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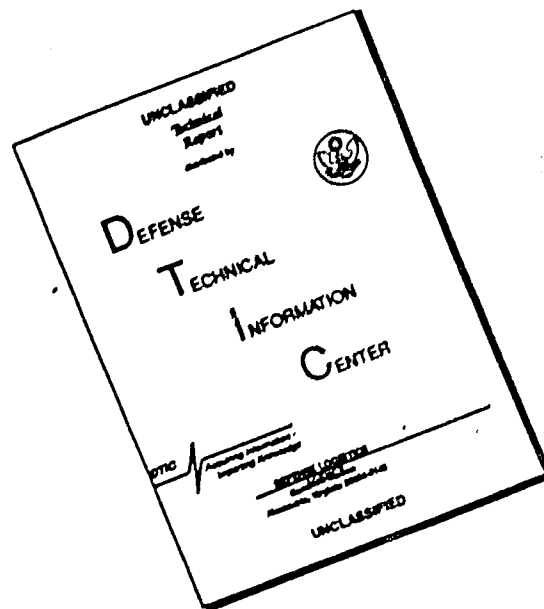
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WASHINGTON, D.C. 20310



IN REPLY REFER TO

AGAM-P (M) (22 Apr 68)

FOR OT RD 681097

30 April 1968

SUBJECT: Operational Report - Lessons Learned, Headquarters, 19th  
Engineer Battalion (Cbt)(A), Period Ending 31 January 1968 (U)

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2. Information contained in this report is provided to insure appropriate benefits in the future from lessons learned during current operations and may be adapted for use in developing training material.

BY ORDER OF THE SECRETARY OF THE ARMY:

*Kenneth G. Wickham*

KENNETH G. WICKHAM  
Major General, USA  
The Adjutant General

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DEPARTMENT OF THE ARMY  
HEADQUARTERS 19TH ENGINEER BATTALION (COMBAT)(ARMY)  
APO San Francisco 96238

AGD-BE-CO

31 January 1968

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65), for Quarterly  
Period Ending 31 January 1968.

THRU: Commanding Officer, 45th Engineer Group (Const), APO San Francisco  
96238  
-Commanding General, 18th Engineer Brigade, APO San Francisco  
96377  
Commanding General, U.S. Army Engineer Command, Vietnam (Prov),  
APO San Francisco 96375  
Commanding General, United States Army, Vietnam, ATTN: AVHGC-DH,  
APO San Francisco 96307  
Commander in Chief, United States Army, Pacific, ATTN: GPOP-OT,  
APO San Francisco 96558

TO: Assistant Chief of Staff for Force Development, Department of the  
Army (ACSFOR-DA), Washington, D.C. 20310

## SECTION I, Significant Organization or Unit Activities.

### 1. Command:

a. During the quarterly reporting period November 1967 through January 1968 the 19th Engr Bn (C)(A) continued its primary mission of upgrading QL-1 north of Bong Son, and non-divisional engineer support within its AOK to the Americal Division and the First Cavalry Division.

b. The 19th Engr Bn, organized under TOE 5-35E, consists of EHC and four line companies. Attached to the 19th Engr Bn are the 73rd Engr Co (CS), the 137th Engr Co (LE), and one section of the 513th Engr Co (DT).

c. Until 15 December, the Battalion Headquarters, A and B Companies, and the 137th Engr Co operated from the Battalion base at Camp Schook, C Company and the 73rd Engr Co from LZ Lowboy, and D Company from LZ Thunder. On 15 December 1967, when the Battalion AOR was extended a distance of 10 miles to the north of Duc Pho, B Company, which was assigned responsibility for this area, relocated north to LZ Max.

### 2. Personnel, Administration, Morale, and Discipline.

(None)

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## 3. Intelligence and Counter Intelligence.

a. During the reporting period, the S-2 Section has completed several reconnaissance tasks and submitted to higher Headquarters detailed reconnaissance reports of the areas covered. A total of 910 miles were covered through aerial, foot, and vehicular reconnaissance missions. These include:

(1) Revisional reconnaissance of 11 bridges on Rt QL-1 in order to update initial Bridge and Road Reconnaissance Reports.

(2) Aerial reconnaissance of An Lao Valley and Rt 514 from BS 868963 to BS 744118 for the purpose of gathering data on existing condition of road, bridges, and drainage.

