After a visit to the 1115th Group he returned to Corps to check in with G-3. About that time, as is usual, the CP was flooded with misleading reports. To clarify the picture the Corps Engineer in an L-5, flew over the river for about an hour until chased out by a German plane. However he had an excellent picture of the situation. From the air he could see down through the smoke in the 30th Division Sector and see that all was going well. In the 29th Sector it was not as favorable. The treadway bridge at Site No 2 was seen to be sunk and there was no progress on the Infantry support bridge. However the foot bridges were holding and the heavy ponton bridge was well under way. From the firing it was evident that our Infantry had little bridge head in this sector. After reporting again to G-3, he visited the 1104th Engineer C Group advanced CP where some artillery and supply coordinating was necessary. When the heavy ponton bridge was in he crossed with the Group Commander to see how bad the "town clearing" job was. It was bad but the dozers went to work according to plan. Town clearing became the hot spot. Later on he had just returned to the completed treadway bridge from a road reconnaissance through Julich when he met the Corps Commander, who had been misinformed that the Engineers had not opened a road through the town and the armored Battalion could not advance. Fortunately the Corps Engineer could report that since the roads through town to its outskirts had just been covered in a jeep, they were passable for armor. That incident marked the last real Engineer problem of the Roer crossing and the armor was soon rolling.

High Lights of Crossing

Some of the high lights of this operation may be summarized.

The planning, including supply plans, were thorough and in detail and yet flexible enough to follow the play. Actually this crossing followed all details of the plan much closer than usual.

The plan was actually the result of a joint corps - division staff, with engineer details filled in by Corps, Group and Division Engineer, that grew quite naturally without formal staff meetings. This was largely due to long service together.

In spite of everything, some details did go wrong. In the 30th Sector one foot bridge never was completed at the intended site. After being knocked out eight times it was put in at another site.

The road to Site 3, reported demined by Division Engineers, was actually heavily mined with non-metallic mines, seriously affecting all operations at that site.

The treadway bridge was totally sunk at site No.2 and the heavy ponton bridge was the first completed. This was most unexpected but the plan was flexible enough so no tactical delay was caused.

The alligators proved a success beyond expectation.

All bridging was slow but after closely analyzing the Infantry advances it was found that all bridges were available as soon as they could be used.

On almost all crossings enemy infiltrated through the first Infantry bridgehead, requiring, in effect, an inner Engineer bridge head. This condition was far worse than usual because crossing directly into a demolished city provided many places of temporary shelter and concealment for the enemy.

Surprise was achieved in the 30th Division Sector beyond all hopes. This is absolutely confirmed by a captured German day-by-day war history. (Although I cannot quote verbatim, I read this German report while a member of the Theater General Board.) It said, in substance, "We considered the sector between Julich and the autobahn absolutely impossible as a site for assault crossing. Here the enemy achieved one of the very few tactical surprises of the war."

The immense value of long service together was demonstrated forcefully. With new combinations there is a strong

human tendency to make biased incriminations of other units or other arms or services if things seem to go wrong. Although this operation was extremely complicated and some plans did go wrong there was never a word of fault finding from any of the units who had fought together before. One minor incident only of this type occurred - the report of an armored battalion that the Engineers had failed to clear a route through Julich. This was absolutely false as the route was cleared long before the armor complained. The complaint did not come from the 2nd Armored Division but from a tank Battalion attached to a Division for its first combat. This incident is remarkable only for its rareness. All cooperation was superior. The act of placing eleven L-5's over one site indicates how ready the Corps Artillery was to go the limit to help.

Controversial Matters

Searchlights. The use of AA searchlights for "artificial moonlight" in battlefield illumination was important in this operation. Our Army had little previous experience with battlefield illumination, at least it was new to all units of the XIX Corps. A British expert aided in our planning and after many discussions it was first used by this Corps shortly prior to the Roer Crossing. The first use resulted in vigorous supporters and almost equally strong dissenters. From the first the Engineers were almost unanimous in their support. This lighting proved a great help on night road work, mine laying and removal, bridge construction and in fact all Engineer tasks at night. As the light tactics improved the supporters increased until searchlights were generally accepted as invaluable aids.

Smoke. Controversial also, prior to the crossing, was the policy on the use of smoke. In one division area continuous smoke was requested. The other division did not want it as it believed better protection was received from our unhampered artillery. "If you can't see them you can't hit them." This crossing did not answer the argument. The division using smoke continuously had no ground observation available and had exceptionally bad, swampy terrain. The smoke was made by a CWS generator unit and was carefully controlled at a rather thin density. (No accurate data available). The weather was cool, damp, and a gentle breeze towards the enemy prevailed. The smoke remained near the earth in almost ideal conditions. I know from personal observation that under these conditions I did see clearly the muzzle

blast of enemy artillery from an L-5 airplane. I also know that on the flat ground I could not see any great distance, possibly 100 yards. I do know smoke was an unqualified success under existing conditions for the division using it. I do know the other division had far greater casualties, which proved nothing as all conditions were different. However this crossing more than any other operation convinced the Engineers of the value of a properly controlled smoke (as to density) where conditions permitted and served as a model for the later Rhine crossing.

The hour of crossing is always hotly discussed. There are many arguments for and against a night crossing and all seemed particularly pertinent in this case. The extreme velocity of the river argued strongly against the hazards of a dark crossing. This was countered by exceptional precautions against drowning. The winning argument in favor of a dark crossing was the great superiority of observation held by the enemy in the 29th Division's sector. As Corps Engineer, I was in favor of a night crossing only because I had excellent Engineer units with much combat experience. I feel sure that green or inexperienced troops would have had tremendous difficulties, due to confusion. In this crossing there also was exceptional time available for detailed reconnaissance, and planning. This all proves only that a night crossing demands more serious consideration and detailed planning if we are to benefit by darkness (or smoke). Confusion is a powerful enemy.

Time of crossing. Probably the most controversial subject is the time of starting bridge construction. This is the most difficult decision an Engineer officer has to make. In spite of all that has been said on this subject it remains for some one on the spot to decide. In my opinion a clock time schedule of starting bridges prepared in advance cannot be accepted as absolute. It must be accepted (if used at all) as an estimate of the situation and no more a rigid statement of events to follow than a G-2 estimate of future events. In this operation a planning time is started in the 1104th Engineer Group order but by long usage it was thoroughly understood as a planning time.

A more accurate schedule of bridge construction would be based on events. When a specific event has occurred or mission accomplished a bridge will be started. This is theoretically perfect but it can rarely be determined

promptly when the named event has occurred. We see this type schedule also in the 1104th Engineer Group planning, "when the river dropped sufficiently" a bridge will be started. However, here it was certain the river would drop soon but it was still an on-the-spot decision as to what was "sufficiently".

Our school doctrine gives phase lines which are theoretically correct event schedules. Any phase line based on a specific enemy action or position can not be determined promptly. No matter how one approaches this problem the decision is actually based on some one person's estimate:

1. A pre-attack, clock time estimate
2. A phase line schedule based on events which may or may not occur and whose occurrence must be estimated
3. Frankly based on the order of a designated person on the spot who must keep a running estimate of all conditions, technical and tactical.

Under plan 3. there are arguments as to who should be the person to make the decision. In the XIX Corps the Corps Commanding General designated the Corps Engineer as the officer responsible and the entire war was fought under this principle. The basic reasons for this selection were: a river crossing is fundamentally an Engineer problem; the Corps Engineer commanded all the engineer resources and was best informed on technical capabilities and limitations (including the replacement supply situation as it affected justification of risks) and he controlled the resources for exploiting crossing opportunities because the bridges, approaches and roads were here controlling features. In practice, this responsibility was normally delegated to the Engineer Group Commanders while the Corps Engineer attempted to follow the most important site. Frequently the bridges in the Corps Sector were started successively and it was possible to follow each in turn, at least during the starting phase.

Regardless of who makes the decision as to when to start he must consider certain facts, among which are:

1. Desire for early reinforcements on far shore, including T.D. and armor

2. Vulnerability of bridging equipment

These two considerations appear to be diametrically opposed but experience goes far in reconciling these opposing factors. In each assault there comes a time when speed of action will accomplish much at little cost. In a heavily opposed crossing this time comes very soon after the first shock of attack and before the enemy has time to diagnose our intentions and move to meet them. In other words, if we are organized to take full advantage of his temporary disorganization our task is done the most efficiently. This means that, in general, we should take full advantage of this first shock to build our bridges at maximum speed and this includes the heavy bridges. In the XIX Corps it was proven time and time again that we actually saved lives and equipment by moving in well ahead of the academic phase line theory. Like any other principle this "rush in" idea can be sadly overdone. It is this timing, the ability to decide just when to rush in and when to delay that is the key to an engineer success just as an infantry commander must sense the time to throw in his last reserves.

I do not want to overstandardize. Anyone who advocates a standard timing has never experienced more than one crossing. The point is that it is normally more efficient in lives and material to hit the job hard after the first shock than to delay according to the book. The Roer Crossing might be called a poor example of the point argued, particularly as the Treadway Bridge Commander stated that his bridge was started too early. (6) However, due to excessive current, the construction time was unusually long and artillery fire found his bridge as it was nearly completed. The early completion of the heavy ponton bridge was most important.

Regardless of the discussion above, all tactical commanders want some TD or armor to cross the river much sooner than the pre-war tactical teaching. I believe this correct; it is needed. It was standard practice to ferry across some armor whenever ferries could be put in operation sooner than a bridge could be completed. Here again it is engineer judgement. On the Roer crossing the current made ferrying impossible and increased the demand for early bridging.

It will be noted that one foot bridge was started before H-hour. This was most exceptional and due entirely to confidence in engineer reconnaissance that this could

be done without detection. That was successful in this case proves no generality.

Site Numbers - One of the minor points that occasionally assumes great importance is illustrated in this report. It will be noted that throughout the reports references are made to "Site No - " as bridges and bridging sites. It was customary for the Corps Engineer to give site numbers to all possible crossing sites in the Corps sector long before a river was reached. This was done from a study of air photos, map data, geological reports, etc. These same site numbers were used by all; Corps G-2 and G-3 reports, Divisions and all concerned. This eliminated much confusion. During earlier crossings, before this system was used, there was frequently uncertainty as to which bridge various action reports referred to. Divisions had one system, Corps another, some would say "the upstream bridge", "the - Infantry bridge", etc. Map coordinates would, of course, eliminate all uncertainty but they just do not get into many messages during the actual crossing when quick information is essential. When all planning was done on a site-number basis, all reports came in that way and much uncertainty was avoided.

It may be noted that there is no Site No.4. Site No.4 was selected in advance from air photos. Ground reconnaissance later proved that site impractical and it was abandoned. However other site numbers were not changed on that account; once assigned they stayed.

Other Factors. Many factors not discussed played heavily in the success of this crossing. Several hundred yards of crushed rock were shipped in by rail as far forward as possible and trucked to a dump for repairing approach roads in the 30th Division Sector. A vast amount of night road work was done in the entire sector. Traffic circulation plans were worked out in fine detail. Engineer vehicles were given road priority until bridging was completed. Special communication facilities were provided to the extent of laying these separate wires to Group advanced C.P. All three were shot out and finally radio and messenger service alone remained.

Conclusion

Proper coordination of all elements is, of course, of fundamental importance for a successful attack.

The Roer Crossing demonstrated that fact. No absolutely fixed rules can be made because no two river crossings are the same. But it is clear that there must be coordination of all arms; there must be aggressiveness based on judgement; there must be fine planning which does not restrict flexibility; there must be clear-cut responsibility; there must be technical and tactical skill. In the last analysis, technical and tactical skill and superior planning are valueless without personal aggressiveness, good judgement and courage on the part of the individuals involved in the attack.

INCLOSURES

The following inclosures are true copies of group, battalion and company orders and special after action reports prepared immediately after the crossing.

The value of the latter lies in the fact that they were prepared by officers participating actively in the crossing while details were fresh in their minds. However they were written while heavy fighting was going on and cannot be expected to be entirely complete.

