

EGD-3 (15 May 67) 1st Ind
SUBJECT: Operational Report-Lessons Learned (RCS CSFGR-65) for Quarterly
Period Ending 30 April 1967

HEADQUARTERS, 45th Engineer Group (Construction), APO 96238, 24 May 1967

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

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

1. Forwarded are two copies of Operational Report-Lessons Learned (ORLL) of the 39th Engineer Battalion (Combat) (Army) for the period ending 30 April 1967.

2. This battalion is presently OPCON of TF Oregon and although there are some errors in format, eg pages not back to back, head to head, and spelling, it is forwarded, as is, due to the time involved in returning report to unit for corrections.

3. Concur with observations in general. However there are instances of recommendations for actions which are already accepted practice such as loading crawler tractors in bow of LST's for facilitating beach off landing. Some recommendations for maintenance practices are contained in technical publications pertinent to equipment discussed.

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as

E T. SAWYER
Colonel, Corps of Engineers
Commanding

HEADQUARTERS
39th ENGINEER BATTALION (COMBAT) (ARMY)
APO 96316

EGD-BA-3

15 May 1967

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65), for
Quarterly Period Ending (15 May 1967)

THRU: Commanding Officer
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APO 96238

Commanding General
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TO: Assistant Chief of Staff for Force Development
Department of the Army (ACFOR-DA)
Washin5ton, D.C. 20310

Section 1. Significant Organizational Activities:

a. GENERAL:

(1) The 39th Engr Bn Base Camp was located at TUY HOA North Airfield area (CQ 152478) until 10 April 1967. In order to join TASK FORCE OREGON the battalion made an amphibious move to the DUC PHO area (BS 812381); closing on 17 April 1967. The major activities during the reporting period were: Operation Adams with the 1st Bde, 4th Inf Div (1 Feb - 1 Apr 67), Operation "OH-JAK KYE 0" with the 28th ROK Regt (18 Mar - Apr 67), Operation LE JEUNE with the 2nd Bde, 1st Cav Div and Operation BAKER as part of TASK FORCE OREGON (14 Apr - 30 Apr 67).

(2) Operation Adams was initiated by the 1st Bde, 4th Inf Div on 10 Dec 66 in the vicinity of TUY AN and DONG TRE. The 39th Engr Bn supported this operation by:

(a) Mine clearing and maintenance of routes QL #1, 6B and TL2D daily in sector.

(b) Construction of the TUY AN Airstrip (900').

(c) Upgrading and construction of bridges on routes QL #1 and 6B to Class 50 one-way.

(d) Demolition support for bunker destruction.

(3) Operation OH-JAK-KYE 0 was initiated by the 28th ROK Regt on 18 March 67. The 39th Engr Bn supported by:

(a) Construction of three (3) bridges for access to artillery emplacements.

(b) Maintenance and improvement of drainage on roads within the area of operations.

(c) Mine clearing daily in sector.

(d) Conducting search and destroy missions.

(4) Operations LE JEUNE and BAKER were initiated to relieve elements of the 1st Marine Division for further deployment. The 39th supported these operations by:

(a) Initially constructing a pioneer road from LZ Guadalcanal (BS 863377) to the DUC PHO complex is (BS 812381) which is to be upgraded to a two way Class 50 all-weather as operation continues.

(b) Constructing a C-130, modified Type II airfield at DUC PHO.

(c) Mine clearing of road in the TAOR daily.

(d) Demolition work in the destruction of bunkers and trench-lines.

(5) Company "A": At the beginning of the reporting period Company "A" was located at TUY AN with the mission of improving routes 6B, QL#1, and TL2D. During February, the company installed a 102 foot timber pile bridge on route 6B, shaped approximately 10 kilometers of road and installed, opened, and improved existing drainage on route 6B, constructed a single span timber bent bridge (TL2D #3) on TL2D, widened and upgraded bridge 1N14 on QL#1 to support Class 50 traffic by driving four steel piles on either side of the existing bridge, constructed two more bridges (TL2D #1 & TL2D #2) on route TL2D, began pennepriming the hasty airfield at TUY AN, and began filling potholes with sand cement on route QL#1 as deterrent to VC mining of the road. On 1 February a five ton tractor detonated a VC mine in the vicinity of (CQ 053719) resulting in one (1) enlisted man KIA and another enlisted man WIA. 3 February Company "A" was called upon to secure an LZ for a Medivac mission to lift out three (3) ARVN troops seriously wounded, in a VC ambush on QL#1. On 5 February a mine sweeping element working west on 6B detected a strong reading on the detector. One man moved forward to probe and removed a small piece of steel from the road. After a ten second lapse there was an explosion killing the prober and wounding two (2) others. One (1) enlisted man from the heavy equipment platoon was wounded on 13 February when the grader he was driving detonated a VC mine in the vicinity of (CQ 038721). An element was ambushed in the vicinity of (CQ135579) on 24 February and after returning fire, swept the area finding 30 caliber ammunition and papers of intelligence value. On 24 February, one (1) platoon of Company "A" was reorganized as Infantry and provided a security force for the movement of Company "B" to CUNG SON. During March the company completed the pennepriming of the TUY AN airstrip and the filling of potholes in critical areas on QL#1, drove three (3) test piles, at the HA YEN River, conducted a two day search and destroy mission on QL#1 discovering a VC bunker from which numerous ambushes had been made and also a quantity of explosives. During this period, the unit was alerted to prepare to move to DUC PHO as a part of TASK FORCE OREGON. In addition, the unit was given a design for the repair of a concrete steel stringer bridge (1N10) which had been blown and then raised. The work consisted of pouring a concrete pier and repairing steel stringers which were bent and torn from the force of the explosion. On 5 March while sweeping QL#1, the team observed a 4'x3' hole at the vicinity of (CQ 138577). Also at the scene were ARVN elements who learned from local villagers that four (4) VC were emplacing a mine at that location the previous night. Three badly damaged weapons and bits of human remains were discovered at the site. While on road maintenance a crew from Company "A" dug up a mine as it excavated potholes. The mine contained approximately ten (10) pounds of explosives and a firing device made from two (2) batteries in a bamboo tube. On 5 March 70 rounds of sniper fire were fired at a jeep travelling south on QL#1 (CQ 138579).