(3) Special reconnaissance of culverts and drainage from Dong Son to Duc Pho and special reconnaissance of roads, bridges, and culverts from Duc Pho North to the Song Ve River.

b. The intelligence collection and dissemination efforts of the section were enhanced by the receipt of daily intelligence summaries from the 1st and 2nd Brigades of the 1st Cavalry Division (Airmobile) and the 3rd Brigade of the 4th Infantry Division. Close coordination with elements of the 40th ARVN Regiment has increased intelligence information concerning Viet Cong and NVA build-up in local villages.

c. Increased enemy activity was evident during this reporting period. There were a total of 94 enemy contacts during this period.

(1) One bridge was destroyed and two were damaged by mortar and artillery fire.

(2) Elements of the Battalion were harassed by 27 incidents of sniper, grenade, small arms, and automatic weapons fire.

(3) Mine sweep teams removed a total of 22 mines and boobytrap devices from Route QL-1. Equipment losses due to mining incidents resulted in five 5 ton dumps damaged, one D-7 dozer damaged, and several drainage structures destroyed.

(4) The Battalion encountered 3 road obstacles consisting of ditches cut across QL-1 and several tunnel complexes near its perimeter, which were destroyed by demolitions.

(5) Viet Cong psychological warfare efforts resulted in 3 separate incidents of propaganda literature aimed at American Forces in Vietnam being placed along the shoulders of Route QL-1.

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(6) Evidence of CS gas capabilities of the enemy were discovered by one company of the Battalion when they were exposed to it for a period of ten minutes.

(7) The Battalion collected a total of 5 Viet Cong suspects and turned them over to interrogation elements of the 1st Cavalry Division (Airmobile).

(8) During the Battles of Tam Quan, elements of A Company and the 137th Engr Co (LE) were involved in combat support of the 1st Cavalry Division (Airmobile). They were accredited with 10 NVA KIA while clearing the battle zone by destroying bunkers and tunnel complexes of the enemy. A total of 644 NVA were killed during this conflict.

(9) Casualties resulting from these incidents to the Battalion and attached units were 3 US KIA and 5 US WIA.

## 4. Plans, Operation and Training.

a. During the quarterly reporting period elements of this Battalion spent 82½ days in LOC upgrading and operational support, and 6½ days in training.

b. The 19th Engr Bn continued its efforts in upgrading QL-1 to MACV standards by constructing timber pile bridges and widening the existing road. During the quarter, the Battalion built 10, class 35 two way, class 50 one way, timber bridges with combined length of 852 feet. The Battalion hauled 127,250 cubic yards of fill to upgrade and widen the road to the required 24 foot roadway with two 8 foot shoulders.

c. Road widening required 1000 yard long side hill cuts in mountainous terrain at two sites. In one case this involved extensive drilling and blasting to cut through solid rock. Grader work was required along the entire stretch to shape the road and improve drainage. Existing culverts were extended and masonry headwalls built in preparation for road widening.

d. Maintenance effort along QL-1 during the quarter involved keeping the existing bridges and drainage structures repaired, recutting existing ditches, keeping culverts open and filling potholes with concrete or quarry fill.

e. In conjunction with the road work and bridge building, elements of the 137th Engr Co continued their task of placing a sand-asphalt seal coat on the road. Over 29 miles of road were sealed in this manner. The 137th Engr Co also continued quarrying and crusher operations at Duc Pho, producing an average of 400 cubic yards of rock per day.

f. On 13 December 1967, the remainder of the 73rd Engr Co joined its advance party at LZ Lowboy and completed the establishment of a heavy construction support facility, currently consisting of a large quarry and rock crushing plant. Full-scale crushing was started on 11 Jan 68. Initial output has

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averaged 600 cubic yards of 3"(-) rock per day. An asphalt plant and a large 3rd echelon maintenance area are to be added in the future. This facility will make possible the paving of QL-1 from Bong Son north.

g. On 6 December 1967, the 19th Engr Bn was assigned temporary road responsibility for 5 miles of QL-1 north of Duc Pho. One platoon of B Company was moved to Duc Pho and started the essential culvert work required for upgrading this section of the road. On 15 December 1967, the Battalion AOK was extended to the north an additional 5 miles. Upon assignment of this additional AO, B Company moved to a new base camp, LZ Max, 6 miles north of Duc Pho. It initiated upgrading operations on this section of road, while assuring that the road remain open to class 31, one-way traffic. Effort in this section was expended in extending existing culverts, building culvert headwalls, replacing culverts destroyed by enemy action, and beginning construction of a 100 foot timber pile bridge.

h. Major operational support was provided on the following projects:

(1) Rehabilitation on LZ English Airfield runway, parking apron, and repair of runway matting. One 60'x620' section of the main runway was removed, the base rehabilitated by placement of crushed rock, sand and T-17 membrane, and the matting replaced. Work was begun on removing sections of the apron and repairing them in the same manner as the runway. 2035 pieces of M&A1 runway matting were repaired by welding.

