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SUBJECT: Operational Report of the 84th Engineer Battalion (Construction) for the Period Ending 31 January 1969, RCS CSFOR-65 (R1)

(b) EVALUATION: The work crews would weld about ten (10) to twelve (12) 20' sections of pipe together per day. This work was accomplished in both secure and insecure areas; however, these longer sections of pipeline were not always welded into the main line during the same day. When the flushing and testing of the operational portion was begun the pipeline was found to be blocked in critical areas (elbows or points of elevation of the pipeline). This foreign material that had to be removed was placed in the line from areas that were considered secure and insecure.

(c) RECOMMENDATION: That any pipeline (coupled or welded) be effectively capped off prior to the end of each day's work. Thus foreign material could not be placed into lengthy sections of a pipeline without being readily apparent to the work crews. The caps can be cut from ¼" or 3/8" steel plate and effectively tack welded on to the end of the portion of line welded during that day. These caps are easily removed prior to the next days work, to allow continuation of the project.

(3) Item: The use of drainage pipe in place of a sump pump.

(a) OBSERVATION: While constructing a cable vault for the Dial Central building, a sump pump could not be obtained for use as specified in the plans.

(b) EVALUATION: A substitute for the sump pump had to be found in order to insure a dry cable vault. It was found that a drain pipe could be installed approximately two (2) inches above the floor level of the cable vault. This pipe was laid in such a manner that it would exit above the surrounding ground level. Thus an effective substitute was found.

(c) RECOMMENDATION: That drainage pipe be considered as a substitute for a sump pump in a building where the vault/floor level is at or above the surrounding ground level.

(4) Item: Construction of a 120' Rheem Dudley Warehouse Arches:

(a) OBSERVATION: The arches were found to be very flexible when first lifted into position and subject to buckling under their own weight if sufficient lift points are not used. A shortage of cranes made it impossible to lift at more than one point. Rheem Dudley recommends that two cranes be used simultaneously; however the weight of the arches is small and does not justify the commitment of two cranes even if they are available. Wreckers do not have enough boom to reach the arch even at the ends.

(b) EVALUATION: The solution is to lift the middle of the arch with one 20 ton crane with two support cables, one attached ten or twelve feet on each side of the peak of the arch. Lift the ends of the arches with truck mounted "cherry-picker" light cranes borrowed from the depot and owned and operated by the Han Jin Transportation Company. The "cherry-pickers" at each end significantly steadied the arch during erection and also through their localized pushing and pulling facilitated the

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matching of the data to the bolt holes.

(c) RECOMMENDATION: That units tasked with the erection of Rheem Dudley Buildings or those smaller in nature, study the availability of local lifting devices to expedite the erection procedures.

(5) Item: Use of sand as suitable fill for inside a building.

(a) OBSERVATION. It has been found that many times there is not sufficient rock to use laterite to bring the floor level inside a building up to the height necessary prior to the placing of concrete as the final floor.

(b) EVALUATION. Laterite is normally used; however, the only efficient method of compaction is with a sheeps-foot roller. It was found to be impossible to use a sheeps-foot roller inside of confined areas and the use of a compressor driven backfill tamper would be very time consuming. The solution is to backfill the area with sand consolidated into place with water and some vibration from a concrete vibrator. If the building is built on laterite over sand, water in large quantities can be applied and subsequently eliminated by gravity. To speed this drainage holes through the sub base should be dug and keyed with sand to serve as a ready route of escape for the water.

(c) RECOMMENDATION: That sand be considered a suitable substance to backfill within a confined limited area such as within the limits of a building foundation.

(6) Item: Driving sheetpile with the use of the leads and fabricated hammer guide.

(a) OBSERVATION: To drive DP-2 sheetpile, the normal procedure is to attach the hammer to a so called "Monkey Stick", but this attachment was not available. A more efficient method is to fabricate a guide, which allows the hammer to ride on the outside of the leads.

(b) EVALUATION: This can be accomplished by extending steel arms from the hammer, and welding them to four (4) pieces of angle iron which will serve as a guide up and down the lead rails. If desired you can weld braces between the plate steel arms to brace the guide. For best results reverse the adapter plates from the boom to the leads. This allows the primary line to suspend the hammer straight down on the outside of the leads. The lower section of the leads can be removed depending on the depth that the sheetpile is to be driven.

(c) RECOMMENDATION: Advantages of this method include greater stability while driving pile, and easy access to all lead sections if trouble should arise.

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15 February 1969

EGCC-CO
SUBJECT: Operational Report of the 84th Engineer Battalion (Construction) for the Period Ending 31 January 1969, DCS CSFOR-65 (R1)

c. Training: None

d. Inteligence: None

e. Logistics: None

f. Organization: None

g. Other: None

Robert J Corley

ROBERT J. CORLEY
LTC, CE
Commanding

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AVBC-CO (15 Feb 69) 1st Ind
SUBJECT: Operational Report on Lessons Learned for the period 1 November to 31 January 1969

DA, HEADQUARTERS, 937TH ENGINEER GROUP (COMBAT), APO 96318, 20 February 1969

TO: Commanding General, 18th Engineer Brigade, ATTN: AVBC-C, APO 96377

1. The subject report, submitted by the 84th Engineer Battalion (Const), has been reviewed and is considered a well compiled report of organizational activities.

2. I concur with the observations and recommendations of the Battalion Commander.

JESSE L. FISHBACK
Colonel, CE.
Commanding

DEPARTMENT OF THE ARMY
HEADQUARTERS, 84TH ENGINEER BATTALION (CONSTRUCTION)
APO 96238

EGCC-CO 14 May 1969

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction) for the period ending 30 April 1969, RCS CSFOR-65 (R1)

THRU: Commanding Officer
937th Engineer Group (Combat)
APO 96318

Commanding General
18th Engineer Brigade
ATTN: AVBC-C
APO 96377

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

Commander in Chief
United States Army, Pacific
ATTN: GPOP-DT
APO 96558

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

FOR OT UT
692087
Inclosure

EGCC-CO 14 May 1969

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction) for the Period Ending 30 April 1969, RCS CSFOR-65 (R1)

1. Section 1 Significant Organizations or Unit Activities:

a. Command:

(1) Organization:

(a) Headquarters & Headquarters Company, 84th Engr Bn (Const)

(b) Company A, 84th Engr Bn (Const)

(c) Company B, 84th Engr Bn (Const)

(d) Company C, 84th Engr Bn (Const)

(e) Company D, 84th Engr Bn (Const)

(f) 536th Engr Det (PC)

(g) Company B, 299th Engr Bn (Combat)
Under OPCON of this Headquarters since 1 April 1969.

(h) Ad Hoc Power Distribution Team Assigned to HHC/84th

(i) 2nd Plt, 643rd Engr Co (FL)
Disbanded on 25 January 1969 and its personnel reassigned to units of the Battalion.

(2) Unit Operations:

(a) Headquarters & Headquarters Company: The utilities section continued to maintain the Camp Williams Cantonment area; this section was augmented with Vietnamese laborers as required. Under the control of HHC, the Ad Hoc Power Distribution Team was primarily utilized on the Cha Rang Valley Power Distribution Project and the Security Lighting of Lane AAF. Neither project has been completed as of this report due to the scope of work and late arrival of materials necessary for completion.