Both the company commander and the driver in the vehicle were wounded. On 16 March an NCO stepped on a PUNJI trap resulting in one (1) WIA. During the month of April the unit was given a positive alert to prepare to move to TASK FORCE OREGON. The first portion of the month was spent pouring the concrete pier at 1N10 and cleaning up the site, and the latter portion of the month was used in preparing loading plans and maintaining vehicles and equipment. The unit then moved to Port Lane, loaded on an LST and moved to the beach-head east of DUC PHO. The first few days work, after unloading was completed, consisted of hauling fill to stabilize the beach for vehicular traffic. Towards the end of the quarter the company moved to Duc Pho and began construction on the C-130 air strip at that location. On 3 April an element was ambushed in the vicinity of (CQ 174575) with no casualties. While mine sweeping the pioneer road on 16 April a piece of metal was observed in the road. When the area was probed a detonation took place killing two (2) men and wounding two (2) others. The resulting crater was five (5) feet deep and seven (7) feet in diameter. During the entire reporting period the company conducted daily mine sweeps on roads in its area of operations and on an as required basis.

(6) Company "B": At the beginning of the reporting period Company "B" was located in the vicinity of Artillery Hill, TUY HOA north (CQ 135526) with the mission of upgrading QL#1 to one-way Class 50 and mine sweeping daily in sector. One (1) platoon of the company was located at TUY HOA South beach assisting the 577th Engr Bn (Const) in cantonment construction. By 1 February 67 the platoon had completed three (3) 20x100 DX warehouses and had started a bakery construction project. To assist Company "C" in the construction of bridge 1S29 (CP 028945) and 1S30 (CP 023910), precast concrete stringers, 12"x2'x20' were poured by Company "B" and trucked to site location. Demolition work was done in conjunction with the road construction project of the 572d Engr Co (LE) of Hill 430 (CQ 258221). The company mine swept daily from its base location north on QL#1 to the vicinity of (CQ 138517), and performed road maintenance of QL#1 in a northerly direction consisting primarily of filling pot holes with concrete. Concrete was used for two (2) reasons: (1) the material was readily available. (2) The hardened concrete was a reliable method of preventing the installation of mines in the asphalt roadway. On 1 February, "B" Company received approximately fifteen (15) rounds of mortar fire. Medivac assistance was requested and three (3) enlisted men were evacuated by helicopter. Three (3) additional men received minor injuries and remained with the unit. On 5 February 1967 curbing and risers were placed on bridge 1N10 (CQ 115647). In order to upgrade QL#1, the tread way was replaced on seven (7) bridges north of TUA HOA North. One element of the company was ambushed in the vicinity of (CQ 141509) on 7 February by automatic weapons fire. After returning the fire the element continued on its mission with no casualties. On 15 February 1967, a mine sweeping team was ambushed in the vicinity of (CQ 123623) killing one (1) enlisted man. Sniper fire was received as a mine sweep team was operating on QL#1 (CQ 144554).

With the aid of a FAC, the team moved into the area and captured four (4) VC suspects which were turned over to the TUY HOA Subsector Headquarters. Company "B" started using cold mix to fill potholes on 15 February 1967 and results observed were:

(a) The use of the proper compaction equipment is necessary. Compaction by 5 ton dump trucks was not satisfactory but had to be used due to lack of compaction equipment.

(b) The output of the cold mix plant operated by the 577th Engr Bn (Const) was not sufficient to meet the requirements of all the units using the plant.

On 24 February 1967 five (5) mine sweeping teams with infantry security were deployed by helicopter with the mission of clearing sectors of 7B for the movement of Company "B" to CUNG SON from TUA HOA. After receiving sniper fire at (BQ 966386), a mine sweep team returned fire and found three (3) VC KIA by body count and two (2) VC were captured. By 25 February 1967, the company had moved to CUNG SON (BQ 807438) for the purpose of continuing construction of a 2,500' C-123 airstrip that had been halted due to heavy rains in December 1966. During the entire operation resupply was accomplished by air. As part of the preparation for the airfield construction a laterite pit and haul road were opened on 26 February 1967. The final surface of the airfield was a non-skid substance applied to T-17 membrane. Several factory joints failed in the membrane and had to be glued together and it is felt that tropical climate conditions may have contributed to the deterioration of the T-17 joints while in storage. On 7 April 1967, the company returned to TUY HOA North leaving one (1) platoon at CUNG SON Airfield with a repair and maintenance mission. On 9 April 1967, Company "B" passed to operational control of the 577th Engr Bn (Const) as the 39th Engr Bn (C)(A) prepared to depart for TASK FORCE OREGON.