(2) Construction of aircraft revetments at LZ Two Bits. Stacked 55 gallon drums were filled with sand and covered with sand bags to provide protection for light aircraft.

(3) Construction of an ammunition supply point at Duc Pho. Twelve foot high berms and five 50'x50' pads were constructed utilizing laterite and base rock. The berms were protected against erosion by coating with pene-prime. Additionally a 24 foot wide access road was constructed utilizing laterite fill and base rock. 17,000 cubic yards of fill and 1250 cubic yards of 3" (-) rock were hauled and placed during the ASP construction.

(4) Sa Huynh Port Facility improvement and upgrading. The existing pad was expanded by 30,000 square feet to 150'x300' to provide additional handling capability. The entire pad was covered with a protective coat of sand-asphalt.

(5) Construction of artillery firing platforms. One artillery pad was constructed at LZ English on a self-help basis before the artillery unit was relocated.

(6) Construction of access road to artillery CP. A 2500 foot access road was cut 300 feet up the side of a mountain for an artillery unit located above D Company's CP. 7 culverts were placed and headwalls built along this road to provide adequate drainage. The road was surfaced with 725 cubic yards of 3" (-) rock.

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i. Direct combat support was provided several times to the 1st Cav Div (Airmobile) in the form of dozers to fill enemy trenches and destroy bunkers discovered during operations east of the Battalion CP. During one operation one platoon of A Company constructed a pioneer road to insure access to the battle area.

j. In support of LOC upgrading and operational support missions this quarter, the Battalion hauled and compacted a total of 144,251 cubic yards of fill, operated three rock crushers, produced 45,715 cubic yards of crushed rock, surfaced 307,420 square yards of QL-1, and assembled 2927 feet of culvert.

## 5. Logistics.

a. Shortages of several types of critical Battalion TOE equipment continue, and have severely restricted excavating, loading and compacting as well as hauling capability. Following is a list of critical shortages:

|                                          | Authorized | On Hand |
|------------------------------------------|------------|---------|
| (1) Grader, Road, Motorized              | 4          | 0       |
| (2) Loader, Scoop                        | 13         | 6       |
| (3) Pneumatic Tool and Compressor Outfit | 5          | 2       |
| (4) Trailer, Basic Utility, 2½ Ton       | 36         | 23      |
| (5) Tank and Pump Unit, Truck Mounted    | 6          | 0       |
| (6) Truck, Fuel Service, 1200 Gal        | 2          | 0       |

b. Major logistical effort was expended in support of the road upgrading effort. Large quantities of material had to be stock-piled and then moved to the construction site.

c. The major problem area continued to be the long haul distance involved. Material had to be drawn from the depot in Qui Nhon, then moved 60 miles north to the Battalion's S-4 yard, and finally transported to the job sites. Another problem area was the lack of certain critical engineer construction materials in the Qui Nhon Depot, such as 6X16 bridge stringers.

## 6. Force Development.

(None)

## 7. Command Management

(None)

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8. Inspector General.

(None)

9. Information.

(None)

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31 January 1968

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## Section II, Part 1, Observations (Lessons Learned)

### 1. Personnel.

#### Health

ITEM: Working with creosote piles.

DISCUSSION: While driving piles a fine spray of creosote falls each time the hammer falls. This spray is practically unnoticeable but will cause painful burns to exposed portions of the body, especially the eyes.

OBSERVATION: Do not allow anyone to stand next to a pile once the driving has begun. Also when cutting piles use goggles and pica bandages to prevent burns to the face. Bandages should be changed often to prevent absorption of the creosote.

### 2. Operations.

#### Compaction

ITEM: Experiences in compacting laterite and other fill.

DISCUSSION: As its primary assigned mission this Battalion has been performing maintenance and upgrading on over forty miles of highway QL-1. In accomplishing this mission, the Battalion has hauled, placed and compacted some 127,000 cubic yards of sand, laterite, and quarry fill during this past quarter. It has been found that only well compacted earth structures survive the monsoon rains without serious damage. Wherever this requirement was not met, construction elements encountered difficulties, both immediately and in course of time. They were forced to re-excavate and re-compact both soft, deepening pockets and entire stretches of road.