(b) Company A had the responsibility for the maintenance and repair of Battalion Ordnance and Engineer equipment. This company also operated the Howell Quarry and Crusher Complex until 1 April 1969, thereafter moving to the Chop Chai Quarry and Crusher Complex located at Tuy Hoa North. The move was accomplished smoothly and expeditiously, as testified by the fact that the new complex was in production by 13 April 1969. During this reporting period the aggregate production of both Quarries was 17,667 CY of crushed rock, used in support of LOC Projects. Road maintenance projects utilized 5,795 GAL of MC-70 and 550.2 TONS of hot mix, mainly on QL-19; operational support type projects for roadways, taxiways, Tank Farms, and Helipads utilized 11,980 GAL of MC-70 and 2,650 GAL of Peneprime.

(c) Company B was mainly involved in the construction of their new cantonement area at Miami Beach (CQ104783), completed by 15 March 1969, and the upgrading of QL-1 between Tuy An (CQ105667) and Tuy Hoa (CQ174448). This unit was also tasked with the maintenance of QL-1 between Binh Thanh (CR058014) and Tuy Hoa (CQ17448). This company moved over 80,000 CY of fill and poured 200 C. of concrete for new culverts in the road projects assigned to it.

(d) Company C concentrated its efforts on base construction type projects within the Qui Nhon Area, operating a prefab yard to build Standard Tropical Buildings and MACV Shelters and preparing concrete bridge markers. The 440'x 80' Cold Storage Warehouse is 90% complete, the Tandem Switch Building was completed with the exception of the surrounding revetment, and Class II & IV Warehouse is approximately 35% complete, with steel framework and trusses erected on the Nicheman Building. The Depot Warehouse and Administrative Space was completed and turned over to the Installation Commander. The POW Hospital being built by a construction platoon from Company D attached to Company C, is approximately 60% complete. This Company also had responsibility for the maintenance of QL-1 from Phu Tai (CR005210) to Phu Cat (BR907486) and of QL-19 from QL-1 (BR984333) to the An Khe Pass (BR619470); this responsibility was transferred to the 299th Engr Bn (C) on 15 April 1969. At that time, company effort shifted to the upgrading of QL-1 between Phu Tai and Binh Thanh (CR 058014), with emphasis on the Cu Mong Pass Area (CR042114); two new MCA D-9 dozers from Company A were attached to Company C for this project, as were two squads from Company B, 299th Engr Bn (C). Operational Support Mission for Tank Farms #1, 2 and 3, as well as Pump Station #2 were completed; these missions involved berms, chain link fencing, six fill stands and two access roads. Finally, this company constructed and buried the second half of the "B" Pipeline along Red Beach and Vung Chua Road with personnel acquired from the disbanded 2 Plt, 643rd Engr Co (PL).

(e) Company D moved to Tuy Hoa North (CQ152484) on 15 April 1969 and started constructing the cantonement areas (TOE's and MER's) for itself and for Company A. This company initially had responsibility for the maintenance of QL-1 from Phu Tai to Phu Cat and of QL-19 from QL-1 to the An Khe Pass; this responsibility was later transferred to the 299th Engr Bn (C), and the responsibility for QL-1 from Binh Thanh to Tuy Hoa acquired. The main effort, though, was on road upgrading between Tuy An (CQ105687) and Tuy Hoa (CQ174448), where some 37,000 CY of fill were hauled, together with 175 CY of concrete for 5 new culverts, and between Binh Thanh (CR 058014) and Phu Tai (CR005210) later transferred to Company C. Base construction was performed by Detachments to Company C: one Platoon worked at Cold Storage Warehouse and another at POW Hospital.

(f) The 536th Engr Det (PC) was principally working on the Ammo Off-Loading Facility and repairing the existing Barge Quay; both projects are part of Qui Nhon Harbor System. The Former is 46% completed and the Latter 45%.

(g) Company B, 299th Engr Bn (C) was placed under the Operational Control of the Battalion on 1 April 1969, and utilized its manpower and resources in two major projects. The first project was the Operational Support of the 1st Logistical Command in the Qui Nhon Area, which entailed the construction of

4 bunkers, 3 guard towers, and 3 fill stands in Tank Farms #1, 2 & 3, as well as the ABD, Qui Nhon Area. The second project was the upgrade of QL-1, Phu Tai to Binh Thanh through drainage facilities; in this project B/299th placed 12 culverts, including 1-quad 48" and 1-quad 60".

b. Personnel, Administration, Morale and Discipline: During this reporting period the troop participation in the Savings Bond Program averaged 66.1%, while Soldiers' Deposits participation averaged 5.7%. There was a total of 45 personnel recommended for awards, and 118 personnel voluntarily extended their foreign service tours. This Battalion suffered eight casualties and one battle death during this Quarter. There were 124 disciplinary cases, 85 Article 15's, 29 Special Courts-Martial, and 10 Summary Courts-Martial.

c. Intelligence and Counterintelligence: Enemy activity against LOC's remained moderate, resulting in two bridges being destroyed by enemy action. The explosives utilized were locally made, and apparently command detonated. Enemy harrassment of work crews for the reporting period can be classified as moderate, with four incidents resulting in one grader, one quarter-ton vehicle and one three-quarter-ton vehicle damaged, one man KIA and four WIA. There were no incidents of enemy action against base camps of this Battalion; however, the Battalion supported the 134th QM Company with two dozers, one front loader and eight 5-ton dump trucks when sappers penetrated Tank Farm #2. This action resulted in major damage to the Tank Farm. Mining of LOC's remained moderate during this reporting period, with a total of nine mining incidents, two of which were located by friendly mine sweeps. Under the threat of an expected enemy spring campaign, good intelligence continued to be maintained by this unit with the Capital ROK Infantry Division, 22nd ARVN Infantry Division, 5th Special Forces Group, 173rd Airborne Brigade, Binh Dinh and Phu Yen Province Forces, MACV Tuy Hoa, and other combat and combat support units in the Battalion's AOR.

d. Plans, Operations, and Training: This reporting period saw the construction effort being shifted from base construction to road upgrade: at the beginning of the period only one company, B/84th, was engaged in road construction, whereas at the closing of the reporting period all companies were so engaged. The major projects are QL-1 Upgrade, Phu Tai to Binh Thanh (assigned to Company C), and QL-1 Upgrade, Tuy An to Tuy Hoa (assigned to Company B and Company D, with support from Company A). All companies are responsible for LOC maintenance in the Battalion's AOR, from Binh Thanh To Vung Ro. Base construction, mainly in the Qui Nhon Area, is being done by Company C, with attachments from Companies D and B. Training emphasis during this reporting period was on the OJT/Cross-Training of newly assigned personnel, as well as on the weapons safety training conducted each Sunday morning for all newly assigned personnel.

e. Logistics: During the past Quarter, the S-4 section gave logistical support to the five organic companies of the 84th Engineer Battalion (Construction), its attached unit, the 536th Engr Det (FC), and Company B, 299th Engineer Battalion (Combat), under the operational control of this battalion since 1 April 1969. The areas of logistical support included:

(1) Class A rations for some 1,000 personnel each day, procured and distributed by the ration break down facility.

