

THIS REPORT HAS BEEN DELIMITED
AND CLEARED FOR PUBLIC RELEASE
UNDER DOD DIRECTIVE 5200.20 AND
NO RESTRICTIONS ARE IMPOSED UPON
ITS USE AND DISCLOSURE,

DISTRIBUTION STATEMENT A

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION UNLIMITED,

SECURITY

MARKING

**The classified or limited status of this report applies
to each page, unless otherwise marked.
Separate page printouts MUST be marked accordingly.**

**THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF
THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE LAWS, TITLE 18,
U.S.C., SECTIONS 793 AND 794. THE TRANSMISSION OR THE REVELATION OF
ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY
LAW.**

**NOTICE: When government or other drawings, specifications or other
data are used for any purpose other than in connection with a defi-
nitely related government procurement operation, the U. S. Government
thereby incurs no responsibility, nor any obligation whatsoever; and
the fact that the Government may have formulated, furnished, or in any
way supplied the said drawings, specifications, or other data is not
to be regarded by implication or otherwise as in any manner licensing
the holder or any other person or corporation, or conveying any rights
or permission to manufacture, use or sell any patented invention that
may in any way be related thereto.**

AD393384

CONFIDENTIAL

(6) Lessons Learned, HEADQUARTERS,
159TH ENGINEER GROUP (CONST) L-47.
(8) APO US Forces 96227

EGB-3

(11) 13 May 66

SUBJECT: Operational Report on Lessons Learned (CS-CS920-28 (M))
for quarterly period ending
30 Apr 66.

(12) 30p.

TO: (26) Assistant Chief of Staff for Force Development
Department of The Army
Washington D.C. 20310

OCT 31 1966

(18) OACSFOR (19) OT-RD-660031

SECTION I - Significant Organization or Unit Activities.

1. General:

a. This report covers the following headquarters and units, with arrival and operational dates in theater as indicated:

FILE COPY	UNIT	ARRIVAL	OPERATIONAL
	HHC, 159th Engr Gp (Const)	30 Oct 65	30 Oct 65
	46th Engr Bn (Const)	25 Sep 65	4 Oct 65
	168th Engr Bn (Cbt)	28 Nov 65	11 Dec 65
	588th Engr Bn (Cbt)	2 Nov 65	20 Nov 65
	557th Engr Co (LE)	4 Nov 65	21 Nov 65
	617th Engr Co	4 Nov 65	11 Nov 65
	536th Engr Detach (PC)	5 Feb 66	11 Mar 66
	103d Engr Co (CS)	5 Feb 66	27 Feb 66
	362nd Engr Co (LE)	2 Apr 66	5 Apr 66

b. Individual reports submitted by each of the three battalions are forwarded separately.

c. This report presents information covering the Group HHC and the separate companies, and offers consolidated recommendations in regard to all the elements listed in para 1a.

FOR OT RD
660031

CONFIDENTIAL

(003450)

REF
DOD DIR 5200.10
DECLASSIFIED AFTER 12 YEARS
DEGRADED AT 3 YEAR INTERVALS

"This document contains information affecting the National Defense of the United States within the meaning of the Espionage Laws, Title, 18, U. S. C., Section 795 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law."

FOR OFFICIAL USE ONLY

CONFIDENTIAL

EGB-3

13 May 1966

SUBJECT: Operational Report on Lessons Learned (RCS CSGPO-29(RI)).