All reports had detail sketches attached which have not been reproduced. Instead two drawings have been made including the most essential data from the several after action reports. Unfortunately there is no report available from the 20th Engineer (C) Battalion and the 554th Engineer Heavy Ponton Battalion, both of which accomplished their missions in an excellent manner.

C-O-P-Y

HEADQUARTERS
1115TH ENGINEER COMBAT GROUP

APO 339, US Army
17 March 1945

REPORT ON ROER RIVER CROSSING

Maps: GSGS No 4507, Sheet 19, Scale 1:50,000.

1. Mission: The 1115th Engineer Combat Group was assigned the following tasks:

a. Close support of the 30th Infantry Division in their attack across the Roer River.

b. Continued support of the 30th Infantry Division on the far shore.

c. Support of both the 29th and 30th Infantry Divisions in the attack by ferrying personnel, vehicles, and supplies from H-hour until sufficient vehicular bridges could be constructed to adequately care for traffic incident to both supply and evacuation for both divisions.

d. Successive construction of two one way class 40 bridges across the Roer River in the 30th Division zone.

2. Assignment of tasks:

a. 295th Engineer Combat Battalions:

(1) Close support of 30th Infantry Division on both near and far shore.

(2) Clearing road from Inden to Pier to Schophoven to Krauthausen and constructing one treadway bridge across the Roer River and adjacent canal between Schophoven and Krauthausen.

b. 82nd Engineer Combat Battalion:

(1) Support the 30th Infantry Division by constructing one footbridge across Roer River in vicinity of Pier.

(2) Open road from Pier to Krauthausen and construct Class 40 treadway bridges across the Roer River and the two adjacent canals.

c. 234th Engineer Combat Battalion:

- (1) Support of the 29th and 30th Infantry Divisions in the attack by ferrying personnel, vehicles, and supplies from H-hour until sufficient vehicular bridges could be constructed.

d. 992nd Engineer Treadway Bridge Company with one Platoon Company "E", 17th Armored Engineer Battalion attached.

- (1) Furnish all treadway bridging equipment necessary to construct our crossings of the Roer River in the XIX Corps zone (two in 30th Infantry Division and two in 29th Infantry Division zone).
- (2) "(1)" above for the 1115th Engineer Combat Group called for a total of 576' of bridge plus personnel and equipment to work at two bridge sites.

3. Plans:

a. Immediately upon receipt of orders to plan the crossing, aerial photographs and reconnaissance data were assembled and studied. The crossing sites were determined and the missions listed in Paragraph 2 were assigned the attached units:

b. Special Equipment:

- (1) One additional platoon (432') of treadway bridge from Company "E", 17th Armored Engineer Battalion attached to 992nd Engineer Treadway Bridge Company.
- (2) 216' of additional treadway bridge minus transportation was secured from the dump and stocked in the 992nd Engineer Treadway Bridge Company area.
- (3) 17 L.V.T.'s and 2 M-29C's attached to 234th Engineer Combat Battalion for ferrying operations.
- (4) Each Battalion, with the aid of Group S-4, was made responsible for obtaining and stockpiling in assembly areas near the respective sites sufficient ches-paling, landing ramp material, sommerfeld matting, gravel, rubble, and other miscellaneous supplies necessary for the operation.

4. CP Locations and Communications.

a. Liaison:

- (1) The 234th Engineer Combat Battalion established liaison with both the 29th and 30th Infantry Divisions for coordination of the ferrying operation.
- (2) The 295th Engineer Combat Battalion established close liaison with the 30th Division Engineers.
- (3) The 82nd Engineer Combat Battalion established liaison with the 1115th Engineer Combat Group.

b. CP Locations (See attached map).

- (1) 1115th Engineer Combat Group.
 - (a) Forward CP was located in Inden at the 30th Infantry Division CP. The Group Commander remained at this location with the 30th Division Engineer throughout the operations.
 - (b) Advance CP was located in Pier with the Forward CP of the 82nd Engineer Combat Battalion. The Group Executive Officer, the C.O. 82nd Engineer Combat Battalion and the S-3 of the 295th Engineer Combat Battalion and the S-3 of the Division Engineer Battalion remained at this location throughout the operation.
 - (c) Rear CP was located in the vicinity of Mariadorf. The Group S-2, S-3, and S-4 remained at this location so as to be readily available for coordination of supplies, equipment etc.
- (2) 295th Engineer Combat Battalion:
 - (a) Forward CP at Schophoven from which Battalion C.O. operated.
- (3) 82nd Engineer Combat Battalion: Forward CP in Pier from which Battalion C.O., Group Executive Officer, S-3 295th Engineer Combat Battalion and S-3 of 30th Division Engineer Battalion operated during the crossing.
- (4) 234th Engineer Combat Battalion: Forward CP located at Inden from which the Battalion C.O. operated.

- (5) 992nd Engineer Treadway Bridge Company.
 - (a) CP located at Warden from which the Commanding Officer operated.
 - (b) Each bridge detachment sent out was always in communication with the Battalion to which attached.

c. Communications:

- (1) Radio: SCR 300 radios were stationed at both bridges, forward CP's of both the 82nd and 295th Engineer Combat Battalions. SCR 284 radios were located at 1115th Engineer Combat Group Forward CP at Inden and the Group Rear CP in the vicinity of Mariadorf.
- (2) Wire:
 - (a) Ferrying: The 234th Engineer Combat Battalion Forward CP at Inden was connected by wire to both 29th and 30th Division Engineer Battalions and to both 1115th and 1104th Engineer Combat Groups for coordination of Ferrying operations.
 - (b) Bridging: Wire communication was maintained from both bridge sites back to the 82nd and 295th Forward CP's on back to 1115th Engineer Combat Group and 30th Division Forward CP, thence on back to 1115th Engineer Combat Group Rear CP., thence on to each Battalion Rear CP.

5. Operation:

D-day, H-hour was 230330 February 1945. At H-45 the 82nd Engineer Combat Battalion began construction of its footbridge. Enemy fire and the strong current however caused the first site to be abandoned after four hours work and six attempts to complete the bridge. This bridge was finally completed at another site at 231830. Ferrying operations commenced at H-hour and continued throughout the next 24 hours. At H-45 the 295th Engineer Combat Battalion began construction on the first vehicular bridge and the 82nd Engineer Combat Battalion began construction on the second vehicular bridge at 231500. The first vehicular bridge was completed at 240100 and the second one at 241930 February 1945.

6. Comments and Recommendations:

a. For an operation of this type the importance of close liaison between units involved and a very complete communication net, both wire and radio, cannot be over-emphasized.

b. The use of smoke to screen the bridge sites from observed fire was invaluable. It is recommended that in future operations that smoke be under the control of the Engineer in charge.

c. When constructing bridges under artillery fire the prefabrication of floats in a rear assembly area and transporting them to the site on 2 $\frac{1}{2}$ ton trucks minimizes the working party at the bridge site and speeds construction especially where the working area at the site is limited.

d. This operation stressed the importance of choosing the less obvious bridge sites for assault bridges. This is borne out by the Engineer casualty figures which in the 30th Division zone were approximately 1/5 as many as those suffered in the 29th Division zone where the bridge sites used were opposite the well defended town of Julich.

/t/ DONALD G. SAURENMAN,
Lt. Col, CE
Commanding

Inclosures:

Operations Reports for:
82nd Engr C Bn
234th Engr C Bn
295th Engr C Bn
992nd Engr Tdwy Br Co

C-O-P-Y

HEADQUARTERS
234TH ENGINEER COMBAT BATTALION
APO 339, U. S. ARMY

ROER RIVER CROSSING IN SUPPORT OF
29TH AND 30TH DIVISIONS

GENERAL

During the assault crossing of the Roer River the 234th Engineer Combat Battalion was in support of the 29th and 30th Divisions. The mission of the Battalion was to cross supplies and personnel by means of amphibious equipment until such times as sufficient bridges would be completed. The Roer was in flood stage making bridge construction difficult and causing dependence upon this special equipment during the early hours of the crossing. The amphibious equipment assigned to the Battalion consisted of 17 LCTs and 2 M29 Cs. In addition each division had one company of Dukws attached. Company "A" was to support the 30th Division and Company "C" to support the 29th Division.

PREPARATION

The town of ALDENSHOVEN was selected as the Battalion assembly site for the equipment and supplies. The LVTs were taken to this site about a week previous to the operation. A great deal of maintenance work was necessary to put this equipment in operating condition. The entire motor section of H&S Company as well as a detachment of men from the 538 Ordnance Company (Heavy Maintenance Tank) worked long hours to complete the job. Also at this assembly area the following equipment and supplies were gathered:

4 D-7 Bull Dozers
5000 gals. gasoline
200 gals. oil (50 wt.)
5000 yds. Summerfeld Matting
400 ft. plank road
88 rolls chess paling
14 rolls coir matting
1200 ft. 1/2 inch rope
800 ft. 1/2 inch cable
18 55 gal. drums (fitted as bouys for
channel markers)
Assorted Signs.

The LVTs were assigned 10 to the 30th Division and 7 to the 29th Division. Of the 10 assigned to the 30th Division, six were LVT 4s and four were LVT 2s. Of the seven assigned to the 29th Division four were divided equally between the two companies taking part in the operation. The road building equipment was held in reserve in case Dukw operations should prove practical. Previous tests by this Battalion had shown that approaches to and exits from the water would be necessary if Dukws were used. However in the actual operation only Alligators were employed.

Reconnaissance of transfer points and approaches to the rivers was pushed strongly during the few days prior to D Day. Aerial photographs were studied to locate far shore exit points and a suitable road network. This reconnaissance coupled with tactical considerations determined the location of the transfer points and the routes of approach to the river. Company "A" selected LUCHERBURG as an assembly area and PIER as the site of a transfer point. Company "C" selected KOSLAR as an assembly area and a factory in HASENFELD GUT as a transfer point. The combat engineers of each division stated that the routes which were to be used between the transfer points and the Roer River were cleared of mines. The main difference between sites was the distance from the transfer points to the river. In the case of Co. "C" this distance was only 200 yds whereas it was slightly better than one mile in case of Co. "A".

During the planning periods as well as during the actual operations the Battalion maintained liaison with the G-4 of the two Divisions. Contact was also kept with the 538th Ordnance Company in order to give them time to get a maintenance crew to each transfer point prior to H Hour. Mine clearance information was obtained from the division engineers.

OPERATION

During the night of D-1 the amphibious equipment and supplies were moved from the Battalion Assembly Point to the Company Assembly Points. From that time on the companies were in complete charge of their respective operations.

Lt. HATTON, "A" Company Commander, describes his company's part in the operation as follows: "At 0300 hours

on D-Day the alligators and 2 D-7 Dozers were sent to PIER, the transfer point. At the same time a runner was sent from the Infantry Battalion with word that troops would have to be taken across in Alligators. It was quickly decided that they would have to be loaded at a point approximately one-half mile from the crossing site and a guide was furnished by the Infantry to lead the vehicles to that point. Initially 4 M-2 Alligators would be used for the troops and if they were disabled or destroyed 4 others would be sent down to the loading point.

At 0330 hours the 4 alligators were loaded with the troops and proceeded down a trail to the water. Agreement was made with the Infantry Company that the first Alligator would cross, while the others would remain dispersed, and unload its troops. Then a flashlight signal would be given and the remaining Alligators would cross in single file.

The first Alligator entered the water without any difficulty and headed upstream. Numerous water-covered islands were crossed; the main stream was the only spot where the vehicle was forced to swim. The current did not cause it to drift down as much as had been expected. Numerous barbed wire fences (3 strand) were encountered in the stream, but were over-run without any trouble. The vehicle was forced to detour a deep zig-zag trench. A small lateral road was found and used until a stretch of dry ground was found to unload the troops. The unloading was too slow, partly due to the fact that apparently no one from the Infantry had been designated as in charge of the troops. The Engineers took charge of the unloading and things went somewhat faster. The signal was given and the other three Alligators came across, using the same route, without any difficulty.

No enemy resistance was encountered except light mortar and artillery fire which did no damage, but many anti-personnel mines were found in the woods where the troops were unloaded. Numerous casualties were resulted from these mines. On each return trip these casualties were carried back across in Alligators. This caused considerable delay because the Infantry did not collect the casualties, and in most instances the Alligator operators and assistants would have to leave the vehicles and load the casualties themselves. I believe that if all casualties had been brought to a central spot and left with sufficient personnel to load them into the vehicles that considerable

time would have been saved.