(2) Two (2) water points which together produce approximately 40,000 gal of potable water daily.

(3) POL delivery to all organic and attached units amounting to 37,000 gal of Mogas and 42,000 gal of diesel fuel per month.

(4) Supply of Class IV Construction Materials to all units for MCA funded projects. An average of 350 requisitions for construction materials are processed each week by the BOM section of S-4.

(5) Supply of Class II TOE equipment. An average of 150 requisitions for expendable and non-expendable equipment and supplies are processed by the property book section each week. The Quarter showed an influx of 176 new pieces of equipment, both TOE and MCA.

(6) Resupply of unit basic loads and demolitions through the Phu Tai ASP. An average of 10,000 lb of TNT are used each month for quarry operations.

f. Force Development: N/A

g. Command Management: N/A

h. Inspector General: N/A

i. Civic Action: During this reporting period, the 84th Engineer Battalion (Construction) distributed $VN 196,000 among various orphanages in Qui Nhon, An Khe and Tuy Hoa. This money was used to hire teachers, maintain water heaters and generators, and for further use at the discretion of the institutions' directors. The monies were donated by the personnel of this Battalion. $VN 4,210 was obtained from the Qui Nhon Support Command Chaplain's Fund and further distributed by the Battalion Chaplain among charitable organizations. As part of the daily civic action program within the 84th Engineer Battalion (Construction), the following scrap materials were distributed to various orphanages, schools and refugee centers in the Qui Nhon Area: 152 broken cement bags, 4,200 bf of lumber,

20 gal of paint, 100 cy of 3"(-) crushed rock, and 30 pieces of 18" CMP. Expenditures from US/FWMAF Military Civic Action were #VN 84,000 during this period, spent in the Qui Nhon area orphanages.

2. Section 2: Observations (Lessons Learned)

a. Personnel: None

b. Operations:

(1) Item: The tendency to "overbuild" when widening a road through rice paddy areas.

(a) Observation: While doing road work on QL-1, a tendency to "overbuild" existed when widening the road through rice paddy areas.

(b) Evaluation: Without close supervision road width will not stay within allowable standards.

(c) Recommendation: Road width must be closely monitored during all phases of construction to insure that excessive widening is kept to a minimum.

(2) Item: Making efficient use of mobile scaffolds when Cherry pickers and Cranes aren't available.

(a) Observation: In constructing a 24' high fence around fuel tanks at the Tank Farms, a problem was encountered since the majority of the construction effort was expended 24' above ground.

(b) Evaluation: A substitute for Cherry Pickers and Cranes had to be found so that the project deadline could be met.

(c) Recommendation: The problem was alleviated by constructing a 16' high standard scaffold on the bed of a 5 ton dump truck.

(3) Item: Improvising snap ties for wales on building columns.

(a) Observation: While building a framework for 2' x 2' x7'-6" reinforced concrete columns, it was discovered that snap ties for the wales were not available.

(b) Evaluation: A method of securing the wales had to be found so that work on the project could continue.

(c) Recommendation: Engineer pickets cut to the proper length and drilled to receive No 4 re-bar can serve as an adequate substitute.

(4) Item: Finding an expedient method for loading culvert onto a lowboy trailer.

(a) Observation: While waiting to load a 72"x38' culvert, it became apparent that an unnecessary delay would occur because of the absence of adequate lifting equipment.

(b) Evaluation: To avoid a two hour delay, an adequate substitute had to be found so that the culvert could be promptly loaded on the lowboy.

(c) Recommendation: A D7-E dozer and 290 M scraper were used. The 290 M scraper was parked parallel to the lowboy on one side, while the D7-E dozer pushed the culvert onto the lowboy.

(5) Item: Placing of weep hole tubes through headwall and running back into culvert for improved drainage.

(a) Observation: While placing a headwall for one of the culverts on QL-1 South, the headwall was approximately 75 feet in from the edge of the mountain, thereby leaving soil on both sides of the headwall.

(b) Evaluation: The problem was how to make the weep hole tubes more effective in draining the roadbed.

(c) Recommendation: The problem was solved by running the weep hole tubes through the headwall from the compacted roadbed side and then bending them into the top of the culvert.

(6) Item: The use of K-Wall revetments around a permanent installation.

(a) Observation: While constructing K-Wall revetments, problems arose when installation was started on an uneven base.

(b) Evaluation: While constructing K-Wall revetments, problems arose concerning how to best fasten sections and properly align the revetment.

(c) Recommendation: Great care and consideration must be given to site preparation, to insure that revetment rest on a graded and level base.

(7) Item: The prefabrication of the corner pieces for a bulkhead wall of ZP type sheetpile.

(a) Observation: Since the corner pieces for a bulkhead wall are not usually manufactured, the constructing unit must make them. Furthermore, while cutting the sheetpiling to make these corner pieces, the heat from the cutting torch warps the piles and makes a straight edge difficult to obtain.

(b) Evaluation: The corner pieces for the bulkhead wall must be free of warps in order to obtain a straight joint.

(c) Recommendation: The problem can be eliminated by cutting the sheetpiling at intervals of about six inches with an inch or so left between each interval. These inch sections prevent piling from warping. The remaining sections can then be cut with little effort on the piling.

(8). Item: Placing Bench and Swedge Bolts in Abutment

(a) Observation: Bench and front face forms could not be placed before pouring concrete up to bench level because the face width was not wide enough to place a chute to within 5' of the footer.

(b) Evaluation: Concrete would be poured up to bench level, then the bench and face form would be placed and braced before the face would be poured without the use of a chute.

(c) Recommendations:

(1) Prefab the bench and face forms so that holes are drilled where the swedge bolts will go. Have the form placed at the site where it will be easy to place and brace the bench and frontface forms.

(2) Pour concrete to bench level and smooth bench with trowel. Place face form, then bench form. Place bolts into the drilled holes in the bench and anchor the bolts to the form with tie wire, It is important to get the bolts placed as quickly as possible because cement sets quickly in this climate.

(3) Place tie wire and spacers in the face forms, then brace the bench and face forms.

(9). Item: Placing rebar into forms where a large amount of concrete will be poured.

(a) Observation: Cutting and placing rebar at the job site led to poor workmanship. The people placing the rebar found themselves working at close quarters and climbing on the rebar causing the rebar to sag and bend.

(b) Evaluation: Prefabing the rebar structure then transporting it to the work site in large pieces allowed workers enough working room and eliminated the placing rebar being climbed on while the rebar was tied together.

(c) Recommendations:

(1) Prefab rebar structures as much as feasible before placing.

(2) Place only three sides of concrete form before placing rebar. After placing rebar, the fourth side of the form can be placed and braced and tie wire added.

EGCC-CO 14 May 1969
SUBJECT: Operational Report of the 84th Engineer Battalion (Construction) for the Period Ending 30 April 1969, RCS CSFOR-65 (R1)

c. Training: None

d. Intelligence: None

e. Logistics: None

f. Organization: None

g. Other: None

WILLIAM Y. EPLING
LTC, CE
Commanding

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EGC-OP (30 April 69) 1st Ind
SUBJECT: Operational Report of the 84th Engineer Battalion (Const) for the Period Ending 30 April 1969 (RCS-CSFOR-65)

DA, HEADQUARTERS, 937TH ENGINEER GROUP (COMBAT), APO 96318, 22 May 1969

TO: Commanding General, 18th Engineer Brigade, ATTN: AVBC-OS, APO 96377

1. The Operational Report - Lessons Learned of the 84th Engineer Battalion (Construction) has been reviewed by this headquarters and is considered to be an excellent account of the 84th Engineer Battalion's activities during the reporting period ending 30 April 1969.