2. Movements: During the report period the following moves were accomplished within the Group:

a. B/588th Engr Bn (Cbt) moved from Di An to Phuoc Vinh and closed on 17 Jan 1966.

b. C/588th Engr Bn (Cbt) moved from Bien Hoa to Long Thanh and closed on 23 January 1966.

c. 103d Engr Co (CS) departed Ft Leonard Wood, Mo., 15 Jan 66, arrived at Long Binh on 5 February and became operational on 27 February 1966. The quarry section of the 103d moved to Vung Tau on 16-17 April to operate its crusher at that location.

d. The 536th Engr Det (IC) deployed from Ft Belvoir departed CONUS on 17 January 1966, arrived at Long Binh on 5 Feb and subsequently deployed to Vung Tau on 11 March 1966. Unit is presently attached to the 46th Engr Bn (Const).

e. One platoon of C/168th Engr Bn (Cbt) moved from Long Binh to Cu Chi and closed on 23 February 1965.

f. On 21 March the 171st Well Drilling Detachment deployed to Di An and was attached to Hq, 168th Engr Bn (Cbt).

g. On 25 March the 38th and 917th Well Drilling Detachments deployed to Long Thanh and were attached to Hq, 588th Engr Bn (Cbt).

h. The 362nd Engr Co (IE) arrived at Saigon from the 937th Engr Gp (Cbt) in increments and deployed through Di An to Cu Chi becoming operational during the period 2-5 April 1966. The Company is presently attached to the 588th Engr Bn (Cbt).

i. On 28 April 1966, Hq and Co A 588th Engr Bn (Cbt) moved from Phu Loi and became operational at Cu Chi.

FOR OFFICIAL USE ONLY

2

CONFIDENTIAL

FOR OFFICIAL USE ONLY **CONFIDENTIAL**

EGB-3

13 May 1966

SUBJECT: Operational Report on Lessons Learned (RCS CSGPO-28 (RI)).

3. Personnel:

a. The consolidated strength figures for the entire 159th Engr Gp on 30 April 1966 were as follows.

	<u>Officer</u>	<u>Warrant</u>	<u>EM</u>	<u>Total</u>
Authorized	130	21	2816	2961
Assigned	147*	21	2774	2938
	(* including 18 assigned not joined)			

b. The drastic shortage of personnel in the 557th Engr Co (IE) reported during the previous period has been alleviated, and the unit's REDCCN personnel rating is C-1.

c. The Group is presently employing approximately 1335 indigenous personnel on a daily basis.

4. Equipment:

a. Group units picked up 41 each HD 16M tractors for replacement of unserviceable tractors and standardization of the Tractor Fleet.

b. During the period 180 items of equipment were removed from deadline via Redball requisitions.

c. 7 ea track drills were procured from Japan to augment the TOE wagon drills of the quarry sections within the Group.

5. Operations: Construction operations within the Group, during the past four months, are summarized by major construction areas as follows:

a. Long Binh: Work within the Long Binh Area can be roughly divided into 3 project areas.

(1) II Field Force Vietnam, Earthwork began at the II FForceV area during the week ending 26 Jan 66. The initial phase of the project was the construction of a 17 building command complex constructed of 20 x 48 vertical wall quonsets. Following this phase cantonment areas for the HHC II FForce V and HHC, Force Artillery, were constructed to include showers, latrines, messhall-kitchens, and laterite tent pads and maintenance hardstands. Subsequently areas for the Corps Signal Support Battalion, the MP element, and Military Intelligence/Radio Research Unit and are being brought to Standard 3. Work is continuing.

3
FOR OFFICIAL USE ONLY

CONFIDENTIAL

FOR OFFICIAL USE ONLY

EGB-3

13 May 1966

SUBJECT: Operational Report on Lessons Learned (RCS CSGFO-28 (RI)).

(2) Ammunition Supply Depot and Theater Reserve Stockage Area. Work continues on the 250,000 sq yd of open storage required for ammunition storage in the Long Binh Area. Extensive culvert and drainage work has been completed in Areas I & II in addition to construction and lateriting of pads. Clearing operations are now underway in Area III. In the theater reserve stockage area, virtually all of the laterite stabilization has been completed and one 40'x100' class II & IV warehouse has been erected. Of the aggregate 3,150,000 sq ft of storage required by these two projects 646,800 sq ft or 20.5% has been completed.