By 0530 hours two Infantry Companies had been carried across the river and the Infantry Battalion C.O. decided that he had sent over as many troops as were necessary in that area. The remaining troops crossed on a foot bridge which, in the meantime, had been constructed farther upstream.

The four Alligators, however, made crossings until 0900 hours bringing back casualties. As soon as all casualties had been brought over to the near-shore the Alligators returned to the transfer point at PIER.

The ferrying of supplies across the Roer began around 1200 hours, after the assault landing. It could have started much sooner but fighting was still in progress in KRAUTHAUSEN, which had been selected as the far-shore transfer point. A mine sweeping and reconnaissance party was sent over at 0900 hours to sweep the road leading into KRAUTHAUSEN, and select a point for unloading, also to determine whether or not the Alligators could cross a small canal running parallel with the river on the outskirts of the town of KRAUTHAUSEN. At 1130 hours radio word was received that the town was cleared and that a small bridge was being constructed from logs and lumber over the canal, using German prisoners for the work. At 1200 hours all 10 Alligators were sent over loaded with cargo and a guide from the reconnaissance party.

By the time the alligators reached the canal the bridge was completed. The supplies were unloaded at a point just before reaching the bridge, and later transferred to KRAUTHAUSEN by German prisoners of war and by jeeps which were ferried across the river in the alligators. After that it was purely routine ferrying. There was light mortar and artillery fire, but with no damages.

The 120th and 119th Infantry Regiments were units concerned with getting their supplies across. Each regiment had a representative at the transfer point in PIER and one on the far-shore at KRAUTHAUSEN. Loading details were also furnished by the Infantry regiments on either shore. The route was plainly marked from INDEN to PIER so that no difficulty was encountered, in getting the supplies to the transfer point. Telephone communication was established between the Infantry dumps in INDEN and the transfer point so that supplies could be brought up as Alligators were available to be loaded. The Infantry

representatives told the Engineers what supplies they wanted to get across first and they were loaded accordingly. The supplies that were carried across were as follows:

- Jeeps
- 105 MM Anti-Tank Guns
- Weasels, M-29
- Trailers, 1/4 Ton
- Rations
- Water
- Ammunition
- Lumber
- Gasoline
- Oil, motor

After unloading the supplies, the alligators were loaded with wounded and prisoners of war and brought over to the near-shore transfer point. One platoon of Engineers were on the far-shore to supervise the evacuation. These wounded and prisoners were brought back to T/P at PIER and were sent to the Aid Station and PW Cages from there.

The only difficulty in the loading was with 105 mm guns. To get them in the M-4 Alligators they had to be placed in on an angle and had to be blocked up to a height of about 8 to 10 inches. This enabled the trails to clear the top of the ramp. This had been determined the previous day in practice loading, so suitable platforms had been constructed for the blocking-up process.

Continous trips were made across the river with the Alligators until 0430 hours on the day after D-Day. Altogether 53 loads of vehicles and supplies were ferried across. At that time sufficient treadway bridges had been constructed across the river and all supplies were crossed there. However, the Alligators stood by all that day in case the bridges would be knocked out.

Keeping Alligators properly maintained presented the biggest problem during the operation. A maintenance crew of 9 Ordnance men was on hand at the transfer point. As each Alligator came into the transfer point it was checked by this crew and if in need of repairs it was pulled to one side and repairs were made immediately. A sufficient number of grousers should be on hand as that was found to be the biggest trouble due to the long runs on dry ground. At no time we have more than three

Alligators held up for maintenance, and then only for a period of approximately one hour".

The Commanding Officer of Company "C" which supported the 29th Division was Capt (then Lt) NORMAN E. CUSICK. His story of the operation is as follows: "Company "C", 234th Engineer Combat Battalion, assumed control of seven (7) Alligators at 2400 on D-1, from Battalion Headquarters. These Alligators were moved into position in KOSLAR, Germany the night before, and 50 Caliber Machine Guns were mounted on each; life belts were provided each driver and his assistant. Blue Battalion worked out a loading plan which, at our request was held down to a maximum of 35 men and equipment for the M-4 was pre-loaded with two 105 mm Howitzers plus crews and placed on call, the other six were to carry the assault wave. These Alligators were all loaded in KOSLAR, Germany where they were parked and then driven down to the water, a distance of approximately 2000 yards. A tank dozer was borrowed to act as a wrecker and to give fire support on the immediate bridgehead if necessary. Maintenance crews from the Ordnance were on hand to take care of the repairs. Each Alligator had a driver and an assistant, and another driver was held in reserve at the transfer point. 1st Lt JOHN F. NEEL had one squad of men at the transfer point to direct loading, repair, etc., of the Alligators; this transfer point was located just outside of KOSLAR, Germany on the road to the river approximately 2000 yards away. Radio and telephone communication was set up between the transfer point and the forward CP located in HASENFELD GUT, Germany with Blue Battalion CP.

The tank dozer took off with 4 men riding the top, (two men to handle the tow cable, one man to act as guide and runner and myself) at H-20 under cover of the opening barrage. Moving half way down the road we met a tank backing up. The tank commander said that his lead vehicle had been blown up on a mine and he was withdrawing the remaining four and with them went our direct fire support. The tank dozer backed up to let the tanks off the road and as soon as it was cleared proceeded on its mission. By this time the Alligators had caught up and were following at approximately 75 yards intervals. Approaching the vicinity of HASENFELD GUT, Germany we saw on one side of the road a two and a half (2½) ton truck and pole type trailer that had been loaded with assault boats pushed off on one side of the road after hitting a

mine. The tank had run over several of the boats and with the damage the mine had done, none looked like they were usable. We passed this and went about fifty (50) yards farther where the tank was sitting blocking the road, and with one tread blown off. This road was supposed to be completely checked and cleared of mines as it was essential to get the Alligators through, we rolled the dozer down to shove the tank off the road, which it accomplished without too much trouble. Seeing that the dozer came through without trouble the lead Alligator started forward and just as it passed the destroyed 2½ ton truck the Alligator hit a mine blowing the track and boggies off the right side. We backed the dozer up to pull the Alligator off the road and hit another mine disabling the dozer.

I reported to the Commanding Officer of Blue Battalion and told him that the road was impassable and did he have any suggestions. He said there was no other way to get his men across the river so we would have to figure out how to get the Alligators to the stream. He said the fields on the both sides of the road were supposed to be Schu Mine Fields and asked me if I thought that the Alligators would go through there without blowing a track. I said "I didn't know, but we would try it so he gave us a guide to show us the land that was supposed to be cleared through the field. The guide lead us to the edge of the mine field, said "That's the way" and took off. By this time the smoke was so thick that you couldn't see two feet in front of you so we went straight ahead till we thought we had cleared the minefield and turned right to come back to the road. In progressing through the minefield the Alligator set off four (4) Schu Mines, none of which had any apparent effect of the tracks. When this Alligator had successfully made that trip and was back on the road T/4 John M. Kunysz and I went back to the other four Alligators and let them through the field, exploding three more mines on the trip.

When we had them back on the road, approximately 200 yards from the river, I reported to the Commanding Officer that the Alligators were ready to take his men over but he wanted to wait until the smoke practically lifted before taking off. This it did in about 30 minutes so we loaded the men in and started down the road. By this time the smoke had lifted leaving both the Alligators and the entire road under direct enemy observation so we threw the mines off the road without checking to see if they were activated, then located a path for the Alligators to enter the water. This path was bordered with teller

mines approximately 2 feet from the track where the Alligators had to pass so T/4 Kunysz directed each Alligator into and out of the water, by use of a flashlight and hand signal.

The first Alligator hit the water and when it came to the middle channel floated down stream about 30 yards before it hit the far bank. The stream was flowing at approximately 7 miles per hour in the channel. The far bank was very steep, about 6 feet high, but only about 7 inches of it was above water. The lead Alligator missed it's first attempt to climb out but made it on the second. The five Alligators entered the water about 25 yards apart and each managed to work their way out on the far shore. One making 5 attempts before being successful. They crawled through the swamps-like terrain in back of the river bank, over an irregular canal and up on to dry land where the assault troops dismounted. The Alligators came back as soon as they were unloaded, had no trouble on the near shore as the bank was very gentle there, and went back to the Gut for more troops. Two of the Alligators made immediate return trips bringing the rest of this company over.

Enemy action consisted of a Machine Gun firing from the vicinity of BROICH, Germany that could sweep the Alligators on only a small part of their trip. Another on the hill could reach both the crossing and approach sites but was too far off to have really accurate fire. Up the stream a sniper kept firing at the Alligators as long as they were in the water and every once in a while would fire over the bridge abutment, where the Alligators entered the water. Some enemy mortar fire fell in the field where the troops dismounted just as the Alligators pulled out and an artillery concentration fell just to the right of the launching site in the river. The next concentration landed just to the left but as the Alligators were out of the water by time no more were fired. The troops we had landed spread out in the lee of a hill about 200 yards from the river and started working forward.

We returned to HASENFELD GUT where 4 of the Alligators were parked the fifth had tried to hit back to the Gut by going through the field as we came up but hit at least a double mine which completely overturned the vehicle and it lay upside-down; the driver suffering a broken arm and the other man pretty badly shaken up. They were taken to the rear so we decided to let all of the troops walk

down to HASENFELD GUT rather than take a chance on blowing any more of the vehicles up. That left us with five Alligators in operating condition, one of those in KOSLAR, Germany with the 105s loaded waiting on call. During the course of the morning we carried the rest of Blue Battalion across the river, operating one Alligator at a time as every appearance was greeted by an artillery barrage and with Mortar fire. By starting one Alligator and allowing it to reach the river before another was sent we avoided congestion in the stream and kept the doughs from being too concentrated under the artillery fire. The small arms fire was continually harassing the operation during the morning but didn't seem to have too much effect; one Alligator was penetrated by three shots but none came clear through the metal of the inside shell. Only one mine was encountered on the far shore, that an Anti-Personnel mine that was set off less than 20 feet from one of the Alligators that had motor trouble just after making the far shore and had to let its passengers out in shallow water. At least one man was on launching site at all times to watch and guide the Alligators through the narrow approach and see that about noon by the Division Engineers who at the same time were clearing the section of road where all the vehicles were blown up.

During the afternoon the four Alligators ferried over Red Battalion and made several trips with miscellaneous groups of Engineers, Signal Men etc. On one of these trips an Alligator was hit by a shell evidently of the small caliber as it only chipped off a piece of the Alligators side, a sliver of shrapnel tearing the 50 Caliber gun apart. On one was riding as it was a return trip and the explosion did not hurt either the driver or assistant, or impair the use of the vehicles.

An Alligator was assigned to the medics to make a special trip to evacuate wounded. The Battalion Surgeon went over and while they were loading the stretchers the Germans laid another artillery barrage in, one of the shells landing less than 10 feet from the rear of the Alligator but did no appreciable damage, outside of several dents where pieces of shrapnel had hit.

This time it was getting dark and we received order to carry over a Cannon Company as soon as possible. For this purpose we assigned two of the three M-4 Alligators we had left and the other one was to transfer supplies. This Alligator made four trips with gasoline and

ammunition during the night before it broke down and had to have the motor worked over. The other two M-4s during the night transported six 105s Howitzers and five M-29s across the river, The guns were loaded two to each Alligator and roped in, the M-29s were carried over one at a time. These were carried directly to the road on the far shore where the ramp was lowered and the machines ran into the hard surface. A signal Corps jeep was also carried over, the wire strung across the river from the back of the Alligator though this operation was not very successful as the Alligator landed too far down stream leaving a great zag in the wire which the wiremen were unable to draw out. Later on, one of the Alligators cut this line and it was necessary to string another one.

By night the Operators were almost all in, so I substituted some of the reserve drivers, only one of which worked out very successfully. Also the Alligators had been running for almost 18 hours continually and they were beginning to develop motor trouble, the ramp cables broke, cranks wouldn't operate, pumps began to go haywire. One of the M-2 Alligators was destroyed by a shell that hit within 3 feet striking some gasoline cans piled near by for refueling".