(7) Company "C": At the beginning of the reporting period, Company "C" was located north of NINH HOA (BP 992632) where it had the mission of constructing helipads for a US Ambl Lt Avn Co and a timber pile bridge (1S17) at (CQ 148119). Also, daily road maintenance was performed on QL#1 from Vung Ro to DIALAHN (CQ 233194) and in the ROK cantonment area. On 5 February the Company began the improvement of the airfield at 9th ROK Division, Headquarters. The effort consisted of hauling fill and grading the strip in preparation for the installation of PSP by ROK Units. On 13 February one (1) platoon of "C" Company was placed in direct support of the 3/12 Infantry Battalion of the 1/4 Infantry Brigade and moved to (BP 760876). Support consisted primarily of accompanying recon teams to provide mine clearing and demolition capabilities. A major project was the repair of bridge 1S21, a 270' span of which one 70' span had been dropped at the northern abutment. A bypass using concrete culverts was installed prior to removal of the damaged 70' section. Reconstruction of the one lane bridge was accomplished by shortening the span length to 20' with fill and constructing a timber pile abutment. Stringers were then placed between the abutment and the existing concrete pier.

As a result of Company "B" commitments at CUNG SON, one (1) platoon of Company "C" was given the bakery construction project as well as the demolition support task on Hill 430 on 21 February 1967. In order to make bridge 1S30 (CP 023916) trafficable, concrete abutments were poured and pre-cast concrete stringers were used on a 20 foot span. At the end of the period Company "C" was engaged in extensive upgrading of bridges on QL#1. In conjunction with the bridging mission a recon was held daily to insure that there was no mining activity on QL #1 and existing bridges. On 9 April the Company passed to operational control of the 577th Engineer Battalion (Const) as the 39th Engineer Battalion prepared to join TASK FORCE OREGON.

(8) Company "D": Formerly Company "B", 31st Engineer Battalion (c) (A) and an Itschner Award winner, this company came from Fort Bliss, Texas and arrived at Port Lane, VUNG RO on 22 February 1967. The initial base camp was at TUY HOA North with relocation to DIALAHN on 1 March 1967. The first platoon remained with 39th Engr Bn (C) (A) (-) at TUY HOA during this relocation. After arrival at TUY HOA, daily mine sweeps on QL#1 North of base camp were carried on by the three (3) line platoons. About five (5) days after the company's debarkation the equipment arrived at PORT LANE. Some four (4) days were spent in processing and preparing for movement of company (-) to DIALAN. "D" Company (minus 1st platoon) set up base camp at DAILAHN and assumed the major mission of QL#1 maintenance from the vicinity of TU BONG (CQ 150120) to VUNG RO. During the six (6) week period, over 200 yards of asphaltic cold mix, 300 bags of cement and some 2,000 yards of fill were utilized in roadway repairs. Slide areas were reduced with subsequent development of turnouts along the narrow roadway and widening into 2 lane capacity in many areas. Numerous washout areas were reduced, one (1) specific area requiring 28 loads of blast rock. Drainage improvement consisted of relocation of ditch lines, major cleaning and extension of more than 30 large culverts. During this period, two (2) squads were doing demolition work in conjunction with construction of Signal Hill Road, (CQ 262218), and 572d LE Company project. The first platoon, during this period, was conducting the daily mine sweep of QL#1, preparing some 30 concrete stringers and construction of two (2) maintenance tent concrete pads. The first platoon's mission was then to give engineer support to the ROK Arty Bn (CQ 063468) which consisted of construction of four (4) timber bridges and improvement and maintenance of five (5) kilometers of road. On 11 April, "D" Company loaded aboard LST 572 for shipment to DUC PHO area. On 13 April, "D" Company debarked at LZ Guadalcanal and prepared for engineer tasks in the DUC PHO area. On 14 April, recon and initial construction began for a pioneer road to be built between LZ Guadalcanal, (BS 863375), and LZ Montezuma, (BS 815383). The pioneer road was pushed to the halfway point by 16 April and the company established its base camp in what was previously VC territory. During the first four (4) days of construction, seven (7) separate enemy encounters hindered construction and resulted in three (3) WIA's. Beginning 18 April three (3) days of rain resulted in some 6,000 cubic yards of fill being required to cross 350 yards of rice paddy.

Two (2) (M4T6) bridges (45' and 38'4") were constructed and six (6) culverts placed. Before the roadway was trafficable, 20,000 yards of fill were loaded out from a major borrow pit (BS 844365). Three (3) scrapers and four (4) graders were utilized during early construction stages to widen the first half of the road to two lane width and efforts continue to develop necessary turnouts and widen the entire roadway to two lanes. As necessary countermeasures to VC action over 800m of VC tunnels have been destroyed by explosives, literally miles of trenches and hedgerows have been destroyed and a series of nightly ambushes were conducted to prevent mining of the borrow pit area. Daily mine sweeps conducted along the newly constructed roadway have resulted in detection and destruction of a 1,000 lb. bomb and numerous 155mm and 105mm shells employed as road mines. Construction continued along the road with application of road oil as dust palliative and initial steps to replace tactical bridging with fixed bridges and more permanent drainage features. An additional mission initiated in the 1st days of the next quarter involved preparation of 101st Brigade area (BS 848370).