2. This headquarters condurs with all the observations and recommendations of the Battalion Commander.

W.G. KRATZ
COLONEL, CE
Commanding

AVBC-DC (30 April 1969) 2nd Ind
SUBJECT: Operational Report of the 84th Engineer Battalion (Construction) for the Period Ending 30 April 1969, RCS CSFOR-65 (R1)

HQ., Headquarters, 18th Engineer Brigade, APO 96377 6 JUN 1969

TO: Commanding General, U.S. Army Vietnam, ATTN: AVHGC-DST, APO 96375

1. This headquarters has reviewed the Operational Report - Lessons Learned for the 84th Engineer Battalion (Construction) as indorsed by the 937th Engineer Group (Combat). The report is considered to be an excellent account of the Battalion's activities for the reporting period.

2. This headquarters concurs with the observations and recommendations of the Battalion and Group Commanders.

J. H. HOLMES
Colonel, CE
Commanding

CF: CO, 937th Engr Gp
CO, 84th Engr Bn

AVHGC-DST (14 May 69) 3d Ind
SUBJECT: Operational Report of the 84th Engineer Battalion (Construction) for the period ending 30 April 1969, RCS CSFOR--65 (R1)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 19 JUN 1969

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

This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 30 April 1969 from Headquarters, 84th Engineer Battalion (Construction) and concurs with the report as indorsed.

FOR THE COMMANDER:

W. C. ARNTZ
CPT, AGC
Assistant Adjutant General

Cy furn:
84th Engr Bn
18th Engr Bde

GPOP-DT (14 May 69) 4th Ind
SUBJECT: Operational Report of HQ, 84th Engr Bn (Const) for Period Ending 30 April 1969, RCS CSFOR-65 (R1)

HQ, US Army, Pacific, APO San Francisco 96558 5 JUL 69

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

This headquarters has evaluated subject report and forwarding indorsements and concurs in the report as indorsed.

FOR THE COMMANDER IN CHIEF:

D. A. TUCKER
CPT. AGC
ASST AG

DEPARTMENT OF THE ARMY
HEADQUARTERS, 84TH ENGINEER BATTALION (CONSTRUCTION)
APO 96238

EGCC-CO

14 August 1969

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction) for the period ending 31 July 1969, RCS CSFOR-65 (R1)

THRU: Commanding Officer
937th Engineer Group (Combat)
APO 96318

Commanding General
18th Engineer Brigade
ATTN: AVBC-C
APO 96377

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

Commander in Chief
United States Army, Pacific
ATTN: GPOP-DT
APO 96558

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

FOR OT UT
693036
Inclosure

OPS-15-089

AGCL-CO 14 August 1969

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction) for the Period Ending 31 July 1969, RCS CSFOR-65 (R1)

1. Section 1 Significant Organizations or Unit Activities:

a. Command:

(1) Organization:

(a) Headquarters & Headquarters Company, 84th Engr Bn (Const)

(b) Company A, 84th Engr Bn (Const)

(c) Company B, 84th Engr Bn (Const)

(d) Company C, 84th Engr Bn (Const)

(e) Company D, 84th Engr Bn (Const)

(f) 536th Engr Det (PC)

(g) 585th Dump Truck Company has been attached to this Battalion since 12 July 1969.

(h) Company B, 299th Engr Bn (C) was dropped from OPCON of this Headquarters on 8 June 1969.

(i) Ad Hoc Power Distribution Team Assigned to HHC/84th.

(2) Unit Operations:

(a) Headquarters and Headquarters Co, provided command, planning, direction, coordination and control to all subordinate units. Several units and attached units are located in outlying areas away from the Headquarters. The problems encountered here were communications (telephone) and added security requirements for small convoys and courriers operation between the Units and this Headquarters.

(b) Company A operated the crusher and Quarry complex at Chop Chai. During this quarter approximately 36,000 cubic yards of rock were crushed expending 18,000 man hours. The asphalt crew of Company A expended 310 man hours on QL-1. This included shooting 11,410 gallons of MC-70 and placing 615 tons of hot mix.

Incl

(c) Company D has been upgrading a 25 KM section of QL-1 extending from Tuy Hoa to Tuy An. This project is approximately 45% complete with 16.3 KM of subbase prepared and 3.9KM of base course placed. This Company has also been burying parallel 6" and 8" POL pipelines from Tuy Hoa to CQ 242275. This project was begun on 9 June 1969. Since that time 59420 feet of the parallel 6" and 8" pipelines has been completed. This places the project at 59% complete.

(d) Company C concentrated its efforts on base construction type projects within the Qui Nhon Area. Company C completed the 440' x 80' Cold Storage Warehouse on 20 June 1969. The MER project for 173d AB Bde at Cha Rang which consisted of 6 ea field showers, 7 ea burn-out latrines and 40' x 140' mess hall slab was completed. The MER project for 173d at Phu Tai, which consisted of 5 ea field showers, 7 ea burn-out latrines, 40' x 40' mess hall slab and grading and stabilization necessary to accomodate unframed tentage is complete less plumbing for field showers which is not available at this time. Pipeline "Golf" was cleared of blockage to provide a minimum flow rate of 1,000 bbl per hour, the security lighting for Lane Army Airfield is complete less 25 light fixtures which are not available at this time. LOC Restoration on QL-1 is progressing well with 97% of the work completed. Full effort is being expended on Ammo Off Loading project with 600' sheet pile bulkhead backfilled with sand and concrete placed in 50% of 600' x 80' barge wharf. The POW Hospital which is being built by D Company with equipment and administrative support from C Company is 75% complete. The work on Class II & IV Warehouse is at a stop because personnel were sent to assist B Company on the pipeline project, which has a higher priority. The warehouses are 95% complete. At Camp Williams two new guard towers complete with lower sleeping deck were constructed to replace two old towers.

(e) Company D has been primarily responsible for the living environment of A and D Companys at Tuy Hoa North. D Company has recently built the A Company MER and has completed 38% of the Battalion Headquarters Cantonment. With the attachment of the 585th Dump Truck Company to the 84th Engineer Battalion in July, D Company began constructing the MER for the 585th. D Company has also been constructing the Chop Chai Quarry and crusher site. The crusher and quarry is manned by A Company. Company D is also working on the LOC upgrade from Tuy Hoa to Tuy An. This Company has a platoon attached to Company C for work on the POW Hospital.

(f) The 536th Engr Det (PC) principally worked on the Ammo Barge Off-Loading Facility. This project is 85% complete. The 536th has only the fender system to complete. Company C is doing the earthwork for the project. The 536th also completed repair of the Barge Quay at Qui Nhon this quarter.