CONCLUSION

Based on the results of this operation there are certain conclusions we have arrived at which may be of some assistance to units planning similar operations:

1. Alligators are excellent in assault crossings where the ground is wet and marshy and where too much movement on hard ground is not essential.
2. Skilled operators are a necessity. 50 hours of operation under adverse conditions is the minimum necessary to train men successfully.
3. Alligators can successfully negotiate a stream with a current up to 8 miles an hour.
4. Alligators provide a poor target in the water but a very prominent when out of water. They are especially vulnerable when emerging.
5. Transfer points should always be located as near to the water as the tactical situation permits.

6. A competent repair section located at the transfer point should check vehicles every trip. They also should have a good stock of spare parts, especially grousers.

7. At least 50% more alligators should be available than are actually to be in use at any given time so that they can be used as replacements while necessary repairs are being made.

8. Four skilled operators should be available for each Alligator. The operation of these vehicles is very tiring and one man should not operate for more than 3 hours at a stretch.

9. The M-2 Alligator is faster and more maneuverable for the transfer of troops but the M-4s ramp and size make them better for supplies and equipment.

10. Routes to be used should be cleared very carefully of mines. Failure to do this cost the 29th Division 2 Alligators out of the 7 allotted to them.

11. The M-4 Alligator will carry two 105 mm Howitzers or one M-29 or one jeep.

12. Infantry plans should be more definite and each Alligator load of infantry should have one man in command.

/s/ Robert D Lexow
Capt CE S-3

C-O-P-Y

C-O-P-Y

HEADQUARTERS
82ND ENGINEER COMBAT BATTALION
APO 339

7 March 1945

SUBJECT: Report on Engineer Operations in construction of Footbridge and M-2 Treadway Bridge across the ROER RIVER at PIER, GERMANY.

TO : Commanding Officer, 1115th Engineer Combat Group, APO 339, US Army

1. MISSION. In conjunction with the advance of the Ninth US Army across the ROER RIVER, GERMANY, this battalion was on 7 February 1945 initially assigned the mission of supporting the 30th Division by the construction of an M-2 Treadway Bridge across the river in the vicinity of PIER, GERMANY. At this time the river at the site was in two channels approximately 34' and 52' wide respectively. Shortly thereafter the dams upstream were damaged by the enemy and the river overflowed its banks with a much increased velocity. It became apparent that the division engineers would not be able to handle the assault boats and construct footbridges so this battalion was assigned the mission of constructing a footbridge at the same site. While the river was in flood it was planned to utilize "alligators" operated by another battalion to supply the bridge head and to build the bridge at a later date when the flood had subsided.

2. PLAN. Company B was assigned the mission of constructing the originally planned treadway bridge. With the change in plans and anticipating an interval of several days between the construction of the footbridge and the ultimate treadway bridge, B Company was assigned both missions. A company was assigned the mission of sweeping and clearing the approach roads and of constructing the bridge approaches. C Company was initially held in battalion reserve.

3. SITUATION.

a. As it was possible to reach the bridge site at night, reconnaissance patrols ascertained that the minimum length of footbridge would be 280'. The current

could not be measured but was estimated to be between eight and ten miles per hour. No natural holdfasts existed. The difficulties involved in construction of a footbridge were fully realized and efforts were made to locate a more suitable site. A site 160' wide with good natural hold fasts was found a short distance downstream but the division engineers decided to utilize it. As no other sites existed within the division sector, it accordingly was planned to construct opposite PIER.

b. In addition to the normal river bed the ground was flooded for several hundred yards on each side with even the road, which was on fill, partially inundated. Consequently the only possible site was to build from the road immediately adjacent to the existing demolished bridge. In addition, a canal with a 30' width existed on the near shore.

4. OPERATIONS - FOOT BRIDGE.

a. H hour was set for 230330 February. For several nights prior to this A-Company cleared and repaired streets in and around PIER to permit passage of bridging trucks. They also fabricated two portable footbridges for use at the canal. On the evening of 22 February, A Company installed their footbridges and swept the roads to the site. B Company unloaded the footbridge where cover was available approximately 500 yds from the site.

b. At H-45 minutes the artillery concentration began and B Company began immediately to carry the footbridge to the site and assemble it. They also began attempts to put the anchor cable across the river. At 230310 the anchor cable was across the river but had become snagged in the darkness on some piling and was snapped in tightening.

c. By 230605 the anchor cable had been installed and lost five times due to mortar fire, boats over turning and collapse of the elevating A-frames. Enemy mortar and artillery fire was heavy and B Company had suffered six casualties although none serious. At 230635 an enemy self-propelled gun began firing at the bridge site and smoke was requested from higher headquarters. By 230710 the sixth cable was still in but three attempts at completing the footbridge had resulted in the current capsizing the bridge. At 230735 approximately six sections of bridge were completed when the strain on the anchor

cable bent the patented holdfasts. At this time we were instructed to cease operations and to reconstruct the footbridge near the one established by the division engineers. The requested smoke had not yet been furnished.

d. The bridge was then dismantled and reloaded and construction recommenced at 231200. Here again trouble was experienced with the current but by using a high anchor cable and a preinstalled tight bridle line the bridge was completed at 231830. As finally constructed it was 156' - 0" long. In addition to anchor and bridle lines a guy line was strung from the upstream end of the float in the highest velocity stream to a tree approximately 30' above water line. This current was later measured and found to be greater than 6 miles per hour.

5. OPERATIONS - TREADWAY BRIDGES.

a. Concurrent with the construction of the footbridge a treadway bridge was being constructed across the ROER at SHOPHOVEN by another battalion. The river was subsiding and as there were indications that it would be practical to construct a treadway bridge at our site near PIER as soon as the initial treadway was completed, we were so instructed.

b. Consequently, a three span dry treadway was put in place across the canal on the near bank at wFO7155295. This was completed without incident at 231500 by A Company.

c. Because of the effort expended by B Company in the construction of the footbridge and the lack of time, the reserve company, C Company, was assigned the mission of installing the main treadway bridge and commenced installation at 232130. In the meantime A Company continued to construct and improve the near shore approach. The first trestle section was completed at 232250. The expected difficulty of getting the anchor cable across the swift stream ensued but the first floating section was in place at 240135.

d. Here difficulty arose because priority on the road net to the bridge site had been necessarily given to the "alligators" operated by another battalion. In fact, it was not until about 240600 that the next bridge truck reached the site. At 240815, the general site area was shelled by enemy medium artillery but without effect. At this time C Company was relieved by B Company.

Construction proceeded slowly because of the necessity of building by successive pontoons due to lack of adjacent sites. Enemy air was active but did not affect the construction. The 36' dry treadway across the canal on the far shore was completed at 240500 by taking the bridge trucks across the treadway bridge at SHOPHOVEN. This also enabled A Company to work on the far shore approach to the main bridge.

e. The main bridge (236'), combination of trestle and floating, was completed and opened for traffic at 241930. B Company was then relieved except for the necessary maintenance and guard.

f. Enemy air or shrapnel damaged three floats during the night of the 24th. Because the river was still falling these were replaced with two trestle sections without hindering traffic.

6. CONCLUSIONS AND RECOMMENDATIONS.

a. In the construction of long footbridges in currents above four miles per hour, commercial holdfasts are not satisfactory.

b. If such footbridges are to be constructed both anchor and bridle cable must be installed before the floats are put in the water. The anchor cable should be at least 6' and preferably 10' above the water and close to the bridge.

c. If at all possible a high guy line should be attached to the upstream end of the first float and over a tree branch or A-frame on the far shore before this float enters the swift water. A similar line should be attached to every fourth or fifth section as the bridge is fed into the stream. These lines should remain on the bridge after construction is completed as they add greatly to the strength and stability of the bridge.

d. Ordinary power boats and assault boats are almost useless in water of this velocity. If possible "alligators" should be used for carrying the cable across and to patrol the bridge cables.

e. Smoke should always be available and it should be directly under the control of the engineer officer in charge.

/s/ JAMES L. MORRIS
Major, CE
Commanding

HEADQUARTERS
295TH ENGINEER COMBAT BATTALION
APO 339, U.S. ARMY

11 March 1945

REPORT ON ROER RIVER CROSSING

In the Vicinity of SCHOPHOVEN (F 059540)

Maps: GSGS 4414 Sheets 5103, 5104.

1. Mission: The 295th Engineer Combat Battalion was assigned the following tasks:

- a. Close support of 30th Infantry Division in their attack across the ROER River.
- b. Clearing the approach route from INDEN, PIER, to SCHOPHOVEN.
- c. Installing the necessary bridging across the ROER River and adjacent canal, to carry Class 40 loads to the far shore.
- d. Continued support of the 30th Division on the far shore.

2. Plans:

- a. Assignment of Tasks:
 - (1) Company A: Support of 30th Infantry Division on the far shore.
 - (2) Company B: Support of 30th Infantry Division on near shore and clearing approach route INDEN, PIER, to SCHOPHOVEN.
 - (3) Company C: Install a Class 40 bridge across the ROER River and adjacent canal and prepare approaches to both.
- b. Bridging Material: It was decided and planned that the Class 40 crossing would be constructed from Treadway Bridge equipment (M-2), obtained from the 992nd Engineer Treadway Bridge Company. Two-hundred and forty (240) feet of floating equipment complete with one crane, one air compressor and ten (10) trestles, were made available to the Battalion for the operation.

c. Planned Operation and Preparations:

- (1) It was planned that, time permitting, Company B would accomplish its task of clearing the approach roads from INDEN, PIER, to SCHOPHOVEN by working small parties along the route under cover of darkness during the period prior to "D" day. Any work requiring heavy equipment was not to be undertaken until "D" day, "H" hour.
- (2) Company C was to establish a dump in the vicinity of INDEN and stockpile rubble, crushed rock and gravel, chespaling and sommerfelt track (prior to "D" day) as necessary and required for the approaches to the bridge site. This was done and when "D" day arrived there was stockpiled eighty-five (85) loads of crushed rock and gravel, about sixty (60) loads of rubble, 60 rolls of chespaling and 20 rolls of sommerfelt track.
- (3) Reconnaissance of the crossing site by aerial photographs, flights in artillery liaison planes, and ground reconnaissance, revealed that:
 - (a) The approach road to the bridge site on the ROER River (F 067541) was in fair shape, passable to one-way traffic.
 - (b) Bridge abutments were in fair shape; however, debris from the original bridge remained to be removed.
 - (c) Water gap on River was estimated to be one-hundred and twenty (120) feet.
 - (d) Velocity of current in ROER River varied from 7 miles-per-hour to 3 miles-per-hour.
 - (e) River banks were soft, marshy, and flooded, making it impossible for location of good float assembly sites, or for use by traffic of any sort.
 - (f) Approach road and bridge abutments were $2\frac{1}{2}$ to 3 feet out of the water.
 - (g) Road between River and Canal was pock-marked with shell craters - about one-hundred (100) yards of it appeared to be under water.
 - (h) Abutments of the old bridge across the canal were in fair shape.
 - (i) Gap across the canal was estimated to be sixty (60) feet, with very little water.