(9) 553d Engr Co (FB): At the beginning of the reporting period the 553d Engr Co (FB) was located at TUY HOA South (CQ 239379) with the mission of maintaining and securing a 900 foot steel bridge at (CQ 201350). The company was also engaged in raising a two span concrete bridge at (CQ 201350). The company was also engaged in raising a two span concrete bridge at (CQ 115647). This operation consisted of tilting two dropped spans by means of a winch on a VTR in combination with a block and tackle system. As the spans were raised cribbing was replaced until spans were above level of abutments. Then cribbing was replaced with prefabricated timber bents thus allowing a reinforced concrete pier to be formed and poured to support the two spans. The first span was raised on 13 February and the second on 28 February. In order to support a convoy by the 1/101st Abn Bde a six (6) float reinforced light tactical raft was installed at the QL #1 HA YEN Crossing (CQ 065735) on 28 February. On 1 March a six (6) float reinforced M4T6 raft was installed at HA YEN and remained in place until 23 March to assist in driving test piles for a 12,000 foot bridge proposed for construction at that location. On 5 March the dry span at bridge 1N14 (CQ 077707) was removed while Company "A" was completing the decking and abutment repair. On 22 March the company furnished six (6) assault boats for operation in the DAM 0 LOAU Bay (CQ130680) to stop sampans from leaving the area of a search and destroy operation. Two (2) engineers were assigned to each boat along with four (4) infantrymen from 3/12 Infantry Bn of the 1/4 Infantry Brigade. On 31 March an operation similar to the bridge raising on 1N10 was initiated on bridge R1S5 (CQ 229250). However in order to test a new system Bailey bridge jacks were used instead of the overhead block and tackle system. On 7 April the 553d Engr Co (FB) was attached to the 577th Engr Bn (Const) as the 39th Engr Bn (C)(A) prepared for TASK FORCE OREGON. At that time the company was in the process of raising the 100 foot, two span reinforced concrete bridge (1S5).

(10) 572d Engr Co LE: Attached to the 39th Engr Bn, the 572d Engr Co (LE) was improving the drainage system for the road on Hill 430 at the beginning of the period. The operation entailed widening the road and cutting ditches in an area which had unknown boulder formations and slopes exceeding 20%. By 6 February the road was passable to 2 ½ ton vehicles. On 24 February one (1) platoon of the company moved with Company "B" to CUNG SON to support the airfield operation. On 1 March one (1) platoon moved to QUI NHON and was attached to the 19th Engr Bn. On April 9th the company was attached to the 577th Engr Bn (Const) as the 39th Engr Bn was preparing to move to DUC PHO (TASK FORGE OREGON). However; some equipment with operators, to include three (3) 290M tractors with scrapers and one wobbly-wheeled roller, was attached to the 39th for the construction of the DUC PHO airstrip.

b. TRAINING: During the reporting period the Battalion worked 6 to 7 days a week. Depending on the situation, Sunday mornings were for church services and training while the afternoons were for maintenance of TOE equipment. Mandatory subjects and review of combat engineering principles were included in the training.

c. MOVEMENT: The Battalion moved by LST from TUY HOA to DUC PHO closing on 17 April. There were no major problems encountered in the move except that a lot of the heavy equipment and conex containers had to be shuttled to the LST landing.

d. SUPPLY:

(1) During the reporting period, support was received from the following organizations:

(a) TUY HOA SUB-AREA COMMAND (THSAC) - All Class I, II and V supplies and limited Class IV construction and barrier materials.

(b) CAM RANH BAY DEPOT - All Class II and Class IV not available in (THSAC).

(2) At the beginning of the reporting period the line companies of the battalion were supported as follows:

(a) Company "A", located on Route QL#1 at (CQ 113664).

1 Class I - Supply point pickup.

2 Class II, III, IV and V - Unit delivery by Battalion.

(b) Company "B", located at CUNG SON (BQ 808422) approximately 65 kilometers distant from TUY HOA was supported in all classes of supply by helicopter. Resupply by MOGAS, DIESEL and other Class III on a seven (7) day interval. Class I on a three (3) day interval classes II & IV as required.

(c) Company "C", located at NINH HOA, (CQ 990832) approximately 80 kilometers South of TUY HOA was supported in the following manner:

1. Class I and III by supply point pickup in NHA TRANG.
2. Class II, IV and V was unit delivery be Battalion.

(d) Company "D", located at DIALAHN (CQ 231194) was supplied as follows: Class I, II, III and V unit delivery by Battalion.

(3) 553d Engr Co (FB) & 572d Engr Co (LE); both units were located vicinity of TUY HOA South beach (CQ 247373) and were supported by unit distribution of Classes I, III and V supplies obtained from THSAC. Limited amount of Class IV items were obtained from THASC. The bulk of Classes II and IV were obtained from CRB.

(4) The battalion obtained its supplies during this period by supply point pickup. Bulk MOGAS, DIESEL and lubricants were picked up at Class III retail points and delivered to the companies.