(g) The 585th Dump Truck Company has been attached to this Battalion since 12 July. The primary function of this Company has been to haul base course to the QL-1 project extending for 25KM from Tuy Hoa to Tuy An. 10,000 cubic yards of base course have been hauled with 3:9 KM of base course placed. The 585th has also hauled pipeline and other materials in support of the POL Pipeline Operation. This Company also supports Companys A, B and D in miscellaneous hauling operations.

b. Personnel, Administration, Morale and Discipline: During the reporting period, there was a total of 46 personnel recommended for awards, and 56 personnel voluntarily extended their foreign service tour. This Battalion suffered three casualties, including one KIA, during this Quarter. There were 80 disciplinary cases, 53 Article 15's, 25 Special Courts-Martial, and one General Courts-Martial.

c. Intelligence and Counterintelligence: Enemy activity throughout the Battalion's AOR was light. One minor stand-off B-40 rocket attack on Chop Chai Quarry resulted in 1 US KIA and 2 US WIA. One other light mortar attack on Tuy Hoa North Compound resulted in negative casualties or damage. Enemy harrassment of work parties and LOC's consisted of eight reportable incidents of sniper fires and minings resulting in no casualties and minor damage. During the enemy spring/summer campaign and the six week lull in enemy activity from mid June to the end of July, good intelligence continued to be maintained by this unit with the Capital ROK Infantry Division, 22nd ARVN Infantry Division, 173rd Airborne Brigade, Binh Dinh and Phu Yen Province MACV Advisors and VN Forces, and other combat and combat support units in the Battalion's AOR.

d. Plans, Operations, and Training: The highest priority project during this reporting period has been the POL pipeline at Tuy Hoa. B Company and 2nd platoon of C Company have been working on this project during the latter part of the quarter. Two major projects are QL-1 Upgrade, Tuy An to Tuy Hoa (assigned to Company B and Company D), and QL-1 upgrade, Phu Tai to Binh Thanh (assigned to Company C). All companies are responsible for LOC maintenance in the Battalion's AOR which extends from Binh Thanh to Vung Ro. Base construction, mainly in the Qui Nhon Area, is being done by Company C with attachments from D Company. Most present projects should be completed during the next quarter. Training emphasis during this reporting period was on OJT and crosstraining of newly assigned personnel. Safety training and weapons firing was conducted.

e. Logistics: During the past Quarter, the S-4 section gave logistical support to the five organic companies of the 84th Engineer Battalion (Construction), its attached unit, the 536th Engr Det (MC), and the 585th Dump Truck Company, which has been attached to this unit since 12 July. The areas of logistical support include:

(1) Class A rations for some 900 personnel each day, procured and distributed by the ration break down facility.

(2) Two (2) water points which together produce approximately 40,000 gal of potable water daily.

(3) POL delivery to all organic and attached units amounting to 37,000 gal of Mogas and 42,000 gal of diesel fuel per month.

(4) Supply of Class IV Construction Materials to all units for MCA funded projects. An average of 350 requisitions for construction materials are processed each week by the BOM section of S-4.

(5) Supply of Class II TOE equipment. An average of 150 requisitions for expendable and non-expendable equipment and supplies are processed by the property book section each week. The Quarter showed an influx of approximately 180 new pieces of equipment, both TOE and MCA.

(6) Resupply of unit basic loads and demolitions through the Phu Tai ASP. An average of 10,000 lb of dynamite are used each month for quarry operations.

f. Force Development: N/A

g. Command Management: N/A

h. Inspector General: N/A

i. Civic Action: This Battalion undertook a variety of Civic Action Projects during this quarter. Voluntary contributions totaling $VN 84,800 were made by members of this Battalion. This money was distributed among several orphanages and was used for a dispensary at the Buddhist Refugee Center at Tuy Hoa and construction of an incinerator at Province Hospital. As part of the Civic Action Program the following scrap materials were distributed to various orphanages, schools and refugee conters: 290 bags of cement, 2094 BF of lumber, 50 drums of AP-3, 30 ft 20" ∅ CMP, and 30 pieces 36" CMP. This Battalion spent approximately 42 man days for Civic Action Projects.

2. Section 2: Observations (Lessons Learned)

a. Personnel: None

b. Operations:

(1) Item: Straightening Trusses

Observation: Badly bent truss for Rheem Dudley Building

Evaluation: The truss was needed badly to complete building, we decided it could be repaired with torch, welder, and steel plate.

Recommendation: The web part of the truss was repaired by cutting out the bent section and replacing it with the same thickness sheet metal (1/8"). The flange of the truss was both twisted and bent. The twisted part was cut off, straightened, and welded back on, all of the welds were made with extra beads to ensure proper strength was maintained. The bent portion of the flange was straightened by heating and hammering back to the original form. Care was taken not to heat the truss too much causing it to lose its temper resulting in a loss of strength.

(2) Item: Forming Concrete Curb

Observation: Need to place forms for 3" x 4" curbing inside warehouse without damage to finished concrete floor.

Evaluation: It was decided we could do it by attaching forms to weighted plywood base.

Recommendation: The forms were kept stationary by fastening pieces of plywood on the bottom of the forms and placing sandbags on top of the plywood. The form work made in this manner could be placed and removed with minimum effort and no damage to finished floor.

(3) Item: Oversized rock stopping production

Observation: When using towed aggregrate spreader, oversized rock was blocking it up and stopping production. Even one large rock every couple of hours was very frustrating.

Evalution: A method of taking out the oversized rock had to be found.

Recommendation: This problem was eliminated by placing a piece of crusher screen over the spreader hopper and feeding the rock through it. This prevents rocks that are to large from stopping production.

(4) Item: Correctly insulating cable junctions.

Observation: In the process of connecting a 100 KW generator to our buried power cable, difficulty was experienced in insulating the heavy cable properly.

Evalution: A method had to be found to insulate the heavy cable.

Recommendation: The problem was overcome by wraping each junction with electrical tape and placing it in a paper milk carton with AP-3 in it. When the AP-3 cooled it could be buried safely. It also served as a good water proofing substance in each exposed end of the pipe.

(5) Item: Easy placement of fence

Observation: In putting up chain link fence in hard to get at areas, unrolling and putting up the fence as needed was awkward and difficult.

Evaluation: A method had to be found to facilitate putting up the fence.

Recommendation: This problem was eliminated by unrolling the chain link fence on the ground and then hand carrying with approximately 10 men to the area desired.

(6) Item: Easy placement of fence posts.

Observation: Placing fence posts is a time consuming job.

Evaluation: A method should be found to facilitate this job.

Recommendation: This problem was solved by having a bucket loader push the fence posts into the ground.

(7) Item: Digging post holes in sand.

Observation: When digging a post hole in sand the sides often slide back into the hole.

Evaluation: A method should be found to keep the side from caving in

Recommendation: This problem was solved by caping the area with laterite at least 6" thick and wetting down the area in which the hole is to be dug. The laterite compacts the sand and the water will hold the sand together.

(8) Item: Longer wearing of tires.

Observation: Tires are often destroyed by sharp rock punctures.

Evaluation: A way should be found to reduce the number of these punctures.

Recommendation: Reduction of the tire pressure below regular tire pressure has been found to increase the life of the tire on rough roads.