- (4) It was decided that we were to be prepared to construct either a floating bridge or a dry treadway bridge, using the Standard Trestle Assembly. The final decision as to type of bridge to be constructed was to be decided on a last-minute ground reconnaissance of the River at "H" hour.
- (5) Standard methods of construction were to be used throughout; however, since the river banks offered no good float construction sites for the construction of a floating bridge except from the approach road, other means had to be devised to speed up construction and still keep the bridge construction site as free as possible from traffic. This problem was solved by inflating floats in the bridge assembly area in ERBERICH (K 988538), and carrying them complete with saddles to the construction site on $2\frac{1}{2}$ -ton dump trucks. The floats were carried by means of a special ramp, which was constructed and fitted into the bed of the dump truck. (Further explanation of detailed construction of these ramps will be omitted, since it is believed that the details have already been published.) Ten (10) of these ramps were constructed, six by Company C and four by the 82nd Engineer Combat Battalion. Prior to "D" day, ramps and inflated floats were loaded on $2\frac{1}{2}$ -ton dump trucks and held in readiness to move to the bridge site.
- (6) For construction of dry Treadway Bridge, ten (10) trestles were assembled and loaded on trucks prior to "D" day.
- (7) To speed up the work it was planned that Company C would be furnished with ten (10) $2\frac{1}{2}$ -ton dump trucks loaded with rubble, available on call for the approach construction crew. These were furnished to Company C by Company A, fully loaded and held in readiness at the bridge assembly area in ERBERICH prior to "D" day.
- (8) A quickway crane with dipper stick was furnished to Company C and placed in their dump at INDEN to facilitate loading additional rubble and gravel if necessary.
- (9) To conceal the bridge construction from the enemy, the Division Engineer had made arrangements with Division Artillery to cover

the high ground to the front with smoke; thereby hindering observation. Arrangements were also made for smoke pots and smoke generators through the Chemical Warfare Service to be available on the site to smoke the construction area if necessary.

- (10) Upon completion of bridge it was planned that Company A would be prepared to cross the river and take on any engineer work required on the Main Supply Routes or requested by the Division Engineer.

3. The Operation:

- a. "H" hour was announced as 0330, 23 February 1945. By 0800, 22 February, all plans were complete. The necessary bridging material and other equipment was assembled in ERBERICH. Road surfacing materials were stock-piled and available at the dump in INDEN. All preliminary road work on the route from INDEN, PIER, to SCHOPHOVEN, as well as route markings, were completed by Company B. Final instructions were received from the Division Engineer on routes to be used by bridge equipment traffic, and arrangements were completed giving engineer traffic of this unit priority over all others, as needed. Final briefing of all personnel concerned with the operation was completed during the day.
- b. At 1800, 22 February 1945, the Battalion Forward Command Post was moved to the vicinity of PIER, with the Forward Command Post of the 105th Engineer Combat Battalion, 30th Infantry Division. At 1900, Company B moved a platoon to PIER with one D-7 to open up additional routes through PIER and to maintain the route from INDEN, PIER to SCHOPHOVEN.
- c. At 0245, 23 February, the Commanding Officer of Company C moved his approach construction party to the bridge site under cover of a 45-minute artillery barrage. Company B began clearing the town of PIER, using heavy equipment. By 0800, work on the near shore was sufficiently completed, and the Commanding Officer of Company C notified the Command Post that he was ready for the bridge. Clearance was obtained from the Division Engineer and the bridge was called for. Bridge equipment arrived in the vicinity of SCHOPHOVEN

at 0945. Bridge construction was delayed initially because a ramp truck carrying an inflated float ran into the ditch and partially blocked the approach to the bridge. However, shortly after 1000, bridge construction began under cover of smoke. By 1100, the first float was installed. Work progressed slowly and was delayed because the anchor crew was not initially successful in installing the anchor cable. It was continually becoming snarled in the debris in the river. In addition, anchor crews were having trouble dropping anchors and getting them to grab hold on the bottom of the stream. However, by 1400, an anchor cable was successfully installed and bridge construction continued. Later in the afternoon the bridge construction was delayed when the party on the far shore discovered a 500-pound unexploded bomb on the far shore abutment. It was removed with the aid of the B.D.S. Work continued without event and the bridge was completed at 1900. One-hundred and eight (108) feet of floating bridge had been installed.

- d. During the construction of the floating bridge, work had been progressing rapidly on the four-hundred (400) yard stretch of road between the River and the Canal. One bomb crater remained to be filled at the time the floating bridge was completed. One hour later this bomb crater was filled and construction began on a dry treadway seventy-two (72) feet long across the canal. Three trestles were used and construction progressed without event. It was completed by 2400, 23 February. The Division Engineer was notified that it would be open to traffic at 0100, giving the construction crews one hour to police up last-minute tasks and clear the site.

Comments and Recommendations:

- a. Two and one-half ton dump trucks, with ramps to carry inflated floats, served a two-fold purpose, and they are recommended for use on crossings of a similar nature. Since no construction sites were available on the river bank, inflation and construction of floats was possible at a site quite a distance to the rear of the bridge site. Ramp trucks made it possible to quickly get the floats into the water by simply backing the trucks to the water's edge, raising the bed of the dump truck, and sliding the float into the water. Construction

- of the floats in a rear area kept the number of personnel at the bridge site to a minimum.
- b. The use of smoke was highly successful. Just before dawn, smoke was laid over the area in which the bridge site was located and was continued throughout the day. Both smoke pots and generators were used. In this case smoke covered the working parties completely, and although the enemy kept throwing in artillery at the site, he could not adjust on the target. Only one casualty (LWA) was sustained during the crossing.

For the Battalion Commander:

/t/ HAROLD L. MUNCH
Major, CE
S-3

C-C-I-Y

AFTER ACTION REPORTSROER RIVER CROSSING

FOR: 992d Engr Treadway Bridge Company, APO 339

ASSIGNED: Ninth United States Army

ATTACHED: XIX Corps and 1115th Engineer Combat Group

The mission of the 992d Engr Treadway Bridge Company in the operation "Gernade" was to furnish Treadway bridging, construction equipment, technical advice, and trained operators on all equipment, necessary for the crossing of vehicular traffic for XIX Corps. The engineer plan of the 1104th Engr Combat Group, supporting the 29th Division on Corps left, called for the construction of two treadway bridges while the Engineer plan of the 1115th Engr Combat Group, supporting 30th Division on Corps right, also called for the construction of two treadway bridges in their sector. (see fig.1)

The total amount of treadway bridging required for this operation greatly exceeded the basic load carried by this company. To supplement our equipment one platoon of Company "E", 17th Armd Engineer Battalion, 2nd Armd Division, (432 feet of treadway), was attached to this headquarters, and 216 feet of treadway bridge equipment was obtained from the engineer dump and placed in an area accessible for loading onto empty trucks returning from the bridge sites.

Planning:

Initial planning for the crossing of the Roer River was started in October 1944. The Corps Engr plan at this time called for the 1104th Engr Combat Group to make the river crossings. Training with the Combat Battalions of this group was carried out in November. During this period a method was developed for carrying completely inflated pontons, with saddles in place, to the bridge site and launching them intact. This method resulted in faster construction, less congestion at the bridge site, and permitted the saddle crew and the ponton inflation crew (approx. 36 men) to work in comparative safety two or three miles to the rear of the river line. The inflated pontons were carried on 2½ ton dump trucks. (See

fig 2 & 3) All the floating bridges constructed during this operation employed this method of launching inflated pontoons.

Early in December the crossing was postponed indefinitely. In February assault plans were again drawn up this time with both Engr Groups of XIX Corps making river crossings. The 1104th Engr Combat Group chose sites at Julich (F 028586) to be constructed by the 247th Engr Combat Bn and at (F 026594) (later changed to F 020610) to be constructed by the 246th Engr Combat Bn. The 1115th Engr Combat Group chose sites at (F 087542) to be constructed by the 295th Engr Combat Bn and at (F 073532) to be constructed by the 82nd Engr Combat Bn.

Planning by both Engineer Groups was excellent. Maximum use was made of aerial photos. Ground reconnaissance was made to three of the bridge sites and would have been of great value on the fourth site as unforeseen difficulties arose that could have been anticipated had ground reconnaissance been made at this site.

Operations:

D - day was set for the 23rd of Feb 1945. Just a few days prior to this date the Germans blew the sluice gates on the main dam in the upper Roer valley causing a flooded condition to exist throughout the Corps sector. The current of the Roer had increased to from 4 to 6 miles per hour and the overflowing of its original banks had resulted in an increased water gap and soft shallow approaches. The bridge sites and approach roads chosen were quite open to enemy observation. The treadway bridges were to go in when small arms fire was removed from the sites. Because of the possibility of observed artillery fire both Engr Groups were prepared to lay down and maintain a smoke screen in their sector.

The operation was set into motion by moving the bridging equipment for each bridge into forward assembly areas behind each bridge site prior to or on the night of the 22nd of Feb.

To discuss the actual bridge construction the following is divided into two parts.

A. 1104th Engr Combat Group Bridges:

1. The bridge equipment for the bridge at Julich (F 028586) was moved to a forward assembly area near Aldenhoven under cover of darkness on the night of Feb 22nd. Construction of the treadway bridge was to start at H plus 1 hour. The infantry had a difficult time getting initially across the river at Julich. At H plus 30 min. bazooka and direct anti-tank fire was received at the bridge site causing a delay in starting construction. At H plus 2 construction was started. Smoke has been on the site during the construction of foot bridges but was lifted before construction of the treadway began. During this initial construction artillery fire was striking within 50 yds of the site. About two hours after construction started fire was received directly upon the partially completed bridge. Forty-eight feet of bridge was sunk, a crane knocked out, six men were killed, and 21 wounded.

Construction was started again six hours later at a site about 200 yds up stream from the original site. Artillery fire continued to be heavy but by this time the infantry had succeeded in clearing out the forward observers and the Germans were unable to bring their fire on the target. Barb wire entanglements were encountered near the far bank. These had to be dragged out of the way by bulldozers. The fast current made anchoring difficult and operation of the power boat extremely hard. A new Company of the 247th Engr Combat Bn had taken over construction of the bridge after the original Company had suffered heavy casualties at the first site and they were not too familiar with the construction of the bridge. This bridge was completed at 1200 hours on 24th of Feb.

The bridge that was to be built at (F 026594) was changed to (F 020610) because of the intense direct artillery fire on the original site. Construction at (F 02610) began at approx. 1600 hours on the 24th of February. After construction was started it was found that 96 feet of trestle bridge would be required before the water was deep enough to take a ponton. Again the current in the middle of the stream caused considerable difficulties in the anchoring of the bridge. This bridge was open for traffic at 1000 hour on 25th of February.

B. 1115th Engr Combat Group Bridges:

1. Priority in this sector was given to the bridge construction at (F 087542) by the 295th Engr Combat Bn.

Construction was started on this bridge at 0930 hours on the 23rd of Feb and the first vehicles crossed it at 0100 hours on the 24th Feb. This whole bridging operation was screened by artificial fog. Artillery fire was heavy near the site but because of the lack of observation the Germans artillery never hit the construction site. Old piling and barbed wire in the water caused a lot of trouble as did the shallowness of some parts which caused the grounding of the power boat. The anchor cable was placed too low preventing the power boat from maneuvering freely. This was a particularly trying obstacle during the darkness.

The bridge at (F 073532) was started at 2000 hours on the 23rd of Feb. Construction was also screened by smoke and artillery struck close but failed to hit the construction site. Very little was accomplished during the darkness. This bridge site had extremely fast water and was very difficult to anchor. This bridge was completed at 1900 hours 24th of Feb.

Summary and Comments:

Planning - In general I believe the planning for this operation was excellent. Two points should be emphasized in connection with the planning of a treadway crossing in an operation of this nature, first: The bridge company Commander or his representative should be in on the entire planning of such an operation and, second, ground reconnaissance should be made of each site, preferably daylight reconnaissance. A representative of the Bridge Company should accompany this recon.

Operations - The treadway bridge is effected by direct arty fire small arms fire and observed arty fire. In the case of the bridge at Julich I believe it was started too early. When the initial bridge was knocked out I believe there was an observer directing arty fire. After the bridges were completed at Julich there was quite some time before traffic moved over these bridges and they were started eight hours after the initial time.

If the bridges must be built under hostile observation smoke is invaluable.

Obvious bridge sites should be used for other than assault bridges if at all possible.

The pre-fabrication of the pontons undoubtedly saved casualties at Julich and that alone made the time and effort put forth in the construction of the racks worth while.

Anchor cables should be put in place at the earliest possible time and should be placed as high as possible to provide plenty of clearance for the power boat and operator.

The Combat Battalions constructing the bridges do not make use of the bridge Officer at the site in many cases. On Bn S-3 asked the company for outboard motors on one occasion and for repair kits on another case when all of these items were available at the site had he asked the bridge Officer for them. Another Bn Commander called for bridging and the Bridge Company Officer sent for this same bridging thus duplicating the required bridging.