(5) Availability of all Classes of supplies improved considerably during this reporting period.

(a) The Battalion continued to convoy from CAM RANH DEPOT Class II an IV supplies. During this reporting period the Battalion ran a total of two hundred thirty eight (238) vehicles from CRB. Tonnage transported by type were:

- 1 Class II - 168 tons
- 2 Class IV - 335 tons

(6) The availability of Class II/IV supplies aided the Battalion in accomplishing its mission.

(7) A number of major equipment shortages existed in this Battalion. The lack of these items effected the operational capability of the unit. The shortages were as follows:

- (a) 1/4 ton truck - 4 each
- (b) 3/4 ton truck - 3 each
- (c) 5 ton wrecker - 1 each
- (d) Loader Scoop - 1 each
- (e) 250 CFM Compressor - 2 each

(8) Of special note during this reporting period was the support of Company "B" at CUNG SON. Class I rations were drawn by Battalion supply as per ration cycle and delivered by helicopter missions, this enabled the unit to have two(2) hot meals daily (with the exception of a seven (7) day period) during their entire period at that location. Class III POL delivery was 88,000 gallons of diesel, 27,000 gallons MOGAS and on assortment of other POL product; all deliveries were by aerial resupply. Class II & IV, materials delivered by aerial resupply were 167,000 lbs.

(9) On 5 April 67 the Battalion was required to bring itself to an improved readiness posture for its mission with TASK FORCE OREGON. During the period 5 - 12 April, through coordination with 45th Engr Gp, 18th Engr Bde, The Engr Command, 1st logistical command, CAM RANH DEPOT and QUI NHON DEPOT the Battalion was able to obtain 24 line items consisting of 125 pieces of equipment. Upon the receipt of these items, the Battalion was able to start its mission with no major equipment shortages.

e. MEDICAL:

(1) The Battalion Aid station has the mission of conserving fighting strength and building personnel strength at a unit level. Sick call is held daily in the morning but the station is open 24 hours a day for emergencies. It is capable of caring for the majority of diseases occurring within the Battalion, except for febrile diseases of unknown causes and extensive injuries. In these cases the Battalion relied on larger units for support. While in TUY HOA this unit was supported by the 563d Clearing Platoon and 91st EVAC Hospital and at DUC PHO by "B" Company of the 25th Medical Battalion which in turn evacuates patients to the 85th & 67th EVAC Hospitals in QUI NHON.

(2) In the last quarter the Battalion started use of Depsone. This was prompted by increase in Malaria falciparum within the area of operation around TUY HOA. This move will prove to be rewarding since the unit moved into DUC PHO which is known to be endemic for falciparum and at the present time in the height of the Malaria season.

(3) With the beginning of the hot season it has been found necessary to reorient the troops to the necessity for taking salt tablets. This requirement was realized after having a significant number of patients with heat prostration. Since that time incidence has dropped to several cases per month.

(4) Sanitation has remained at a high level within the last quarter, and improvement is made by means of a weekly inspection. It is also the Aid Station responsibility to keep the men up to date on their immunizations. The policy of the Aid Station going to the company to give required shots rather than having the individual report to the Bn facility has resulted in a higher percentage (86%) with respect to

up-to-date immunizations. The remainder of men are brought up to date when they report here for R & R or prior return to the states.

f. MAINTENANCE:

(1) During the first two (2) months of the reporting period the 39th Engr Bn was supported by the 136th Light Maintenance Company for all repair parts and support maintenance.

(2) When Operation LE JEUNE and BAKER began the battalion was augmented by a ten (10) man contact team from the 136th IM Company, thus giving the battalion an organic support maintenance capability.

(3) Repair parts support for the first thirty (30) days of the operation was almost completely confined to PLL's. A few critical items were procured through the 45th Engr Gp Maintenance Officer and QUI NHON DEFOT but no formal supply lines were available at the end of the reporting period. The ordinance PLL proved to be adequate for the first thirty (30) days of operation. This PLL has been demand data supported over a one (1) year period in Vietnam and contains all necessary organizational parts. The Engineer PLL proved to be inadequate for two (2) reasons:

(a) The tremendous influx of construction equipment, most of which was delivered without PLL or overpack.

(b) The low density of engineer items in the Battalion before the operation began. This did not allow the accumulation of demands necessary to stock items not on Table I of the respective manuals.

(4) The Battalion Maintenance Section of an Engineer Combat Battalion was not designed to handle the number of engineer items presently on hand in the Battalion. In addition most of the mechanics had never seen equipment such as Clark 290M's (tractor scrapers). This problem was resolved with OJT training and cross training of Ordinance mechanics.

g. CASUALTIES:

	KIA	WIA
(1) Headquarters & Headquarters Company	0	7
(2) Company "A"	4	15
(3) Company "B"	1	7
(4) Company "C"	0	0
(5) Company "D"	0	6

Section 2, Part I, Observation (Lessons Learned)

1. Personnel:

a. Item: Assignment of Attached Personnel:

Discussion: This unit was brought up to strength both in equipment and personnel and preparation for TASK FORCE OREGON. People and equipment moved in rapidly and were deployed to the needing sections almost immediately. Many people arrived without orders or field gear.