EGCC-CO 14 August 1969

SUBJECT: Operational Report of the 84th Engineer Battalion (Construction) for the Period Ending 31 July 1969, RCS CSFOR-65 (R1)

c. Training: None

d. Intelligence: None

e. Logistics: None

f. Organization: None

g. Other: None

/s/ William Y. Epling

WILLIAM Y. EPLING
LTC, CE
Commanding

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EGC-CO(31 July 69) 1st Ind
SUBJECT: Operational Report of Lessons Learned for the Period 1 May 1969 thru 31 July 1969.

DA, HEADQUARTERS, 937TH ENGINEER GROUP (COMBAT) APO 96318, 23 August 1969.

TO: Commanding General, 18th Engineer Brigade, ATTN AVCB-CB, APO 96377.

1. The subject report, submitted by the 84th Engineer Battalion (Construction) has been reviewed and is considered a well compiled report of organization activities.

2. I concur with the observation and recommendations of the Battalion Commander.

W.G. KRATZ
COLONEL, GS
Commanding

AVBC-CG (14 Aug 69) 2nd Ind
SUBJECT: Operational Report of the 84th Engineer Battalion (Const) for the Period Ending 31 July 1969, RCS CSFOR-65 (R1)

DA, HEADQUARTERS, 18TH ENGINEER BRIGADE, APO 96377 1 SEP 1969

TO: Commanding General, U.S. Army Vietnam, ATTN: AVHGC-DST, APO 96375

1. This headquarters has reviewed the Operational Report - Lessons Learned for the 84th Engineer Battalion (Const), as indorsed by the 937th Engineer Group (Combat). The report is considered to be an excellent account of the Battalion's activities during the reporting period.

2. This headquarters concurs with the observations and recommendations of the Battalion and Group Commanders.

J. M. MORRIS
BG, USA
Commanding

CF:
1 - CO, 937th Engr Gp
1 - CO, 84th Engr Bn

AVHGC-DST (14 Aug 69) 3d Ind
SUBJECT: Operational Report of the 84th Engineer Battalion (Construction) for the period ending 31 July 1969, RCS CSFOR-65 (R1)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 19 SEP 1969

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

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 July 1969 from Headquarters, 84th Engineer Battalion (Construction).

2. Reference item concerning "Correctly insulating cable junctions," section II, page 7, paragraph 2b(4); concur. This method is acceptable for voltage potentials below 11,000 volts. A plastic compound should be used with potentials above 11,000 volts. In either case an epoxy splice kit should be used if available.

FOR THE COMMANDER:

H. A. GOODWIN
CPT, AGC
Assistant Adjutant General

Cy furn:
84th Engr Bn
18th Engr Bde

GPOP-DT (14 Aug 69) 4th Ind
SUBJECT: Operational Report of HQ, 84th Engineer Battalion (Construction) for Period Ending 31 July 1969, RCS CSFOR-65 (R1)

HQ, US Army, Pacific, APO San Francisco 96558 24 SEP 69

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

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:

D. A. TUCKER
CPT. AGC
ASST AG

UNCLASSIFIED

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SUBJECT. Operational Report - Lessons Learned, Headquarters, 84th Engineer Battalion, Period Ending 31 October 1969

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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, 84TH ENGINEER BATTALION (CONSTRUCTION)
APO San Francisco 96238

EGCC-CO 31 October 1969

SUBJECT: Operational Report - Lessons Learned, 84th Engineer Battalion (Construction), for the period ending 31 October 1969, RCS CSFOR-65 (R2)

THRU: Commanding Officer
937th Engineer Group (Combat)
APO 96318

Commanding General
18th Engineer Brigade
ATTN: AVBC-C
APO 96377

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

Commander In Chief
United States Army, Pacific
ATTN: GPOP-DT
APO 96558

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

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EGCC-CO
SUBJECT: Operational Report - Lessons Learned of the 84th Engineer Battalion (Construction) for the Period Ending 31 October 1969, RCS CSFOR-65 (R2)

1. Operations

a. Command: Assigned and attached units are listed in Inclosure 1.

b. Unit Operations:

(1) LOC Restoration of QL-1, Tuy An to Tuy Hoa: The major portion of the horizontal construction capability of the Battalion was employed on this project. At the end of the quarter the restoration was 56% complete with 22 kilometers of subbase, 19.6 kilometers of base course, and 4.4 kilometers of paved roadway finished. Work accomplished during the quarter included the placement of 40,000 cubic yards of laterite, 35,000 cubic yards of crushed rock, and 4000 tons of asphaltic concrete. The quarry and crusher operation continued to support this project by crushing over 40,000 cubic yards of rock. This increased production was achieved by operating the crusher on a 24 hour basis. Additional haul capability was provided by the 585th Dump Truck Company and a platoon from the 509th Panel Bridge Company. This capability was further augmented by the addition of 15 MCA 12 cubic yard dump trucks.

(2) LOC Restoration of QL-1 from Phu Tai to Binh Thanh: This project has been completed except for a short section in the Cu Mong Pass. During this reporting period, over 51,000 cubic yards of rock and laterite were moved using explosives and earth-moving equipment. RMK was given a contract late in the quarter to assist the 84th Engr Bn (Const) in the completion of this project.

(3) Cold Storage Warehouse, Qui Nhon: Additional purlins were installed in the Cold Storage Warehouse roof. Construction was also started on an addition to the loading dock.

(4) Underground POL Pipeline Tuy Hoa AFB to Vung Ro Bay: Installation of the pipeline was completed by burying 60,720 feet of 6 inch and 8 inch parallel pipelines. The 8" line has been accepted by the user and has pumped over 4 million gallons of fuel since construction was completed. Preparations are continuing for acceptance of the 6" line.

(5) Road Maintenance: Road maintenance became a major task during periods of heavy monsoons rains. The Battalion effort was concentrated along QL-1 where culverts, bypasses, and bridges required repair. At Bridge #273, CQ070815, an Eiffel span was replaced with a 38 foot M4T6 dry span, and a bent was restored.

(6) Ammunition Off-Loading Facility, Qui Nhon: Progress on the Ammo Off-Loading Facility included the completion of concrete placement, walers, and bollards. The area in front of the facility was dredged and the area behind the retaining wall was backfilled with sand. Laterite and rock were hauled, spread, and compacted for the hardstand area, access roads, and storage area.

(7) Class II & IV Warehouses, Long My Depot: One 120'x200' Rheon Dudley Building and one 120'x200' Richardson Building, were completed during the quarter.

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(8) Other Selected Projects:

(a) One platoon from Company D has begun work on the MACV Advisor Facility at Tuy Hoa.

(b) The 536th Engr Det (PC) with a platoon from the 497th Engr Co (PC) has begun construction of Dolphins to protect the Qui Nhon POL Jetty.