OBSERVATIONS: Non authorization of compaction equipment in the Battalion's current TOE 5-35E has adversely affected the organizations ability to properly compact fill. All compaction other than with hand tools has been effected with the few rollers of one attached light equipment company and a few rollers borrowed temporarily from other sources. This lack of organic compaction equipment has proved to be the most significant bottleneck to efficient use of all other available equipment in horizontal construction. To overcome it, this Battalion was forced to pursue the next best solution; the use of sand in place of fill, wherever feasible.

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## Perimeter Security

ITEM: Definition of perimeter at night.

DISCUSSION: Combat aerial assault craft will not give defensive assistance at night against enemy ground forces unless there is a well defined perimeter. The traditional sand and gasoline was found to be not only dangerous but ineffective due to rapid evaporation of the gasoline.

OBSERVATION: Composition 4 was found to be an effective method of illumination. It can be lit with a cigarette, will ignite easily, and burns 3 to 4 minutes.

## Mine Detector

ITEM: Wear on the P 153 mine detector.

DISCUSSION: When sweeping long sections of road daily, it was found that detector operators tend to get tired or careless and drag the detector from time to time, scarring the bottom face.

OBSERVATION: Two thicknesses of electrical tape were placed around the ring, preventing scarring.

## Control of Explosives

ITEM: Quarrying or blasting with composition C-4 in enemy-infested territory.

DISCUSSION: Engineers utilize C-4 explosive for many tasks. It is frequently used for secondary blasting in quarries. When used with det-cord, a certain amount of C-4 tends to splatter rather than explode.

OBSERVATION: It is imperative that such sites, if they are freely accessible to the enemy, be thoroughly policed at the end of the workday, to retrieve and deny the enemy the use of any such explosive.

### 3. Training and Organization.

(None)

### 4. Intelligence.

(None)

### 5. Logistics.

(None)

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## 6. Equipment and Maintenance.

### Field Expedients

ITEM: Lubrication of the wheel bearings on the M175A1, 25-ton, lowbed semi-trailer.

DISCUSSION: Due to the hard use and maximum operational commitment, failure in outer wheel bearings is a continual problem. Additional servicing of outer wheel bearings is necessary over and above normal lubrication requirements. To alleviate the problem, a grease fitting was added to the outer hub. The entire hub was then packed with wheel bearing grease. This has prevented water from accumulating in the hub, causing deterioration of the bearing lubricant.

OBSERVATION: The addition of a grease fitting to the outer hubs of the M175A1, 25-ton, lowbed semi-trailer, and the controlled application of grease by organizational mechanics has resulted in improved, prolonged wheel performance under adverse operating conditions.

ITEM: Field expedient replacement of U-bolts.

DISCUSSION: Two U-bolts that hold the spring to the pillow block on 5,000 gallon trailers sheared due to metal fatigue incurred by hauling many heavy loads over roads under construction. These bolts could not be obtained through support maintenance or the cannibalization point. The two bolts were then fabricated using the damaged sway bracing from previously destroyed Bailey Bridges.

OBSERVATION: Damaged sway bracing can be used most satisfactorily for expedient fabrication of bolts not otherwise obtainable, to effect timely repairs.

ITEM: Opening 55 gallon asphalt drums with expedient tool.

DISCUSSION: Difficulty has been encountered in opening holes in asphalt drums large enough to insert a suction hose for pumping asphalt into a distribution truck. The opening has to be at least 8" wide. Normally the hole is opened by use of an axe, which is not only hazardous but inconvenient. An over-size can opener has been devised which makes the opening of drums much more convenient. It is best used with the drum lying on its side.

OBSERVATION: The over-size can opener can easily be made out of scrap materials as described below:

a. Materials: One 4' section of 2" dia. steel pipe. One piece of  $\frac{1}{2}$ "x2"x8" hard steel plate with one end cut to a point and one piece of  $\frac{1}{2}$ "x2"x4" hard steel plate bent in the shape of a hook.

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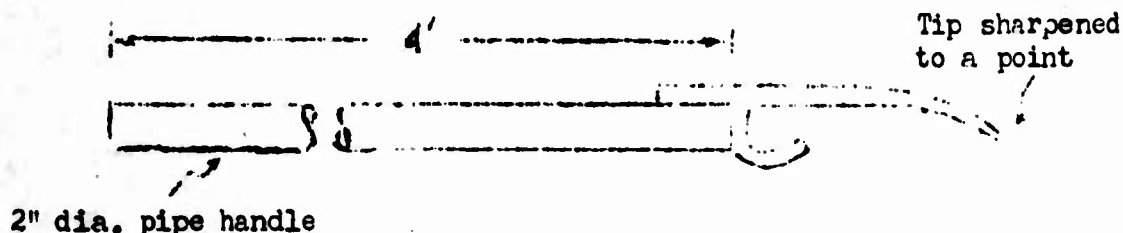
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b. Take the 2"x8" steel piece and heat it sufficiently to allow the pointed tip to be bent slightly, similar to a can opener tip. Weld this piece onto the end of the pipe allowing the pointed end to protrude about 5 inches out from the end of the pipe. Heat the 2"x4" steel piece and bend it in the shape of a hook. Bend it slightly more than 90°. Weld this piece under the 2"x8" piece and across the same end on the pipe creating a hook. See illustration below:



**ITEM:** Field expedient repair of fill valve fitting on tractor, full track, DED, D7E.

**DISCUSSION:** On numerous occasions the fill valve fitting, figure 26 TM 5-2410-214-12; FSN 2530-911-9226, on the tractor, full track, DED, D7E, has become unserviceable through normal wear. When this occurs, the tracks cannot be properly adjusted and the tractor is rendered nonoperational. It has been found that by releasing all the pressure on the tracks and removing the fill adjustment fitting, it can be repaired as follows:

- a. Place the fitting on a lathe and cut the top of the fitting off until it becomes a true flat surface.
- b. Drill a hole dead center of the body with a 11/32 inch drill, 1/2 inch deep.
- c. Tap the hole with a 1/8 inch pipe thread tap.
- d. Place a 1/8 inch pipe thread grease fitting in the body fitting and replace the modified fitting in the tractor.
- e. Adjust the track according to TM 5-2410-214-12.

**OBSERVATION:** With the above modification, many additional hours of operation are obtained from the tractor.

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## Dozer Operation

ITEM: Clearing operations with dozers.

DISCUSSION: In operations aimed at destroying VC/NVA fortifications dozers were called for to destroy bunkers and to fill trenches. Pairs of D7E dozers working in tandem, one with rippers, the other with a winch, were found to be the most effective combination.

OBSERVATION: The dozer with rippers was able to rip bunker roofs and revetments while the winch enabled the dozers to extricate each other in case one had become stuck.

ITEM: Protection for dozers engaged in clearing operations.

DISCUSSION: During combat support operations while engaged in bunker and trench destruction, dozer operators in several instances encountered VC/NVA troops. By sheer luck none of the dozer radiators were hit by small arms fire. A punched radiator would have immediately rendered the equipment inoperable.

OBSERVATION: To guard against this danger, this Battalion plans to weld offset bolts to the radiator frame and cut  $\frac{1}{4}$  inch armor plate, which will be attached to these bolts prior to similar operations.

## Rock Crusher

ITEM: Tearing of main conveyor belt on Eagle 75 TPH rock crusher.

DISCUSSION: On many occasions the main conveyor belt on the Eagle 75 TPH rock crusher has been breaking and tearing due to rock falling from the conveyor belt and lodging in the main conveyor frame between the belts (between the top feed side and the bottom return side of the loop). When this occurs, the rocks are carried down to the rollers where they cause the belt to tear and the belt lacing to pull out of the belt; this causes lengthy shut-downs while the lacing and belt are repaired or replaced.

OBSERVATION: It was found that by placing a scraper assembly similar to the Scraper Assembly, Head, FSN 05643-076-1359 in TM 5-3820-205-35P/2 (1964, page 45, figure 94 on page 148) in the conveyor frame this problem is eliminated. This scraper deflects any rock off to the side of the conveyor frame. Thus the service life of the belt and lacing can be increased.

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Roller, 3 Wheel, 10 Ton

ITEM: Loading the roller, 3 wheel, 10 ton, on trailers, lowbed, 25 ton.

DISCUSSION: Due to operational and security requirements, the one steel wheel roller available in a light equipment company has to be frequently transported to and from job sites. The only transportation device available to this unit is the 25 ton lowbed. Difficulties and undue delays have been encountered in attempts to load the roller, under its own power, onto the lowbed either from lateral earth berms or lowboy loading ramps. An effective solution to the problem is the use of a 5 ton tractor with winch.

OBSERVATION: Loading steel wheel rollers or similar low-powered equipment onto lowbeds can be done with relative ease by positioning the lowbed and loading ramps, turning the tractor around so that it faces the lowbed, and winching the piece of equipment onto the lowbed.

Mine Protection

ITEM: Excessive mine protection for  $\frac{1}{2}$  ton trucks.

DISCUSSION: Due to the large amount of time spent on the road in support of combat and construction operations, users of  $\frac{1}{2}$  ton trucks have placed excessive amounts of steel plate and sand bags in the vehicle beds for protection against mines.