Crane operators and Power boat operators should be provided with flak suits, one crane operator's life was saved by his wearing this suit when he was hit by shell fragments during this operation.

Summarizing the operation as a whole I believe it was a difficult job accomplished with a minimum of difficulties.

/s/ William H. Linkhorn
/t/ WILLIAM H. LINKHORN
CAPT 992d Engr Treadway Bridge Company
Commanding

C-O-P-Y

- 5 -

Incl No 5



Method of pre-inflating pontoons
and loading on dump trucks used
in Roer Crossing.

C-O-P-Y

HEADQUARTERS 1104TH ENGINEER COMBAT GROUP
APO 339

16 March 1945

ROER RIVER CROSSING AT JULICH

1. GENERAL: The Roer River in northwestern Germany presented one of the major natural obstacles to the advance of the XIX Corps in Germany. The front line as of 23 February 1945, had advanced generally along a line fronting on the Roer River from Linnich to Duren. The Roer River was a natural water barrier of which the German Army took full advantage.

2. TOPOGRAPHY: The Roer River lies in a geologically old valley being very wide and flat. The valley floor is approximately one mile wide. The river itself lay generally in the eastern third of the valley width (in the XIX Corps sector) and was commanded on both sides of the valley by high ground. Its close proximity to the German held high ground north and east of Julich gave the enemy a decided tactical advantage.

3. ENGINEER PLAN:

a. Engineer planning for the crossing of the Roer River started in November 1944 and continued for a period of about one month prior to the German breakthrough in the Ardennes to the south. The German breakthrough made impossible the fulfillment of plans for crossing the Roer River and mounting an attack since the U.S. Army was on the defensive. After the German breakthrough had been stopped and ground lost regained, the plan was again revived.

b. The 1104th Engr C Gp had previously made all studies and plans for the proposed crossing in December 1944, but the Group was shifted at the time of the German breakthrough to the Hurtgen Forest area where the 1104th Engr C Gp constructed (in the vicinity of Hammer) the first bridge built by our Army over any portion of the Roer River. The Group returned to the Julich sector early in February 1945, and it was decided that the main crossing would be made at Julich. Engineer plans were completed and the 1104th Engr C Gp was placed in support

of the 29th Inf Div on whose front lay Julich. Essentially the plan called for three footbridges and three vehicular bridges initially, with another footbridge and two additional vehicular bridges to follow immediately after the assault.

c. The Roer River presented engineering difficulties at the time of the crossing due to the fact that impounded waters of the large reservoirs in the Hurtgen Forest area were released by the enemy and a controlled flow maintained by him. Accurate studies were made to determine the time at which the flood waters would recede and the river level would again be at normal. The date as determined was to have been between 26 February and 1 March; however, tactical surprise indicated that a crossing before this date would be advantageous although the whole operation from an engineer standpoint would be extremely difficult due to the abnormal width of the river and its high current velocity. There follows a table showing comparable figures concerning the Roer River at normal water level and at the time of the crossing on 23 Feb 1945.

<u>Data</u>	<u>Normal Water Level</u>	<u>Flood Water Level as of D-Day</u>
Depth	1 1/2 ft	6 1/2 ft
Width	80 ft	350 ft
Velocity	3 mph	5 mph

d. Reconnaissance played a big part in the engineer planning for the crossing. As early as the first part of December 1944, 1104th Engr C Gp had continual reconnaissance made at the river. Reconnaissance parties from the Group would attach themselves to infantry elements of the 29th Inf Div and under cover of darkness proceed to the observation posts along the river, with principal point of observation being Hasenfeld Gut near bridge Site No. 5, the Sportsplatz near Site No.3, and buildings near Site No. 2. These reconnaissance parties would remain under cover during daytime and would observe the river characteristics, the bank conditions and the approaches on both near and far shore. Sketches were made of the conditions at each site. These reconnaissance parties would return under cover of darkness the next night. Continual aerial reconnaissance was made, aerial photos were studied and complete files of photographs, both vertical and oblique were assembled. During the

early part of February, practically all personnel concerned in the crossing plans made aerial flights in artillery liaison planes along the front paying special attention to the sector along which their particular assignment lay. It is believed that this complete reconnaissance conducted by all personnel from the Group Commander down to platoon commanders was responsible in a great measure for the success of the operation.

e. From detailed studies made by actual ground reconnaissance, both day and night, it was decided that there should be constructed one heavy ponton bridge (reinforced), two treadway bridges, one infantry support bridge, one Bailey bridge and four footbridges. Of the above, one treadway bridge and one footbridge and the Bailey bridge were to be constructed after the initial assault. The construction on all other bridges was to start at H+1 hour, with the exception of the footbridges and infantry support bridge which were to be started at H-hour. It was realized that extreme difficulty would be encountered in the construction of all floating bridges due to the high velocity of the current. Difficulties were anticipated in construction of the Bailey bridge due to the fact that the only feasible site for this type of bridge was over the old demolished highway bridge at Site No.2. The demolished highway bridge was approximately 300 ft from abutment to abutment which previous reconnaissance had indicated were intact; however, the intermediate piers and spans had been demolished and the piers were only a mass of rubble barely visible above the surface of the river.

f. The sites chosen for the construction of the bridges called for two vehicular bridges upstream from the demolished highway bridge and one below, with an additional bridge to be put in at Site No.5 when the water receded sufficiently to permit bridging. The choice of sites was restricted to the existing road net on both far and near shore due to the fact that it had been anticipated that the enemy would destroy the dams in the Hurtgen Forest and by flooding everything downstream it was realized that the bottom land would be subject to inundation, as was the case. There follows a tabulation of the bridges planned with the site at which they were to be constructed.

One heavy ponton bridge approximately 300 yds upstream from the demolished highway bridge at Site No.2.

One treadway bridge immediately upstream from the demolished highway bridge at Site No.2.

One infantry support bridge downstream from the demolished highway bridge at Site No. 3.

One treadway bridge at Site No.5 to be constructed as soon as flood waters had receded sufficiently.

Three footbridges between the heavy ponton bridge and the treadway bridge at Site No.2.

One footbridge at Site No.5 to be constructed as soon as flood waters had receded sufficiently.

One Bailey bridge to be constructed at Site No.2 using the piers of the demolished highway bridge to the fullest extent.

4. DIVISION ENGINEERS:

a. It was planned that the 121st Engr C Bn, the organic engineer component of the 29th Inf Div, would man assault boats furnished by 1104th Engr C Gp and would put across infantry elements sufficient to hold a limited bridgehead on the far shore of the Roer River. It was planned that two platoons of infantry would be crossed at Site No.2 and one platoon of infantry at Site No.3 for this purpose. The mission of the infantry element was to remove small arms fire from the bridge sites in order that footbridges could be constructed. This assault wave was to cross at H-hour and the construction of the footbridges was to start concurrently. Further, the Div Engrs were to operate assault boat ferries for initial evacuation of casualties until the footbridges were completed. Further, the Div Engrs operated assault boat ferries at a point between Site No.3 and Site No.5 for initially crossing infantry elements. At Site No.5, infantry elements were crossed in LVT's under the direction of the Div Engrs.

b. Routes through Julich were swept and cleared of mines by Div Engrs.

5. ENGINEER OPERATIONS:

a. As soon as the plans for the crossing were completed early in February, 1104th Engr C Gp immediately began work on the road net and the MSR's for both the 29th Inf Div and 83rd Inf Div. The MSR for the 29th Inf Div was the road Aachen - Hongen - Aldenhoven - Julich, and for the 83rd Inf Div, the road Alsdorf - Bettendorf -

Siersdorf - Durboslar - Aldenhoven - Engelsdorf - Koslar and thence across the river at Site No.5. During this period occurred the thaw following the severe winter which had kept all roads frozen and in passable shape; however, with the thaw, subgrades of all roads, with one exception failed completely and new road construction had to be initiated. 1104th Engr C Gp was engaged both night and day on the construction of these MSR's in order that traffic might flow steadily from assembly areas and supply dumps in the rear to the front.

b. Continual training was conducted by the Group for its combat battalions in the construction of the various bridges. Every attempt was made to conduct this training on a river comparable in size and width to the Roer River during flood stage. Each type of bridge was constructed by the unit assigned to build that same type of bridge on D-Day. Much training was conducted on the Meuse River near Maastricht, Netherlands. Results of the training and further tests conducted indicated that the main obstacle to be overcome in the construction of all the bridges was getting the anchor cable across initially, which was extremely difficult due to the fact that a swift current swept all types of boats downstream from the starting point on the near shore and that all floating equipage was extremely difficult to handle under such circumstances.

c. By demolishing the highway bridge at Site No. 2, the enemy created what amounted to a rubble dam across the river at this point. This dam tended to back the water upstream and during flood stage caused the width of the river from the demolished highway bridge to a point approximately 400 yds upstream from the highway bridge to be from 400 ft to 280 ft. The dam further decreased the velocity of the water in the river upstream from the demolished bridge. The fact that this dam existed played a great part in site selection for the bridges, and for this reason the bulk of the vehicular bridges were located above the demolished highway bridge.

d. D-Day was originally set for 16 February. On 14 February, the Group Commander called a meeting of all unit commanders, their staffs, company commanders and platoon commanders, to go over the details of the engineer plan and to be briefed in the overall plan of the supported unit. This was done and, needless to say, all personnel and all units were completely keyed up for the operation. It was the Group Commander's wish that every man engaged in the operation should be thoroughly familiar with the

plans and platoon commanders were instructed to have their men thoroughly conversant with the "how, why, when, where and who" of the operation. However, at this time the enemy thoroughly damaged the outlet control mechanisms of the Schwammanuel Dam in the Hurtgen Forest area, releasing the impounded waters causing the level of the Roer River to rise to such an extent that D-Day was postponed until 23 February. The week following was one of suspense, and during this period reconnaissance elements of the Group established a river gaging station from which readings were taken every two hours in an effort to determine the rate of rise or fall of the river. As the peak of the flood was reached and the water gradually receded, a graph was prepared which indicated that the water level would be at normal sometime between 26th and 28th of February. It was believed by the staff of the 1104th Engr C Gp that the crossing would be made sometime after the 28 February; however, information was received that the crossing would proceed on 23 February with H-hour being established at 0330. This plan was sound in that it took advantage of the elements of tactical surprise wherein the enemy did not expect a crossing to be made under flood conditions which did exist on this date. Since the crossing was to be made at flood stage, certain revisions in the plans were made. These revisions were made and another meeting was called to familiarize all concerned with the details of the changes. This meeting was held at Group headquarters. During the course of the evening the town of Hongen and surrounding towns were subject to enemy air attack. Once again all personnel were keyed up for the operation, and the plan was covered and discussed in detail.

e. There follows a table showing the schedule for the start of the construction of the bridges. H-hour - 0330A, 23 February 1945.

<u>Type of Bridge</u>	<u>Site</u>	<u>Time of Start of Construction</u>
3 Footbridges	2	H-hour.
Inf Support Bridge	3	H-hour.
Treadway Bridge	2	H+1 hour.
Heavy Ponton Bridge	2	H+1 hour.
Bailey Bridge	2	To start as soon as flood waters had receded sufficiently to permit work on intermediate piers.

<u>Type of Bridge</u>	<u>Site</u>	<u>Time of Start of Construction</u>
Treadway Bridge	5	To start on recession of flood waters to permit bridging operations.
Footbridge	5	To start on recession of flood waters to permit bridging operations.

f. One important feature of the planning was the assembling of the bridge trains at bridge assembly areas designated. These bridge trains were phased in such a way that no traffic tie-ups would occur. The bridge trains started to roll at 1900 hours on 22 February into their respective assembly areas. Advantage was taken of every possible concealment of these trains. Sixty yard interval was strictly adhered to but the size of the trains precluded the possibility of complete concealment. At 222000A February 45, all bridge trains were in their respective bridge assembly areas, ready for the operation. Anxious moments were spent in the anticipation that enemy air strikes of the previous night might be repeated and an enemy plane might drop a flare at a point which would disclose the entire plan and later subject the bridge trains to heavy bombing attacks. Fortunately the night was quiet, insofar as enemy air activity was concerned, and as far as was known then and later confirmed by PW reports, the attack starting at 230330A February was a surprise to the enemy.