(3) Cantonment Area. Current estimates as to the ultimate population of the Long Binh Sub-Area range in the vicinity of 25,000. The 159th Engr Gp has primary responsibility for bringing this area to Standard 3. Recently arrived units for which areas have been prepared to Standard 2 with work in progress to improve to Standard 3 are 178th Engr Co (Maint) D Co, 169th, Engr Bn (Const) and Service Battery, 6/27 Artillery. Earthwork is now in progress on the stabilization and provision of roads for an MP stockade to be operated by units of the 89th MP Gp. Earthwork is also underway on an area to be occupied by the 90th Replacement Bn which will be moving out from Saigon at the end of May. This project includes initially the construction of vertical facilities for 3,100 with an ultimate population of 6,000.

b. Di An 1st Infantry Division Headquarters at Di An is presently supported for cantonment construction by Hq & 4 Companies, 168th Engr Bn (Cbt). All messhall-kitchens required at Di An have been finished and 37 of 96 tropicalized administrative buildings required by the Division Headquarters are complete. Most recently the 168th has completed a dispensary facility constructed of 6 shed type (20'x50') quonsets in 3 pairs and offset in such a manner as to form a common corridor between each pair. 820,000 sq ft or 28.5% of a programmed 2,872,930 sq ft of hardstand required at Di An is now complete.

c. Phu Loi Late in April responsibility for construction at Phu Loi was shifted to the 168th Engr Bn. This site is the present location of Division Artillery and the Aviation elements of 1st Infantry Division. At present work on a 30' GCA pedestal and control tower is nearing completion. 36.8% of the programmed 47,040 square footage for mess hall-kitchens is complete. 15 of 21 quonset buildings presently allocated to the cantonment area have been finished. Approximately 44,000 sq ft of M8 type PSP have been placed to provide 196 helipads for Division. Development of the airfield facility has also involved construction of a base operations and admin bldg (both completed).

4

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

EGE-3

13 May 1966

SUBJECT: Operational Report on Lessons Learned (RCS CSGPO-28 (RI)).

d. Lai Khe During the reporting period a C-130 all weather airstrip with parking aprons and connecting taxiway was completed at Lai Khe. The project directive was received in mid-January, and despite the necessity of hauling in all materials by armed convoy, the strip was operational less than two months later. In addition to its outstanding performance on the airfield, B/168th Engr Bn has kept pace in cantonment construction. 34.4% of the mess hall-kitchens required in the area have been completed. 25 helipads built in connection with the field are complete and operational.

e. Ihuoc Vinh The Group's northernmost unit (B Co, 588th Engr Bn) located at Ihuoc Vinh, is charged with the construction of heliport and airfield facilities as well as cantonment construction. The field was constructed originally by the Japanese during WWII. It was in serviceable condition initially, but with heavy usage it began to erode leaving large laterite boulders protruding. This caused excessive aircraft tire blowouts. To remedy this situation a 6 inch lift of laterite was placed on the field. In addition, 30 helipads were constructed using asphalt cut-back treatment and IISI (M8). An interesting problem was presented in getting the new HD 16M tractors to B Co (and to the organic Divisional Engineer Company) at Ihuoc Vinh. Eiffel Bridges on the primary route precluded bringing the heavy tractors in by the normal route. In order to get the tractors in safely, the Infantry Bde Commander at IV committed an entire Battalion to secure an alternate overland route. 19 of 25 messhall kitchens have been completed. Re-location of units to improve defensive posture is going along smoothly.

f. Long Thanh C Co, 588th Engr Bn re-located to Long Thanh in late January to begin building a Bde size base camp for the 2nd Bde, 1st Inf Div. Initial drainage structures and roads were built and the site security was enhanced by the construction of an 8' high berm around the camp perimeter. Round wall quonsets have been used to build a Bde dispensary in a cross configuration. 15 of 22 programmed messhall-kitchens are complete as well as the Bde Headquarters complex. This project is a joint venture with Co B, 1st Engr Bn.