OBSERVATION: This excessive weight due to mine protection, along with the rough terrain over which these vehicles pass, has caused damage to the vehicle frame, misalignment, and bending of the drive train. A better balance of protection versus maintenance can be achieved by using scrap  $\frac{1}{4}$ " or  $\frac{3}{8}$ " armor plate and only one layer of sand bags.

3rd Echelon Maintenance

ITEM: 3rd echelon maintenance of engineer equipment in an Engineer Battalion (C)(A).

DISCUSSION: Due to this Battalion's present location it has been receiving direct support maintenance through a task force that supports all non-divisional units in this area. The supporting element is a detachment of a Light Maintenance Company. The main body of the company and the parent DS battalion are located some 70 miles away. All requisitions and parts must travel this 70 miles. The engineer capability of this detachment is quite limited and most engineer equipment must be evacuated the 70 miles to the main support company. It has become necessary for the Battalion maintenance section to do a substantial amount of its own DS repairs although the TOL does not give this capability.

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This is necessary to keep mission-essential equipment operational and avoid excessive amounts of waiting time and in some instances loss of the equipment due to lack of parts. To accomplish this the battalion maintenance section has made full use of the skills of the maintenance Warrant Officer to insure that organizational maintenance stays at the highest standards and to supervise and control DS type repairs.

OBSERVATION: This arrangement has worked out quite well and has considerably helped the Battalion to accomplish its engineer mission. Through the adoption of this system the Battalion has steadily reduced the deadline rate and kept it in the 2% to 3% bracket for the last 6 months, far below the 18th Brigade goal of 10%.

## 7. Project Information.

### Road Surfacing

ITEM: Road treatment with sand-asphalt.

DISCUSSION: In the course of QL-1 upgrading, with the approaching monsoons some sort of surface treatment was required to insure adequate drainage and a temporary wearing surface which would stand up under the expected heavy traffic.

OBSERVATION: The Battalion's light equipment company placed a coat of asphalt on the roadway and covered it with 1 to 2 inches of sand, placed with a spreader box. With the passage of traffic the sand-asphalt mixture would work itself into the base soil resulting in good drainage and an excellent temporary wearing surface.

### T-17 Membrane

ITEM: Use of T-17 membrane in airfield rehabilitation.

DISCUSSION: During the repairs of LZ English airfield the major damage was caused by water seeping down into the base and destroying it. This seepage was caused by lack of drainage of the laterite soil on which the matting had been placed.

OBSERVATION: By placing a layer of T-17 membrane between two layers of sand just below the runway matting more adequate and lasting drainage could be assured. The top layer of sand must be asphalted to prevent the sand from sifting out.

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## M4 Dry Span

ITEM: Emergency culvert placement employing M4 dry span.

DISCUSSION: QL-1 was washed out in several places during the monsoons and the gap was closed by an M4 dry span. While the dry span was passing traffic, a culvert was placed in the wash out and fill compacted around it.

OBSERVATION: This method proved an advantageous way to repair the road without disruption of traffic.

## 8. Revolutionary Development.

### Local Labor

ITEM: Sufficient AIK Funds for LOC Construction Projects.

DISCUSSION: In the process of upgrading National Highway QL-1 to two-lane MACV standards, it has been necessary to extend existing culverts or place new culverts of sufficient length to accommodate the new roadway width. Both wooden and masonry headwalls have been used; however, it is felt the masonry walls are far more beneficial. The masonry headwalls are being built utilizing Vietnamese labor through the AIK funding program under the supervision of US troops. The Vietnamese seem to take obvious pride in working with the US Army and in accomplishing tangible projects towards the betterment of their community. This pride is demonstrated in the excellent quality of the workmanship. Also this may well be the one reason why not one of these culverts has yet been blown. All of these masons and laborers are of VC draft age. Culvert headwall crews are now working with minimal supervision and in some instances are left only under the guidance of a Vietnamese foreman. With rock and sand available locally, cement is the only commodity being procured through supply channels. This approach has released a significant number of engineer troops for other commitments.

OBSERVATION: Sufficient AIK Funds, judiciously expended in partially pacified areas to pay for LOC construction at local rates, result in four principal benefits: First, they buy good work at reasonable rates; second, the construction is done with low-cost, low-volume military supplies (cement) obtainable in this Theater of Operations; third, they free troop labor for higher-skilled work; fourth, and most important, the local population takes interest in our presence, takes pride in their own efforts, and appears to reduce enemy efforts to destroy such structures.