6. There follows a summary of the actions concerning the construction of each individual bridge.

a. Footbridges at Site No.2: Construction on these three bridges started at H-hour, 0330A, following a forty-five minute artillery preparation. Footbridge equipment previously had been carried to the vicinity of the bridge site under cover of darkness. At the same time, assault infantry was ferried across the river in assault boats by Div Engrs. As was expected, the anchor cable proved to be the main problem in the construction of the bridges. Rifle, machine pistol and machine gun fire from the shell-torn houses on the far shore of the river were directed against the engineers building these bridges. One footbridge was completed at 0424A, but a few minutes later an assault boat carrying infantry was swept downstream by the current, crashed into the footbridge and broke the span in the middle. Work immediately proceeded in the repairing of this bridge and work

continued on the other two footbridges. All footbridges were completed by 0700A, after the engineers had made repeated attempts to get the anchor cables across the river. Two Germans were the first men to use the footbridges. As soon as the first bridge was completed these German soldiers came out of an emplacement on the far side and surrendered to the engineers. One footbridge was never used to any great extent by the infantry due to the fact that until approximately H+4 hours the near shore approach to the footbridge was covered by machine gun fire from a strong point in a house on the far bank.

b. Heavy Ponton Bridge: Construction on the heavy ponton bridge started at H+1 hour, 0430A. This bridge site was under continuous small arms fire until approximately 0800 hours and from that hour on it was under mortar fire and artillery fire the rest of the day. This bridge was finally completed after delay caused by small arms and mortar fire at approximately 1600A. The principal difficulty encountered in construction was again the swiftness of the current. This bridge was the first vehicular bridge completed and armored vehicles of several types passed over the bridge before darkness of D-Day.

c. Treadway Bridge at Site No. 2: The center-line of this bridge was selected about 75 ft immediately upstream from the demolished highway bridge at Site No.2. Construction was started at H+1 hour. This site received continual small arms fire until approximately 0900A and from then on was subjected to mortar and observed artillery fire. Construction proceeded at excellent rate and approximately 132 ft of bridge was constructed when probably the most unfortunate incident in the operation occurred. At about 0930A it was estimated that seven rounds of heavy artillery came in on this bridge site and all rounds landed on the bridge itself, sinking the floats and severely damaging the treadway. The bridge itself was destroyed with high casualties to the construction unit. The casualties were two officers, four enlisted men killed and one officer and seventeen enlisted men wounded. It was decided that the center line of the bridge should be shifted upstream due to the fact that the enemy, without question, had this point zeroed in and that since artillery fire was still coming in, very likely a repetition of the catastrophe might occur. The new center line of the treadway bridge was shifted to a point approximately 100 yds upstream from the demolished highway bridge and construction started at this site at approximately 1400A. This site also was subjected to observed artillery fire;

however, its construction proceeded regardless. Work on this bridge continued through the night of 23 - 24 February and the principal difficulty, as far as construction was concerned, was the swiftness of the current in which unwieldy floats had to be maneuvered into place. This bridge was completed at 1100A, D/1, and was subjected to observed artillery fire until its completion.

d. Infantry Support Bridge at Site No.3: This bridge was started at H-hour, 0330A. It was contemplated that this bridge would be the first vehicular bridge in; however, the reverse was true. It proved to be the most difficult due to the fact that the river at this site was canalized, the current extremely swift, being approximately 5 mph. This site was subjected to intense small arms, mortar and artillery fire all during D-Day and D/1, and each time working crews would appear on the river bank they were subjected to withering fire from the far shore and houses thereon. The approach road to Site No.3 had previously been demined by the Div Engrs, but it was later found that non-metallic "topf" mines had been used in the road and on the shoulders. When construction of the bridge first started the bridge train proceeded to the site and casualties to equipment due to these non-metallic mines were two tractors, one 10 ton wrecker and two dump trucks. The road was again demined by probing the approaches which took approximately six hours to accomplish. When actual construction of the bridge began, the working crews were each time driven back by mortar fire which came from the Citadel in the town of Julich. In some cases the working crew were forced to infiltrate one by one to the bridge site from the Sportsplatz. An interesting side line on this was that an artillery observation plane overhead would convoy the members of the engineer crews from their cover to the bridge site. This was done by the plane flying overhead and parallel to the road to the bridge site from the Sportsplatz and looking for the muzzle flash either from artillery or mortars as the men approached the site. In this way the men were able to get to the bridge site. During the afternoon of D-Day and the night of 23 - 24 February, repeated attempts were made to get the anchor cable for the bridge across the river, but in each attempt the swift current either overturned the boat trying to cross or swept it downstream to ground in the vicinity of Site no. 5. In one case, the assault boat overturned throwing all the occupants into the water and one engineer officer was actually swept downstream approximately one-quarter of a mile before he was able to make his way out on the

far bank. He then worked his way back through extensive minefields to Julich and across the river on one of the completed bridges. At approximately 1000 hours, D/1, the anchor cable was across the river and the construction of the bridge carried on. This bridge itself was open to traffic at approximately 1530A, D/1. An interesting side light to the construction of the infantry support bridge at Site No.3 is as follows: The bridge site was being subjected to intense artillery fire. In order to neutralize this fire Corps Artillery at one time had eleven observation planes in the air over this area in an attempt to spot the source of the enemy fire. These liaison planes soon found the enemy artillery locations and to a great extent were able to neutralize this fire. This is sited as an example of the team work necessary among all arms in an operation of this kind.

e. On D/1, it was decided that the river had receded sufficiently to permit the construction of the treadway bridge at Site No.5 along with a footbridge. This construction started at approximately 1600 hours, D/1, and continued on through the night being completed at approximately 1200A, D/2. The footbridge was started at approximately 2100A, D/1. This bridge site was subjected to artillery fire and to aerial bombing by jet propelled enemy planes. Difficulties encountered in the construction of these two bridges were caused by the swiftness of the current of the Roer River and destruction of a quickway crane, a vital piece of construction equipment, by enemy air activity.

f. On D/2, it was decided that the river level had receded sufficiently so that work could start on the intermediate piers for the Bailey bridge over the demolished highway bridge at Site No. 2. Work was started on D/2 at 0700A. No enemy activity hampered the construction of this bridge, and the only difficulty encountered was the normal engineer difficulty expected in the building of a Bailey bridge of this length and the preparation of the intermediate piers. The Bailey bridge was open for traffic at 1710A, D/4. No construction was carried on during the hours of darkness due to the fact that extreme care had to be taken in preparing the piers and bringing them to proper level with the timber cribs and the preparation of the articulation joints at each pier. Since four vehicular bridges were open to traffic it was decided that it was better not to risk dropping the Bailey in the gap due to lack of good working conditions and consequently all construction took place during daylight hours.

The completed bridge was a double double, triple span Bailey bridge the total length of which was 300 feet.

7. ROAD CLEARANCE THROUGH JULICH: Previous reconnaissance made from aerial photos and observation from artillery observation planes indicated that no passable routes through the town of Julich existed due to our previous artillery and aerial bombardment. As soon as the first vehicular bridge (Heavy Ponton Bridge at Site No.2) was open for traffic, equipment was taken into Julich and work started on clearing routes through the town. The work consisted mainly of clearing an immense quantity of rubble from the streets and filling many craters. The drainage system in Julich was nonexistent due to the bombardment, and consequently the town was inundated in the western and southern sections. In many cases, roads had more than two feet of water over them. Work proceeded on clearing routes through Julich both night and day for 48 hours and by the morning of D+1 there were three routes open for traffic out of Julich, and by the evening of D+1, there were four routes open. Difficulties experienced here were artillery fire falling in the town from gun positions from the east and from Hambach Forest and some equipment was knocked out in this manner. The town was also subject to aerial bombardment from jet propelled planes during daylight hours. In one instance one bomb killed two and wounded eight engineer soldiers as well as several additional soldiers from other units.

8. Casualties suffered by the 1104th Engr C Gp were as follows:

Killed in Action:	Officers	2
	Enlisted Men	11
Wounded in Action:	Officers	9
	Enlisted Men	107
Totals:	Killed	13
	Wounded	116
Total Casualties:		129

9. Equipment casualties were relatively light for an operation of this magnitude and kind: Two bulldozers, four dump trucks, two quickway cranes, one 10 ton wrecker and one power boat were damaged. These equipment casualties were immediately evacuated by the 978th Engr Maint Co and most of them were back on the job by the end of the operation. Further, 42 assault boats and 132 ft of treadway bridge were lost.

10. a. Units comprising the Group at the time of the crossing of the Roer River at Julich were as follows:

246th Engr C Bn	992nd Engr Trdwy Br Co
247th Engr C Bn	611th Engr L Equip Co
554th Engr Hvy Pon Bn	978th Engr Maint Co
208th Engr C Bn	62nd Engr Topo Co
503rd Engr L Pon Co	582nd Engr Dump Truck Co

b. Task assignments were as follows:

(1) 246th Engr C Bn: Constructed the three foot-bridges upstream from Site No.2 and infantry support bridge at Site No. 3, and the treadway bridge at Site No.5.

(2) 247th Engr C Bn: Constructed the treadway bridge upstream from Site No. 2, and the Bailey bridge over the demolished highway bridge at Site No. 2.

(3) 554th Engr Hvy Pon Bn: Constructed the heavy ponton bridge upstream from Site No. 2.

(4) 208th Engr C Bn: Constructed the floating antimine boom upstream from Site No.2.

(5) 503rd Engr L Pon Co: Constructed the foot-bridge at Site No. 5, furnished footbridges and infantry support bridge to 246th Engr C Bn and Bailey bridge to 247th Engr C Bn.

(6) 992nd Engr Trdwy Br Co: Furnished treadway bridge equipage to 246th Engr C Bn and 247th Engr C Bn.

(7) 611th L Equip Co: Furnished equipment and operators to 246th Engr C Bn and 247th Engr C Bn.

(8) 978th Engr Maint Co: Furnished emergency repair truck and crew for on the site repair and equipment knocked out by enemy action.

(9) 62nd Engr Topo: Reproduced and furnished maps of crossing sites and town plan of Julich.

(10) 582nd Engr Dump Truck Co: Furnished trucks and drivers to 246th, 247th and 208th Engr C Bns for hauling missions before and during the operation.

11. SUMMARY:

a. The engineer operation of crossing the Roer River at Julich is perhaps one of the more difficult combat engineering feats performed during this war, both from a tactical and technical viewpoint. The enemy must have known where the bridges would be constructed due to the fact that the river both upstream and downstream from Julich was very wide and impracticable for bridging. The river at Julich was generally canalized and the road net limited accessibility to the river to three sites, and from this it was obvious that the bulk of the vehicular bridges would be built in this area. This situation permitted the enemy to concentrate his fire power covering this sector of the river and consequently the mission of the engineers was made doubly hazardous and difficult. Technical difficulties encountered in the operation were principally those of crossing a river of this width and current velocity under small arms, mortar and observed artillery fire.

b. One conclusion to be drawn from this operation was that it is extremely difficult to construct footbridges of the length put in at Julich, namely 352 ft, under direct small arms fire and with little bridgehead established. With current characteristics such as the Roer River had at the time of the crossing, it probably would be extremely difficult, in general, to construct such a long footbridge even if an adequate bridgehead had been established prior to construction.

c. This operation proved conclusively that thorough and continuous reconnaissance contributes heavily to the success of any deliberate operation. Plans for the Roer River crossing were made far in advance and in complete detail, and the plans as finally decided upon were carried through during the operation. Certain adjustments had to be made, not in the basic plan, but in the method of prosecution of work, and such modification were caused by the tactical situation. Information previously obtained by reconnaissance was entirely accurate and adequate and the profits derived from actually having unit commanders down to platoon commanders and platoon sergeants view the sites contributed greatly to the success of the operation. The plans were gone over in detail with all unit commanders, commanding officers and platoon commanders. It was discussed and all questions were raised prior to the

operation. The policy of having every man involved in the operation thoroughly familiar with what was to be done, when it was to be done, and who was to do it, is considered absolutely essential to the success of such an operation.