g. Vung Tau Variety is the key to the work being done by D Co, 46th Engr Bn at Vung Tau. The company is presently finishing asphalt cut-back treatment of an expansion of existing flight line facilities. Work on construction of a TOL tank farm is underway and three tanks destroyed during the French evacuation of the area have been cut with explosive and removed from their fragmentation shields. These will be replaced with 10,000 bbl bolted steel tanks. In the same area, the 536th Port Construction detachment is assembling its piledriving

5

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

EGB-3

13 May 1966

SUBJECT: Operational Report on Lessons Learned (RCS CSGPO-28 (RI)).

and diving barges preparatory to construction of piers and LST ramps. One USOM warehouse (100'x140') has been completed and a Soule type 120'x200' warehouse has all but the two final bays of column and roof truss complete. Earthwork is in progress to provide a 15,000 sq yd hardstand area for Australian Logistics units which are now arriving in country.

h. Gu Chi One platoon of C/168th Engr Bn supported by the 362nd Light Equipment Co working on tasks in the priority requested by the Division Engineer have been responsible for much of the vertical and horizontal construction done at Cu Chi to date. Division Headquarters and the Division Medical facilities are now housed in 20'x50' shed type pre-fabs constructed during the period. Also the entire base camp road net is in and major drainage ditches and culverts have been placed. Construction at Cu Chi involves a large contribution by the Divisional Engineer Battalion.

i. Saigon A temporary IOL pipeline was constructed between an existing ARVN operated jotty on the Saigon River and Tan Son Nhut AB. Work on a 6" pipeline was started during the later part of February and completed on 10 March. This is the first phase of a more extensive permanent pipeline project to be completed at a later date.

6

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

II. Commander's Recommendations

1. General

a. On the whole, construction is progressing favorably, although limitations of effort, equipment and materials have delayed satisfaction of the needs of the customers. On the whole, truly operational requirements have been met, but the program of cantonment construction (including storage) is stretched out over a period of nine to twelve months whereas a four to six - month period for Standard 3 would be far more acceptable. Similar stretchouts of road, drainage and hardstand construction exist.

b. During the reporting period, weather was highly favorable for construction, and interference by enemy action was insignificant.

c. The units of the Group continue to be seriously hampered by inability to organize to meet the construction mission effectively. Class IV theater stocks of construction equipment have been inadequate to constitute even a maintenance float, and there has been no pool of equipment to obtain a theater authorization for special requirements. It required from the end of November until the end of April to obtain vitally needed 16-cubic-foot concrete mixers from CONUS for the companies of the combat battalions. At this moment seven months after attempting to modify Battalion tables of organization and equipment to suit our mission, we still lack firm guidance (which has been requested) on the way to proceed. We do not know whether DA intends to reorganize those units, now under the "D" series TOE, under the "E" series or whether we should initiate request for modification of our TOE based upon the "D" Series. In the absence of guidance as to point of departure and limitations, I am unwilling to place upon my subordinates the heavy and perhaps futile burden of proposing an MTCE.

d. Exasperating shortages of supplies and of essential equipment components continue to occur. Lumber, nails, and cement run out periodically. Scores of shower buildings have been constructed up to the point of installing shower heads, and the latter have been unobtainable. Japanese crawler mounted drifter - type rock drills have arrived without rock bits, and American bits will not fit. A 34-E paver has been inoperative for two months because of missing major components. Well drilling rigs have arrived, but there are no casings or screens for well development. The logistic system appears to have withered due to past efforts to eliminate military personnel spaces in supply and maintenance operations and as a result it has in my judgment been unable to expand to meet the workload. There

7

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

are insufficient qualified people for example to see that procurement orders for end items include parts and operating supplies; that incoming supplies are properly manifested, warehoused, and issued to the correct consignor; and that incoming maintenance units are advised in CONUS of the equipment density that they will support so that they can bring an adequate ASL.

Ve. The Group and its units have been hampered by lack of sufficient air capability to allow commanders and staffs to visit their units and detached personnel at dispersed locations. The Combat Battalions have companies or elements at three or four locations, and are unable to make necessary supervisory or staff visits.