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GD-BE-00

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31 January 1968

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65), for Quarterly Period Ending 31 January 1968

## Section II, Part 2, Recommendations.

### 1. Personnel.

(None)

### 2. Operations.

(None)

### 3. Training and Organization.

In view of this Battalion's compaction experiences (See Lesson Learned, Paragraph 2, Subject: Compaction.) recommend revision of Engineer Combat Battalion TOE's to include 4 ea rollers, TWD, sheepsfoot, and one roller, vibratory compactor.

### 4. Intelligence.

(None)

### 5. Logistics.

In view of this Battalion's maintenance experiences (See Lesson Learned, Paragraph 6, Equipment and Maintenance, Subject: 3rd Echelon Maintenance.) recommend that the MTOE for an Engineer Combat Battalion be modified to include a limited 3rd Echelon repair authorization and capability.

### 6. Others.

(None)

*Andrew C. Hemson, Jr.*  
ANDREW C. HEMSON, JR.  
LTC, CE  
Commanding

#### DISTRIBUTION:

5-45th Engr Gp (Const)  
8-CG, 18th Engr Bde  
6-CG, USAECV  
3-CG, USARV, ATTN: AVHCC-DH  
2-CINC, USARPAC, ATTN: GPOP-OT (Airmail)

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EGD-3 (31 Jan 68)

1st Ind

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65), for  
Quarterly Period Ending 31 January 1968

HEADQUARTERS 45TH ENGINEER GROUP (CONSTRUCTION) APO 96238 FEB 21 1968

THRU: Commanding General, 18th Engineer Brigade, ATTN: AVBC-C,  
APO 96377  
Commanding General, United States Army Engineer Command Vietnam  
(Prov) ATTN: AVCC-P&O, APO 96491  
Commanding General, United States Army, Vietnam, ATTN: AVHGC-DI,  
APO 96307  
Commander in Chief, United States Army, Pacific, ATTN: GROU-OT,  
APO 96558

TO: Assistant Chief of Staff for Force Development, Department of  
the Army (ACSFOR DA), Washington, D.C. 20310

1. Operational Report - Lessons Learned of the 19th Engineer  
Battalion for the Quarterly Period ending 31 January 1968 is forwarded.

2. Concur with Section 2, Part I, Observations.

3. With reference to Section 2, Part II, Recommendations, paragraph 3, this Headquarters does not concur. Combat engineer battalions differ significantly in their need for compaction equipment depending on their missions and locations. Consequently, no TO&E can fulfill all special requirements. Recognizing that the 19th Engineer Battalion has a challenging road construction mission and obviously needs compaction equipment, two actions have been taken to alleviate the problem. First, a light equipment company has been attached to the 19th Engineer Battalion, thus providing two sheepsfoot rollers and one towed pneumatic roller. Second, MTO&E R-36G has been submitted for approval. If approved, this MTO&E will authorize the 19th Engineer Battalion two sheepsfoot rollers and one towed pneumatic roller. This authorization is two sheepsfoot rollers less than recommended by the 19th Engineer Battalion; however, the attachment of a light equipment company obviates the need for more. Early approval of MTO&E R-36G is requested for it will significantly improve the road construction capability of this battalion.

4. With reference to the recommendation in Section II, Part 2, paragraph 5, this Headquarters does not concur. A combat engineer battalion must be highly mobile. The equipment and parts stockage required to perform the higher level of maintenance would detract from the desired mobility. The present concept of organizational and direct support maintenance seems quite appropriate. The concept of providing direct support maintenance as required appears to be the

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EGD-3

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65), for  
Quarterly Period Ending 31 January 1966

best procedure. The use of contact teams to service units that are located far from the nearest DS unit has normally worked well. While specific units may encounter problems due to local limitations, this does not invalidate the current maintenance concepts.

*George B Fink*

GEORGE B. FINK  
COL, CE  
Commanding

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AVBC-C (31 Jan 68) 2nd Ind CPT Ellegood/1tn/DBT-163  
SUBJECT: Operational Report - Lessons Learned (RCS CSFOR-65) for  
Quarterly Period Ending 31 January 1968

Headquarters, 18th Engineer Brigade, APO 96377 1 FEB 1968

TO: Commanding General, U.S. Army Engineer Command, Vietnam, (Prov),  
ATTN: AVCC-PMO, APO 96491

1. This headquarters has reviewed the Operational Report - Lessons Learned for the 19th Engineer Battalion (Combat) as indorsed, and considers it an accurate summary of the battalion's activities for the reporting period ending 31 Jan 1968.