Observation: On a fast build-up such as we have undergone, the Headquarters directing all changes should have given specific instructions to the losing units. Such items as a LOI or Operations Order would have facilitated the accountability of people and equipment.

b. Item: Bivouac of Troops Near Defense Positions:

Discussion: During an attack the first few minutes are confused and dangerous. As men move to their assigned positions they are susceptible to enemy fire. The majority of casualties usually occur during this time.

Observation: In cases where men live directly behind their defensive positions they are able to move into them immediately when alerted. The time they are in an exposed position is reduced to a low minimum.

2. Operations:

a. Item: Loading of Concertina Wire:

Discussion: Concertina once used tends to resist contraction into old configuration. By utilizing pole trailer tie downs normally only a few rolls could be carried per trailer.

Observation: By compressing concertina with downward force of a front loader bucket during loading, 200 rolls of wire can easily be carried by an engineer company on its pole trailers.

b. Item: Borrow Pit Operations:

Discussion: Equipment density, particularly reference dozers, graders and front loaders, is always a problem. However, attempts to get by with too little equipment in the pit is often more detrimental to operations than is initially evident. One (1) dozer utilized to push fill to a couple of front loaders often is not sufficient in a 20 truck haul operation. Rough borrow pit floors end poor drainage slow all phases of operation.

Observation: Careful study should be made by equipment supervisors to insure good site preparations at all earth moving or loading operations. An additional dozer as well as occasional grader work will often increase output considerably.

c. Item: Pioneer Road Construction:

Discussion: One lane road construction often results in long backing distances for dump trucks. Too few and inadequate turn around locations drastically slow down fill operations.

Observation: Construct frequent turn arounds for construction equipment and develop them into turn outs as the one lane road opens to traffic.

d. Item: Asphaltic Cold Mix:

Discussion: Poor results have sometimes occurred in utilizing cold mix for road repairs; however, this unit enjoyed much success in using cold mix. Problem areas of rutting and asphalt "weep" occasionally developed due to an excess amount of asphalt in mix. The only real problem was an inadequate supply of cold mix for all engineer units in the TUY HOA area.

Observation: More use be made of cold mix in road repair with special emphasis on mix makeup; improve supply of cold mix.

e. Item: Movement by LST:

Discussion: This unit recently experienced considerable difficulty in debarking wheeled vehicles from an LST on sandy shores. One (1) dozer vehicle to debark. Rough seas complicated the problem.

Observation: At least two (2) dozers be loaded at front of LST for early debarkation both for construction of exit ramp and to facilitate movement of wheeled vehicles on beach sand.

f. Item: Last Minute Changes to Operations Order:

Discussion: Last minute changes in operation orders should be avoided whenever possible. When changes are made they must be published soon enough to be disseminated down to the smallest element involved.

Observation: When changes are made at the last minute, the changes never reach all of the elements and sometimes causes critical missions to be omitted.

g. Item: Correct Vehicle Distribution:

Discussion: During convoy movements through areas requiring the bypass of destroyed bridges it is wise to place the heavy equipment lowboys in the front of the march unit. These very heavily loaded vehicles should be preceded by a vehicle capable of aiding in the crossing and equipped with sufficient tow chains.

Observation: Careful organization of the convoy reduces the time required to pull vehicles through the bypasses. Briefing the drivers prior to movement greatly reduces the time lost because of vehicles getting stuck. Slower moving equipment in front also governs convoy speed.

h. Item: Loading of Cranes on LST:

Discussion: On 14 April 1967, HHC's Heavy Equipment Platoon tried to load a Garwood, 20 ton truck mounted crane on to a new model LST. It was found that the crane would not clear the overhead ramp. Furthermore, it was also discovered that the American Crane was too large.

Observation: The Garwood Crane could be loaded by swinging the boom to the rear and backing it on the LST. The American Crane could not be loaded and an LCU had to be obtained.

i. Item: LST Arrival Information:

Discussion: From 1200 hours 12 April 1967, HHC sat waiting for orders to load on to their LST. The ships were ordered and dispatched through higher headquarters. However, ETA information was lacking at PORT LANE, so no extensive prior planning could be done.

Observation: Port TMA representatives should be informed as to location and ETA of their assigned ships. They can then give out the ETA to the waiting units.

j. Item: Construction of Timber Pile Bridges:

Discussion: During pile driving operations it was noted that piles were difficult to align and as resistance to penetration increased, the butt end of the pile split.

Observation: An adjustable catwalk should be constructed so that the pile leads will remain stationary. A metal clamp should be fabricated to encompass the butt end of the pile to deter splitting.

k. Item: Construction of Bridges in Excess of a Days Travel time from Unit CP's.

Discussion: A bn unit constructed two (2) bridges on TL2D which were in excess of one (1) days travel from the Company CP.

Observation: By careful inventory, of material, maximum prefabrication of bents before departure, and careful loading of vehicles it was found that small span timber trestle bridges can be loaded on organic vehicles and shipped to the site for rapid construction with minimum personnel and equipment requirements.

l. Item: Use of Penepime on Airstrip:

Discussion: None

Observation: It was found that the penetration qualities of penepime in clay silt soil are not significantly increased by heating and that the additional time consumed in heating is not worth the small benefit gained.

m. Item. Pile Driving from an M4T6 Floating Raft:

Discussion: "A" Company recently drove a test pile in the middle of the HA YEN River from an M4T6 raft. The biggest problem encountered was the instability of the raft and the consequent shifting of the loads.