Vf. Administration is unduly burdensome. Operational and wartime reporting requirements are superimposed upon peacetime stateside-type requirements. I do not question the necessity for accounting for people, reporting man-hours, submitting construction progress photographs, describing Civic Action projects, costing bills of materials for construction projects, making rosters of malaria - suppressant pill - taking, reporting numbers of boots and fatigue uniforms needed, and submitting personnel rotation forecast. These are all necessary, but the company and higher commanders are not staffed to cope with the mountain of paperwork, and job supervision inevitably suffers because the commander must personally concern himself with administrative matters.

2. Specific: See Annex A

J. H. Holtenroth
J. H. HOLTENROTH
Colonel, CB
Commanding

DISTRIBUTION:

Original - ACSFOR DA
Copy 1 - 18 Engr Bde
Copy 2 - USARPAC, AF US Forces 96558
Copies 3-5 - USARV, ATTN: AVC

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

LESSONS LEARNED

Engineering

Logistics

Maintenance

Equipment

(Annex A)

FOR OFFICIAL USE ONLY

LESSONS LEARNED: ENGINEERING

ITEM: Use of Handsaws.

DISCUSSION: problem common to all troops with carpenter sets is sawing local lumber. The force of the sawing motion causes the saw to bind and bend, sometimes preulting in a permanent crimp. The solution to this problem is to reduce the friction between the saw and the wood. This reduction can be accomplished by coating the saw with diesel fuel or candle wax. When the saw becomes warm the wax melts and reduces the friction coefficient.

OBSERVATION: Coat saws with diesel fuel or wax before using.

ITEM: Saw modification.

DISCUSSION: For jobs requiring extensive hand-cutting of 2" x 4" and larger timbers, a standard 5½ tooth rip saw can be refiled as a cross-cut saw, using a 1½ set. The production capability of the resulting blade in rough construction soon justifies the loss of one rip saw.

FOR OFFICIAL USE ONLY

LESSONS LEARNED: ENGINEERING

ITEM: Application of Corrugated Asbestos Roofing.

DISCUSSION: Corrugated asbestos roofing is being used on many projects in Vietnam. The following information based on extensive experience is provided to facilitate installation:

1. Asbestos is easily broken; it must be handled carefully.
2. The minimum end overlap is 6'.
3. The side lap should not be more than one-half corrugation.

If more side lap is used expansion is restricted, so that the asbestos may split.

4. The J-bolts used must not be placed on the side lap. If the bolts are used on the side lap, splitting will probably occur.
5. Rafter longitudinal bracing should be used. Failure to do so will allow the roof to shift and subsequently crack the asbestos.
6. A string must be used to align the roofing properly.

OBSERVATION: Care is required in placing asbestos roofing in order to avoid needless waste.

FOR OFFICIAL USE ONLY

LESSONS LEARNED: ENGINEERING

ITEM: Expedient Concrete Mixer.

DISCUSSION: Concrete mixers are at a premium in Vietnam. One unit badly in need of a mixer devised this scheme; A 55-gallon drum was placed in a pivoting frame on a pole trailer. The front tire was removed from a jeep wheel and steel lugs were welded to the wheel. A continuous chain was placed over the jeep wheel and over a drive wheel on the base of the drum. The jeep was jacked up and placed in front-wheel drive to power the make-shift mixer. Production was much higher than with hand-mixing, and more uniform concrete was obtained.

OBSERVATION: Increased production justified the temporary loss of the vehicle.

FOR OFFICIAL USE ONLY

LESSONS LEARNED. ENGINEERING

ITEM: Expedient Pipe Bending Machine

DISCUSSION: Accurate bending of pipe and tubing is required in laying pipelines. An expedient pipe bending machine was designed by the 159th Engr Gp and constructed by the 46th Engr Battalion.

The device consists of a 21 foot long 18 inch web I beam with a shaped vise jaw mounted near one end and a ladder like alignment device near the other end. The shaped vise jaw is welded to a section of the I beam which in turn is welded to the top of the main beam.