2. In reference to Section II, Part 1, Observations, this headquarters does not concur with the observation concerning 3rd Echelon Maintenance at Battalion level. Each maintenance support battalion assigned to the local area support command has several contact teams that were developed for the purpose of providing direct support. Emphasis should be placed on the local support command to provide this necessary service.

3. This headquarters concurs with the remarks of the Group Commander in the 1st Indorsomont rather than the recommendations of the Battalion Commander.

*Harold J. St. Clair*  
HAROLD J. ST CLAIR  
Colonel, CE  
Deputy Commander

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AVCC-P&O (31 Jan 68)

3d am  
1st Ind

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly  
Period Ending 31 Jan 68

HEADQUARTERS, UNITED STATES ARMY ENGINEER COMMAND  
VIETNAM (PROV), APO 96491

15 MAR 1968

TO: Commanding General, United States Army Vietnam, ATTN: AVHGC-DST,  
APO 96375

The attached CRII submitted by the 19th Engr Bn, has been reviewed by this headquarters and is considered adequate except as follows:

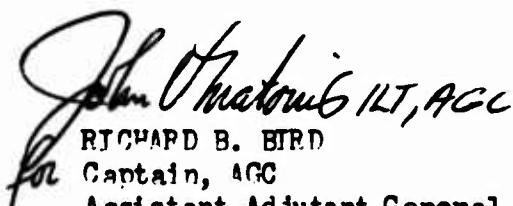
a. Item concerning compaction, Section 2, Part I, paragraph 2, page 7. WTOP 5-36G has been submitted to add one sheepsfoot and one 13 wheel roller. Additional compaction equipment will be available in Class IV equipment pools now being established.

b. Item concerning lubrication of wheel bearings, Section 2, Part I, paragraph 6, page 9. Nonconcur. Lubrication of the wheel bearing with a pressure gun is not an acceptable solution due to the probability of grease being forced past the seals and onto the brake lining. Grease on the lining causes a loss of braking effort and increases the probability of a fire due to overheating. The proper procedure for servicing and lubricating the wheel bearings of a M172A1 semi-trailer is described in TM 9-2330-211-14. If the item is subjected to severe or above average usage, the interval between scheduled maintenance services should be reduced.

c. Item concerning field expedient repair of fill valve fitting, Section 2, Part I, paragraph 6, page 10. The modification is acceptable as a temporary field fix only. The prescribed part should be requisitioned and replaced as soon as possible.

d. Item concerning 3rd Echelon Maintenance (DS), Section 2, Part I, page 12 and paragraph 5, Section 2, Part II, recommendations. Nonconcur. The need to perform direct support maintenance under certain conditions similar to those described is recognized. However, recommend that paragraph 13f, AR 750-5 be amended to permit the supporting DS unit to authorize the supported unit to perform the next higher category of maintenance on a job basis when required by operational necessity.

FOR THE COMMANDER:

  
RICHARD B. BIRD  
Captain, AGC  
Assistant Adjutant General

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AVHGC-DST (31 Jan 68)

4th Ind

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65), for Quarterly Period Ending 31 January 1968.

HEADQUARTERS, UNITED STATES ARMY VIETNAM, APO San Francisco 96375

TO: Commander in Chief, United States Army, Pacific, ATTN: GPOP-DT, 20 MAR 1968  
APO 96558

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 January 1968 from Headquarters, 19th Engineer Battalion (Combat) (Army) (WAZ1AA) as indorsed.

2. Concur with report as indorsed. Report is considered adequate.

3. A copy of this indorsement will be furnished to the reporting unit through channels.

FOR THE COMMANDER:



CHARLES A. BYRD

Major, AGC

Assistant Adjutant General

Copies furnished:

HQ, USAECV (P)

HQ, 19th Engr Bn (Cmbt) (A)

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GPOP-DT (31 Jan 68) 5th Ind

SUBJECT: Operational Report of HQ, 19th Engr Bn (Cbt)(Army) for Period  
Ending 31 January 1968, RCS CSFOR-65 (R1)

HQ, US Army, Pacific, APO San Francisco 96558 30 MAR 1968

TO: Assistant Chief of Staff for Force Development, Department of the  
Army, Washington, D. C. 20310

This headquarters has evaluated subject report and forwarding indorse-  
ments and concurs in the report as indorsed.

FOR THE COMMANDER IN CHIEF:

*C. L. Shortt*

C. L. SHORTT  
CPT, AGC  
Asst AG

UNCLASSIFIED

Security Classification

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