Observation: It was found that by anchoring both ends of the raft downstream from the raft and having a 27 foot bridge erection boat push the raft up stream against the anchorage that a fairly stable platform was obtained.

3. Logistics:

a. Item: Frequency of Resupply Sorties:

Discussion: When re-supply by air is required, sufficient time must be given to the unit that is receiving the supplies. In some cases rations are required to be transported from the airfield and they are unable to be stockpiled near the landing zone.

Observation: Loss of man-hours due to personnel standing by and the loss of food due to thawing or spoiling could be avoided.

b. Item: Firepower:

Discussion: Under most operating conditions, engineer units are required to set up a bivouac area removed from any other friendly tactical units. Most engineer units are required to establish both job site and perimeter security. Under the old T0&E (Delta) each line company has six (6) each 7.62 mm, M-60 machine gun and four (4) each 50 Cal.

machine guns which may be adequate if all are operational. Under the new T&E (Echo) only three (3) each 7.62mm machine guns are authorized, which is adequate for perimeter and job sites security.

Observation: Reduction in the number of 7.62mm machine gun only compounds one (1) already troublesome area. Additional firepower should be authorized by the addition of at least one (1) 81mm mortar section for counter-mortar and illumination firing.

4. Maintenance:

a. Item: Dump Bed Control Box Leakage:

Discussion: This unit experienced a significant increase in "Dump Bed Control Box Leakage" due to rough road conditions and the spreading of dirt and fill materials which exerted a heavier load on the lifts.

Observation: By replacing the seals with double gaskets and using a suitable seal material. The problem can be controlled.

b. Item: Air Filters:

Discussion: A significant increase in daily fuel consumption was experienced and the air filters were not always being cleaned in a dusty environment. The symptom can also be detected by an increase in "Black Smoke" from the exhaust.

Observation: Daily cleaning of air filters helps this problem considerably.

c. Item: Air Breathers:

Discussion: Dirty and clogged air breathers on the front emergency air outlet valve on the right side of truck causes air build up in lines which causes brake and eventually brakes lock up.

Observation: Close attention should be kept on this breather to insure proper functioning.

d. Item: Brake Adjustment:

Discussion: Operators tend to install inner duals on the trucks without aligning the brake adjusting opening in the brake drums.

Observation: Reinstalling the tires properly will cut brake adjustment time in half.

e. Item: New D7E Dozer Processing:

Discussion: In receiving a new piece of equipment, such as the "D7E" Dozer, a number of loose lines, fittings and controls were noted to be out of adjustment.

Observation: By a close inspection of the equipment prior to operation much down time is saved.

f. Item: Sluggish Dozer Movement:

Discussion: A frequent cleaning and inspection of the hydraulic magnetic filters (2 each) will allow the D7E dozer to operate using full converter power.

Observation: These filters should be checked more frequently than the "LO'S" state in the appropriate TM's.

g. Item: Dozer Tilt Blade Hoses:

Discussion: The hoses on the blade that are used for tilting the blade are being worn rather rapidly.

Observation: These hoses catch on the teeth of the blade as the blade returns to the ground from the upward position. By shortening the hoses this problem is eliminated.

h. Item: Track Adjustment:

Discussion: While working in rocky conditions, the tracks on the D7E Dozer will loosen up rapidly.

Observation: By having the operator check this daily on his ten hour shifts, he can prevent excessive wear on the tracks.

i. Item: Leaky Couplings on Bucket Loader:

Discussion: This unit has had considerable trouble with leaky couplings on the bucket of the H9CM Bucket Loader. This is caused by heavy objects, such as rock, that spill over the top of the bucket while loading. As these objects fall, they bend the lines and couplings and will break the fittings.

Observation: By closer operator inspection, this problem can be limited and by proper alignment of these lines by the mechanic, this problem can be almost eliminated.

j. Item: Contact Truck at Engineer Combat Battalion Level:

Discussion: Frequently there is an arc welding requirement in a company which be located 20 miles or more from Battalion Maintenance Section. To transport a dozer to and from Battalion Maintenance requires double accident exposure, additional equipment time up and doubles the down time. To transport a static arc welding unit from Battalion Maintenance exposes the set to damages due to transporting over fairly rough roads.

Observation: A maintenance contact truck is required for Engineer Combat Battalion.

k. Item: Fuel Tanks on Clark 290 M's:

Discussion: The fuel and hydraulic tanks on the Clark 290M are located too close to the outside of the tractor.

Observation: The tanks are the first part of the tractor damaged when the tractor is sideswiped. Rocks and trees in the path of the 290 bounce off the wheels and damage the tanks. In addition the steps to the operator's seat are welded to the tank and are a point of weakness. The tanks should be relocated on future models or covered with a protective shield.

5. Communications:

a. Item: Crypto Accounts:

Discussion: A separate company crypto account was established stateside for **Company "D"** which involved much admin work as well as extra security measures in transporting to Vietnam. Storage in RVN and subsequent turn-in of accounts were an additional burden. It was known that all the problems involved in opening, securing and transporting the crypto account would culminate in immediate turn-in in RVN yet the equipment was required to be shipped.