(c) The Tandem Switch Building revetments have been completed.

c. Intelligence and Counterintelligence: Enemy activity throughout the Battalion's area of responsibility was moderate during the first half of the reporting period and light during the later half. One minor stand off B-41 rocket attack on Camp Sherman Williams Compound (HQ, 84th Engr Bn (Const)) resulted in negative casualties and minor damage. Enemy harrassment of work parties and LOC's consisted of 12 reportable incidents of minings, ambushes, and sniper fire resulting in 1 US KIA, 15 US WIA, 4 vehicles destroyed, and 3 other vehicles damaged. Additionally, one bridge was destroyed by explosives. During the enemy summer/fall campaign and the seven week lull in enemy activity from mid September to the end of October, good intelligence continued to be maintained by this unit with the Capitol ROK Infantry Division, 22nd ARVN Infantry Division, 173rd Airborne Brigade, Binh Dinh and Phu Yen Province MACV Advisors and VN Forces and other combat and combat support units in the Battalion's area of responsibility.

d. Plans and Training: Planning for construction of a 1400 foot bridge at Bong Son is now underway. Increased emphasis was placed on training during this quarter with Sunday mornings reserved for training and standdown maintenance.

e. Personnel, Administration, Morale and Discipline: During this reporting period there were a total of 55 personnel recommended for awards, and 87 personnel voluntarily extended their Foreign Service Tour, which represents an increase of 31 individuals over the previous reporting period. There were 42 disciplinary cases including 38 Article 15's and 4 Special Courts-Martials's.

f. Logistics: During the past quarter, the S-4 Section gave logistical support to organic companies and attached units of the 84th Engr Bn (Const). The areas of logistical support included:

(1) Procurement and distribution of Class A rations for 900 personnel daily.

(2) Operation of two water points producing 45,000 gallons of potable water daily.

(3) Supply of Class II TOE equipment. An average of 100 equipment and supply requisitions were processed weekly by the property book section. During the quarter 180 new pieces of TOE and MCA equipment were acquired.

(4) Supply of Class IV Construction Materials to all units for MCA funded projects. An average of 150 requisitions for construction materials were processed weekly by the S-4 Section.

(5) Resupply of unit basic loads and demolitions through the Phu Tai ABD. An average of 10,000 pounds of dynamite were used monthly for quarry operations.

(6) Receiving sufficient M16A1 rifles to bring the Battalion to 93% of authorization.

g. Inspector General: The USARV Inspector General inspected the 84th Engr Bn during the period 13-17 October 1969. An overall rating of satisfactory was given to the Battalion.

h. Civic Action: This Battalion undertook a variety of civic action projects during this quarter. Voluntary contributions totaling $VN 102,305 were made by members of the Battalion. This money was distributed among several orphanages. As part of the civic action program 500 board feet of scrap lumber and 20 feet of culvert were distributed to schools and medical facilities. During this quarter 32 mandays were devoted to civic action projects.

i. ARVN Affiliation:

(1) Members of the 84th Engr Bn (Const) have continued to develop meaningful relationships with our ARVN counterparts. Liaison and technical advice are being provided for the construction of Bridge 241 at Tuy Hoa. 84th Engineer Battalion personnel are assisting in the continued planning for the bridge construction and are coordinating material and equipment acquisition.

(2) Equipment and instructors have been provided for training ARVN Engineers to operate the 40-ton crane and the 290M Tractor-Scraper. The skills of Arc and Gas welding were also presented in training sessions. Approximately 235 class hours on the 40-ton crane and 95 hours on welding have been given during the last quarter. 196 hours of instruction were given on the 290M.

(3) During recent heavy rainfall along QL-1, engineers from the 20th ARVN Gp and the 84th Engr Bn (Const) combined forces to repair pot holes and washed out culverts in an effort to keep this vital line of communication open.

2. Lessons Learned: Commander's Observations, Evaluations, & Recommendations

a. Personnel

(1) Item: Daily MOS Inventory

OBSERVATION: Valuable man-hours were being expended each month in preparation of the monthly MOS Inventory report and furnishing various staff elements strength figures for the Battalion.

EVALUATION: A reduction of man-hours was necessary to cut down the time of preparation of monthly MOS inventories and time consumed furnishing strength figures to staff elements.

RECOMMENDATION: A daily MOS inventory has been initiated for each company and attached units of the 84th Engr Bn (Const). This inventory is posted on a daily basis utilizing the morning report. By utilization of this daily MOS inventory, a reduction of 10 man-hours per month has resulted.

b. Intelligence: None

c. Operations

(1) Item: Installation of Buried Pipeline 50.14

OBSERVATION: Considering materials availability and other factors, the decision was made to bury two coupled pipelines in an insecure area where pilferage had been a major problem. It was planned that short sections of the lines between valves would be flushed with water; however, this was not done because of a shortage of pumps. Covers were coupled on open ends of the lines at night. Forces were not available to secure the lines at night. After completion of construction much time and fuel was lost because of blockages in the lines. The blockages were caused by lumber, rocks and other materials.

EVALUATION: The enemy was able to sabotage the lines by removing the coupled covers, placing materials far enough down the lines so that they were not detected, and recapping the lines. The failure to flush the line allowed the problem to go undetected until after the lines were placed into operation.

RECOMMENDATION: When pipelines are installed in unsecure areas, the lines should be guarded by security forces until they are buried. The lines should be flushed prior to burial to insure that no blockages exist. These measures will reduce the time required to develop a fully operational pipeline system and will prevent an unnecessary loss of fuel.

(2) Item: Interdiction of a Main Supply Route

OBSERVATION: During recent heavy monsoon rains, QL-1 was washed out in several places. Engineers were seriously hampered in their efforts to repair the road because civilian and military traffic blocked access to the trouble spots.

EVALUATION: Traffic congestion was caused by insufficient dissemination of road information, lack of timely traffic control, and incomplete coordination between free world military forces.

RECOMMENDATION: The interdiction of a main supply route in a theater of operations such as Vietnam is a contingency which requires advance planning by the tactical commander having jurisdiction over all route users. This plan should provide for aerial reconnaissance, traffic control, convoy restrictions and other measures necessary to allow rapid repair of the damaged road.

(3) Item: Criteria for Acceptance of POL Pipelines 50.14

OBSERVATION: The acceptance of the recently constructed 6" and 8" underground pipelines between Vung Ro Bay and Tuy Hoa, RVN, became the source of concern because the using unit had not defined acceptance criteria prior to the completion of construction.

EVALUATION: Early planning of pipeline construction should include detailed consideration of the exact criteria required for pipeline acceptance.

RECOMMENDATION: Required flow rates, pumping pressures and other acceptance criteria must be defined during early planning stages. Additionally, pipeline

maintenance responsibilities should be clearly delineated before actual construction begins.

(4) Item: Rolling Door Construction

OBSERVATION: Heavy warehouse doors on Rheon Dudley Buildings are mounted on overhead rollers that are difficult to open and close. Also, they are easily torn loose from the rollers.

EVALUATION: Such heavy rolling doors should have some type of support to prevent their detachment from the rollers. Also, the doors should be constructed so they may be easily opened and closed by one person.

RECOMMENDATION: A U shaped rail, slightly wider than the door rollers that are being installed, should be placed in concrete at the base of the doorway. The door should be hung by the top rollers and then the same number of rollers should be attached to the bottom of the door. In this manner, these rollers will roll along the bottom rail and give additional support to the door.

50.16 (5) Item: Dredging with 40-Ton Crane

OBSERVATION: Dredging to a depth of 10 feet below water level was required immediately in front of an Ammo Off-Loading Dock. The material to be dredged consisted of a sandy silt.

EVALUATION: A 40-ton crane with a clamshell was able to get satisfactory loads and efficiently dredge the required area.

RECOMMENDATION: The 40-ton crane with a clamshell can be effectively employed to dredge small shallow areas.