/s/ Hugh W Colton
/t/ HUGH W COLTON
Colonel, CE
Commanding.

G-O-P-Y

- 14 -

Incl No 6

I N D E X

General Report

INCLOSURES

- | | | |
|-----|----|---|
| No. | 1 | Report of 1115th Engr (C) Group. |
| " | 2 | Report of 234th Engr (C) Battalion. |
| " | 3 | Report of 82nd Engr (C) Battalion. |
| " | 4 | Report of 295th Engr (C) Battalion. |
| " | 5 | Report of 992nd Engr Treadway Bridge Company. |
| " | 6 | Report of 1104th Engr (C) Group. |
| " | 7 | Letter of Instructions No 19, 1104th Engr C Gp. |
| " | 8 | Copy of Overlay - L.O. No 19, 1104th Engr C Gp. |
| " | 9 | Map Data - Roer Crossing. |
| " | 10 | Map Data - Roer Crossing. |

20 February 1945.

SUBJECT: Letter of Instruction No. 19.

TO : See Distribution.

FO No. 12 this headquarters, is amended to read as follows:

1. a. The enemy on our front occupies positions along the east bank of the ROER RIVER. It is known that the enemy's 363 Inf Div holds the town of JULICH and strong points and the high ground to the north and east of JULICH. Elements of the 6th Panzer Army are between the ROER RIVER and RHINE RIVER and may be expected to mount vigorous counter-attacks along with other enemy infantry reserves not presently located. The enemy divisions are known to be considerably understrength and to lack their full allowance of equipment, however, these shortages are more than compensated for by the fact that he holds terrain features unfavorable to any attempt to cross the ROER RIVER.

b. (1) XIX Corps, as part of the Ninth U S Army, will cross the ROER RIVER D-Day, H-Hour, and continue advance to the northeast making the main effort in this direction. XIII Corps is on the left flank of the XIX Corps with the VII Corps on the right.

(2) 29th Inf Div, with one combat team of the 83rd Inf Div attached, will cross the ROER RIVER vicinity JULICH on D-Day, H-Hour with the mission of taking the town of JULICH and advancing to the northeast. 2nd Armd Div will be held in Corps reserve prepared to exploit any breakthrough.

(3) Line of Departure: West bank of ROER RIVER, D-Day, H-Hour will be announced later.

2. 1104th Engr C Gp will support the attack of the 29th Inf Div in the crossing of the ROER RIVER vicinity JULICH and will be prepared to render general support in the advance to the northeast.

3. a. 246th Engr C Bn will:

(1) Construct and maintain approaches to Bridge Site No. 3 and footbridge sites at Site No. 2. (See overlay)

(2) Construct three (3) footbridges vicinity Site No. 2 upstream from demolished highway bridge. Construction to start at H-Hour and to be completed by H+1 hour.

(3) Construct one (1) infantry support bridge at Site No. 3.

(4) Construct one (1) treadway bridge at Site No. 3. Construction to start at H+1 hour.

(5) Provide guides for infantry elements from their assembly areas to footbridge sites.

(6) Provide access ramps from road west of river to each footbridge site. Access ramps will be of such construction that carrying of assault boats and footbridge equipment can be done with speed and ease.

(7) Assemble footbridge equipment previously delivered as provided for in par 3 d (1) below, at TCP bridge assembly area No. 3 at 2000 hours, D-1, and proceed with the footbridges to the footbridge assembly area southwest of demolished highway bridge.

(8) Upon completion of bridges, working parties will assemble and reorganize at unit bivouac area vicinity MARIADORF and be prepared to cross ROER RIVER on Group order in support of the advance.

(9) Construct a rope life-saving line from bank to bank, supported on wooden floats, immediately upstream from demolished highway bridge at Site No. 2. Construction to start at H-Hour.

(10) Operate two (2) assault boats equipped with outboard motors as life-saving means at each footbridge site and at a point immediately downstream from demolished highway bridge.

b. 247th Engr C Bn will:

(1) Construct and maintain approaches to treadway bridge site and heavy ponton bridge site at Site No. 2. (See overlay) Construction to start at H+1 hr.

(2) Construct one (1) treadway bridge at Site No. 2 not to exceed 150' upstream from demolished highway bridge. Construction to start at H+1 hr.

(3) Clear roads through JULICH in accordance with priorities shown on overlay on Group order. Personnel and equipment for clearance of JULICH will assemble at bridge assembly area No. 3 at H+1 hour.

(4) Be prepared to construct one (1) Bailey bridge on Group order at Site No. 2 using existing bridge piers to the fullest possible extent. This bridge will be capable of carrying class 70 loads.

(5) Assemble treadway bridge equipment previously delivered as provided for in par 3 e (1) below, at TCP bridge assembly area No. 3 at 2000 hours, D-1.

(6) Be prepared to construct one (1) treadway bridge at Sites No. 5, or 4, on Group order.

(7) Be prepared to construct one (1) infantry support bridge at Sites No. 5, or 4, on Group order.

c. 208th Engr C Bn will:

(1) Clear road and fill craters in road ALDENHOVEN - JULICH, BOURHEIM - RJ (WFO18584), and road RJ (WFO22593). Construction to start at H-45 minutes.

(2) Construct a floating anti-mine boom upstream from the heavy ponton bridge to be constructed as provided for in par 3 f below. Construction to start at H+1 hour.

(3) Maintain MGR's as shown on overlay.

(4) Hold remainder of Bn on thirty (30) minutes alert in reserve vicinity HONGEM to be available on Group order for any assigned mission.

d. 503rd Engr L Pen Co will:

(1) Deliver to 246th Engr C Bn three (3) footbridges, complete, each 352' long, at Bn CP (Rear) vicinity MARIADORF prior to 1000 hours, D-1.

(2) Deliver to 246th Engr C Bn one (1) infantry support bridge, 288' long, at TCP bridge assembly area No. 1 at 2000 hours, D-1.

(3) Deliver to 121st Engr C Bn, 72 assault boats at 503rd Engr L Pen Co CP (Rear) vicinity MARIADORF. 121st Engr C Bn will have guides at CP 503rd Engr L Pen Co at 1800 hours, D-1, to pick up the assault boats. Hold 30 assault boats in reserve at bridge assembly area No. 3 to be available on Group order.

(4) Maintain traffic control post on ALDENHOVEN - JULICH road at approximately (vK996572) for the purpose of controlling the flow of bridge material traffic from bridge assembly area No. 3 to Bridge Site No. 2. TCP to commence operation at 1000 hours, D-1.

(5) Be prepared to deliver to 247th Engr C Bn on Group order at TCP bridge assembly area No. 3, sufficient Bailey bridge to construct the bridge as specified in par 3 b (4) above.

(6) Hold balance of infantry support bridge in reserve at bridge assembly area No. 1 to be available on Group order for construction of an additional infantry support bridge as specified in par 3 b (7) above.

(7) Hold balance of footbridge in reserve at bridge assembly area No. 3 to be available on Group order.

e. 992nd Engr Trdwy Br Co will:

(1) Deliver one (1) treadway bridge approximately 396' long to 247th Engr C Bn at Bu CP (Rear) vicinity MARIADORF prior to 1000 hours, D-1, bridge to be complete with construction equipment including quickway crane and will include at least eight (8) trestles. Skilled advisory and key construction personnel will accompany this bridge at all times until completion of construction at bridge Site No. 2.

(2) Deliver one (1) treadway bridge approximately 288' long to 246th Engr C Bn at Bu CP (Rear) vicinity MARIADORF prior to 1000 hours, D-1. Bridge to be complete with construction equipment including quickway crane, and will include at least eight (8) trestles. Skilled advisory and key construction personnel will accompany this bridge at all times until completion of construction at Bridge Site No. 3.

(3) Hold the balance of treadway bridge in reserve vicinity HONGEN to be available on Group order for construction of an additional treadway bridge as specified in par 3 b (6) above, and for use in aiding the advance of the 29th Inf Div after the river crossing has been accomplished.

f. 554th Engr Hvy Pon Bn will:

(1) Construct one (1) heavy ponton bridge (reinforced) at Site No. 2 not less than 200' upstream from demolished highway bridge. Construction to start H+1 hour. (See overlay)

(2) Have necessary bridging and construction equipment at TCP bridge assembly area No. 3 at 2000 hours, D-1.

g. 611th Engr L Equip Co will:

(1) Deliver to 247th Engr C Bn one (1) truck mounted crane equipped with dipper stick, and two (2) D-7 dozers at a time and place to be designated by CG 247th Engr C Bn.

(2) Operate one (1) shovel at crushed rock stockpiles along road vicinity ALDENHOVEN (See overlay). Shovel will be installed at 2000 hrs., D-1.

(3) Operate one (1) shovel at gravel pit vicinity MARIADORF. Shovel will be installed at 2000 hours, D-1. (See overlay)

(4) Hold remainder of equipment in reserve vicinity MARIADORF to be moved forward on ten (10) minutes notice commencing H-Hour.

h. 978th Engr Maint Co will: Continue present mission at present location.

x. (1) Interval of 60 yards will be maintained between vehicles at all times. (2) In the event of a flood, units will be prepared to remove or secure all floating bridges constructed by them within two (2) hours after order therefor has been given by Group headquarters and to evacuate the bridge material to high ground above the 90 meter contour.

(3) Routes to be used in bringing bridge equipment to bridge sites and traffic circulation plan for bridge trains are as shown on overlay.

(4) IP for bridge trains enroute to bridge assembly areas is located at BJ (vK92955338) (See overlay). Times of arrival of bridge trains at IP are as follows:

246th Engr C Bn	- 1830 hours, D-1 (Footbridge)
246th Engr C Bn	- 1845 hours, D-1 (Treadway bridge)
503rd Engr L Pon Co	- 1900 hours, D-1 (Infantry support bridge & footbridge reserve)
247th Engr C Bn	- 1915 hours, D-1 (Treadway bridge)
554th Engr Hvy Pon Bn	- 1930 hours, D-1 (Heavy ponton bridge)

(5) All units will ascertain if work areas, bridge sites and roads thereto have been cleared of mines by Div Engrs, and will be prepared to effect all necessary mine clearance.

(6) Responsibility for maintenance of bridges constructed will be as follows:

Footbridges and infantry support bridge - 503rd Engr L Pon Co.
Heavy ponton bridge - 554th Engr Hvy Pon Bn.
Treadway bridges - 992nd Engr Trdwy Br Co with one (1) squad at each treadway bridge site furnished by 554th Engr Hvy Pon Bn.

4. a. Evacuation of casualties will be through channels. Aid stations will be maintained by 246th and 247th Engr C Bns.

b. 247th Engr C Bn will be responsible for evacuation of casualties from 554th Engr Hvy Pon Bn.

c. Engr Combat Bns will be responsible for evacuation of casualties from Engr Separate Cos operating within their area.

d. Stockpiles of gravel, crushed rock, chespalting and Semmerfeld tract will be maintained along road vicinity ALDENHOVEN as shown on overlay. Units are authorized to draw from stockpiles of this material as required.

5. Signal Communications.

a. Current SOI remain in effect.

b. Telephone communication will be maintained between 1104th Engr C Op CP (Fwd) and:

246th Engr C Bn Gp (Fwd)	1104th Engr C Op CP (Rear)
247th Engr C Bn CP (Fwd)	503rd Engr L Pon Co TCP
121st Engr C Bn CP (Fwd)	

c. Telephone communication will be maintained between 121st Engr C Bn CP (Fwd) and 503rd Engr L Pon Co TCP.

d. Radio communication will be maintained between 1104th Engr C Op CP (Fwd) and:

246th Engr C Bn CP (Fwd)	1104th Engr C Op CP (Rear)
247th Engr C Bn CP (Fwd)	503rd Engr L Pon Co TCP
121st Engr C Bn CP (Fwd)	III Corps

e. Radio communication will be maintained between 121st Engr C Bn CP (Fwd) and 503rd Engr L Pon Co TCP.

f. Command Posts will be as shown on overlay.

OFFICIAL:

BRIDGM
E-3

COLTON
Cmdg.

DISTRIBUTION:

"A" plus
XIX Corps Engr
121st Engr C Bn