Observation: That opening of crypto accounts be discontinued in units going to RVN.

b. Item: AM radio and VHF Utilization:

Discussion: In view of land line difficulties, considerable communications could be effectively handled by AM and VHF radios. LL, AM and VHF could be incorporated into a more effective comms system.

Observation: Admin and high priority traffic be handled by AM and VHF point to point radios.

c. Item: Mine Detector Repair Parts:

Discussion: More repair parts such as modules and detector heads are required to keep this vital piece of equipment operational and in daily use. These parts are difficult to obtain thru normal supply channels in RVN.

Observation: Units from the states should bring maximum detector spare parts.

6. Unit Fund:

a. Item: Unit Fund:

Discussion: Company "D" was involved in transfer of equipment and personnel from Co "B", 31st Engr Bn to Engr Packet 2. By GO further redesignation effective 12 Dec 66 resulted in Packet 2 designation deleted and the company being designated Co "D", 39th Engr Bn (Cbt). Unit Fund accounts were turned over to 31st Engr Bn for Co "B", 31st Engr Bn and a new fund was established for Packet 2. On entry into RVN, it appears no unit in this battalion can in fact utilize the unit fund.

Observation: Stateside units due for unit rotation be given specific and detailed instructions reference unit funds and advised as to what services and funds are in fact available.

Section 2, Part II Recommendations:

1. Personal:

a. Recommend that headquarters directing the PCS of personnel specify equipment to be carried by each individual.

b. Defensive positions: Recommend that personnel living and defensive positions be one (1) unit as far as practicable.

2. Operations:

a. Loading of concertina: Recommend that a front loader be used to compress concertina on pole trailers during loading.

b. Borrow pit operations: Recommend that job planning include proper utilization of all equipment.

c. Pioneer road construction: Recommend that during single road construction, additional turn arounds be constructed to facilitate vehicle movement.

d. Asphaltic cold mix: Recommend that more cold mix be used in road repair, with emphasis placed on quality control.

e. Movement by LST: Recommend that two (2) dozers be loaded in the front of the LST for early debarkation.

f. Changes to operational orders: Recommend that last minute changes to operational orders be held to a minimum.

g. Vehicle distribution: Recommend that vehicle distribution in a convoy be such as to assist in by passing troublesome areas. (i.e. dozer leads)

h. Loading of cranes on LST's: Recommend that LST's be used for transportation of the Garwood Cranes and that LCU's be used for the transportation of the American Cranes.

i. LST arrival information: Recommend that LST arrival information be given to the Port TMA and passed on to the units concerned.

j. Timber pile bridges: Recommend that an adjustable catwalk be placed on pile to insure pile leads remain stationary. Recommend a metal clamp encompass the butt end of the pile to prevent splitting.

k. Excess travel time: Recommend that maximum pre-fabrication and careful loading of construction materials be done prior to leaving base camp for a distant job site.

l. Use of heated penepime on airstrips: Recommend that heating of penepime for distribution on clay silt soils be discontinued.

m. Pile driving from M4T6 Floating Raft: Recommend that the M4T6 raft being used for driving pile, be anchored downstream from both ends of the raft and a bridge erection boat be used to force the raft upstream.

3. Logistics:

a. Frequency of Resupply Sorties: Recommend that the unit being re-supplied be given sufficient time in which to prepare to receive the rations.

b. Firepower: Recommend that additional M-60 machine guns, three (3) each, be issued to the line companies and that one (1) 81mm mortar section be authorized to battalion headquarters.

4. Maintenance:

a. Dump bed control box leakage: Recommend that a double gasket and using suitable seal material be used as a replacement item.

b. Air Filters: Recommend that daily cleaning of air filters be mandatory.

c. Air Breathers: Recommend close attention be given to the front emergency air outlet valve to insure proper functioning.

d. Brake adjustment: Recommend close attention be given when reinstalling inner duals on trucks to insure that brake adjustment openings are aligned.

e. D7E Dozer Processing: Recommend close inspection of equipment during deprocessing, prior to operation.

f. Sluggish dozer movement: Recommend the hydraulic magnetic filters be checked more frequently than is required by the "LO's".

g. Dozer tilt blade hoses: Recommend that the tilt blade hoses be shortened.

h. Track adjustment: Recommend hourly checks on proper adjustment of tracks on D7E dozers, especially when working in rock.

i. Leaky couplings on bucket leader: Recommend that particular attention be given to the proper alignment of hydraulic lines.

j. Contact trucks: Recommend that each Combat Engineer Battalion be issued one (1) each contact maintenance truck.

k. Fuel tanks on Clark 290M8s: Recommend that the tanks be relocated or covered with a protective shield.

5. Communications:

a. Crypto accounts: Recommend that units deploying from the United States turn in crypto equipment before departure from country.

b. AM Radio and VHF utilization: Recommend administration and high priority traffic be handled by AM and VHF.

c. Mine detection repair parts: Recommend information be sent to deploying units informing them of the need for additional spare parts for mine detectors.

6. Unit Fund: Recommend that deploying units be furnished specific detail facts on the operations of unit funds.

T. R. Fulton
LTC CE
Commanding

DISTRIBUUTION:

CO, 45th Engr Gp (Const)	10
CINCUSARPAC	2
CG, USARV	3
CG, 18th Engr Bde	15
CG, TASK FORCE OREGON	10