(6) Item: Expedient Maintenance Facility

OBSERVATION: During the rainy season, proper preventive maintenance and operational checks of the undercarriage of vehicles were not being performed by the operators because of inadequate facilities.

EVALUATION: To improve working conditions, a safe rack had to be built to allow operators to work under vehicles.

RECOMMENDATION: A rack was constructed using 16"x16"x10' timbers for support and salvaged M4T6 bulk for decking. A 30" space was left in the center to insure ample working area. This rack is being used for ¼ ton up to 10 ton vehicles, and has significantly improved preventive maintenance.

(7) Item: Item: Leaks in large corrugated sheet metal roofs

OBSERVATION: The corrugated sheet metal roof on the large Cold Storage Warehouse in Qui Nhon, RVN was observed not to be watertight after the completion of construction. Puddles of water were forming on the top of the vapor seal in the attic space and threatening damage to the insulation.

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SUBJECT: Operational Report - Lessons Learned of the 84th Engineer Battalion (Construction) for the Period Ending 31 October 1969, RCS CSFOR-65 (R2)

EVALUATION: The sheet metal roof was flexing under wind loads and allowing rain to enter the building under the end laps. Design spacing of purlins was determined to be excessive.

RECOMMENDATION: Additional purlins were installed to reduce the maximum center to center spacing to 2 feet. This modification eliminated the leaks due to sheet metal flexing.

50.21 (8) Item: Emergency Bypasses

OBSERVATION: The placement of a culvert in a swift stream is difficult as the stream tends to move the culvert.

EVALUATION: A method is needed to anchor culverts prior to backfilling.

RECOMMENDATION: Emergency bypass culverts can be secured in swift streams by using 7 foot lengths of #9Ø Rebar driven at the rear and sides of each culvert. Positioning a culvert in swift current can be accomplished by using the 7 foot lengths of #9Ø Rebar as stakes on the near and far shores with ropes attached to the culvert. The rebar can be recovered after the culvert has been positioned.

(9) Item: Trailer Brakes

OBSERVATION: When parking ¼, 3/4 and 1½ ton trailers for prolonged periods of time, the brakes stick and require considerable effort to free.

EVALUATION: Brakes have a tendency to stick because the humidity causes the fiber brake shoes to adhere to the metal drums.

RECOMMENDATION: When parking trailers for prolonged periods of time, it is recommended that blocking be placed in front & behind the wheels instead of using the hand brake.

(10) Item: Keeping snakes out of culvert type bunkers

OBSERVATION: A culvert, when built into a berm as a fighting position, often becomes a snake trap. The snakes not only fall into the culvert from the top, but also burrow their way into the bunker through the bottom.

EVALUATION: A method was needed to keep snakes out of culvert type bunkers.

RECOMMENDATION: Screening material can be placed on the bottom of the hole and the culvert then can be placed on the screen. This prevents snakes from burrowing into the bunker. Screen can also be placed loosely across the top. This keeps the snakes from falling into the hole, but still allows a man to easily jump into the bunker.

(11) Item: Grader Bolts

OBSERVATION: Bolts that hold cutting edges on ten grader blades often become twisted or broken.

EVALUATION: Obstructions are catching on the excess thread on these bolts and causing the damage.

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RECOMMENDATION: If the excess thread is cut off at the time they are installed, the bolts have a much longer lifetime.

d. Organization: None

e. Training:

(1) Item: Operation of the 290M Training Course

OBSERVATION: While conducting a 290M tractor-scraper training course for members of the ARVN Engineers, the most difficult problem was the lack of communication.

EVALUATION: Although a qualified interpreter was used, he was not familiar with the operation and nomenclature of the 290M tractor-scraper. He consequently did not fully understand the technical terms used in the training course.

RECOMMENDATION: Prior to the conduct of the training course, the instructor must fully train the interpreter in all aspects of operation and maintenance of the particular construction equipment.

f. Logistics: None

g. Communications: None

h. Material:

(1) Item: Expedient Storage of Cement

OBSERVATION: Cement was being damaged by rains and covered storage space was not available.

EVALUATION: Suitable expedient covering was necessary.

RECOMMENDATION: The cement was stacked in the shape of a general purpose medium tent. The tent was then placed over the cement and rain damage was eliminated.

i. Other: None

~~1 Incl~~
as
Incl wd HQ, DA

Richard M. Wells
RICHARD M. WELLS
LTC, CE
Commanding

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EGC-CO (31 Oct 69) 1st Ind
SUBJECT: Operational Report on Lessons Learned for the Period 1 October through 31 October 1969

DA, HEADQUARTERS, 937TH ENGINEER GROUP (COMBAT), APO 96318, 24 November 1969

TO: Commanding General, 18th Engineer Brigade, ATTN: AVBC-OS, APO 96377

1. The subject report, submitted by the 84th Engineer Battalion (Construction), has been reviewed and is considered a well compiled report of organization activities.

2. I concur with the observation and recommendations of the Battalion Commander.

W.G. KRATZ
COLONEL, CE
Commanding

AVBC-CS (31 Oct 69) 2d Ind
SUBJECT: Operational Report of the 84th Engineer Battalion (Const) for the Period Ending 31 Oct 69, RCS CSFOR-65 (R2)

DA, HEADQUARTERS, 18TH ENGINEER BRIGADE, APO 96377 16 Dec 1969

TO: Commanding General, U.S. Army Vietnam, ATTN: AVHGC-DST, APO 96375

1. This Headquarters has reviewed the Operational Report - Lessons Learned for the 84th Engineer Battalion (Const), as indorsed by the 937th Engineer Group (Combat). The report is considered to be an excellent account of the Battalion's activities during the reporting period.

2. This Headquarters concurs with the observations and recommendations of the Battalion and Group Commanders.

J. W. MORRIS
Brigadier General, USA
Commanding

CF:
1 - CO, 937th Engr Gp
1 - CO, 84th Engr Bn

AVHGC-DST (31 Oct 69) 3d Ind
SUBJECT: Operational Report - Lessons Learned, 84th Engineer Battalion (Construction), for the Period Ending 31 October 1969, RCS CSFOR-65 (R2)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 9 JAN 1970

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

1. This headquarters has reviewed the Operational Report - Lessons Learned for the quarterly period ending 31 October 1969 from Headquarters, 84th Engineer Battalion (Construction) and comments of indorsing headquarters.

2. Reference item concerning "Trailer Brakes", page 6, paragraph 2c(9); concur. The solution to the problem of the sticking of two wheel trailer brakes, advanced by the unit, is the only practical solution under the existing circumstances. As a precautionary measure, it is suggested that when a trailer is of necessity parked on an incline, wheel blocks be secured to the wheels with a length of wire to prevent accidental displacement and a "runaway" trailer.

FOR THE COMMANDER:

Norman D. Silby, LTC

Cy furn:
84th Engr Bn
18th Engr Bde

GPOP-DT (31 Oct 69) 4th Ind
SUBJECT: Operational Report of HQ, 84th Engineer Battalion (Construction) for Period Ending 31 October 1969, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 15 JAN 70

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

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:

JOHN F. DUNN
Colonel, AGC
Deputy Adjutant General

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CO, 84th Engineer Battalion

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