In practice the bending thrust is provided by a standard hydraulic jack from a $2\frac{1}{2}$ ton or 5 ton truck. A section of API pipe provides a shaped pressure plate and is mounted on a flexible socket. A movable pointer acts as a deflection gauge. A separate pipe stand supports the pipe as it is fed into the bending machine. Plans for this machine are available at, this Headquarters.

OBSERVATION: Accurate bends can be obtained saving pipe and man power.

FOR OFFICIAL USE ONLY

17

FOR OFFICIAL USE ONLY

LESSONS LEARNED: ENGINEERING

ITEM: Water Distributors.

DISCUSSION: Napalm Bomb containers have been used as water distributors. The containers are placed on a pole trailer and connected to a spray bar. The spray bar has 3/8" holes drilled on 2" centers, and is placed 2' above the ground. Tilting the containers 6" to 9" increases the flow.

OBSERVATION: The water distributors have been used to control dust and have proved quite effective.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

LESSONS LEARNED: ENGINEERING

ITEM: Concrete Tamper.

DISCUSSION: Finishing of concrete slab floors and walkways can be greatly facilitated with use of a wire mesh hand tamper and wooden floats. Tamping should be accomplished after screeding of the freshly laid concrete. The tamper can be made of heavy wire mesh (2 mesh to the inch), or with $\frac{1}{2}$ " reinforcing bars welded into a grid, with $3/8$ " spacing between bars. Grid surface touching the concrete should be slightly convex to allow for flexing. This type of tamper pushes the aggregate away from the surface, thus making the floating and finishing processes easier and faster. After tamping, the wet concrete surface should first be smoothed with wide, long-handled bull floats. Care must be taken that the surface is not overworked, as the coarser aggregate would then rise to the top. As the concrete becomes more firm, wooden hand floats should be used to prepare the surface for final troweling.

OBSERVATION: Use of this method results in efficient placing of quality concrete.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

LESSONS LEARNED: ENGINEERING

✓ ITEM: Dust Control

4.1 DISCUSSION: Many areas in Vietnam have serious dust problems during the dry season. Experimentation has shown the following procedures to be effective in the type of soil indicated.

1. Laterite: Use 0.6 gal/sq yd of a 50-50 mixture of diesel and MCO (medium cure cutback) as a first penetration. Use 0.15 gal/sq yd as a second penetration.

2. Silty sand: Dampen sand and roll to tighten surface, using either a rubber-tired or steel-wheeled roller. Apply 0.5 gallon/sq yd of a 50-50 mixture of MCO and diesel in two equal applications.

In the event that materials or equipment are not available to accomplish these procedures, any improvised method should be used to check the dust. Spreading water or waste oil are possibilities that should not be overlooked.

OBSERVATION: Exert maximum effort to control dust. Morale, maintenance, and operational capability are adversely affected by this problem.

FOR OFFICIAL USE ONLY

15

FOR OFFICIAL USE ONLY

LESSONS LEARNED: ENGINEERING

ITEM: Heated Showers

DISCUSSION: Units have constructed heated showers using immersion heaters and napalm bomb containers. One heater used with four containers requires four hours' time to get heated water. Powder cannisters for 175mm projectiles may be used to connect the bomb containers. Use 3 or 4 sections of stovepipes to obtain a proper draft.

OBSERVATION: Better morale● justified project materials and effort.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

LESSONS LEARNED: MAINTENANCE

ITEM: Prescribed Load Lists and Authorized Stockage Lists.

DISCUSSION: Experience has proven that subject lists as given in the TM's do not allow for sufficient parts to sustain equipment during sustained usage.

OBSERVATION: Recommend that subject lists be considered for revision.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

LESSONS LEARNED: MAINTENANCE

ITEM: Hydraulic Hose Repair.

DISCUSSION: Units require the capability to repair all hydraulic hoses found on TOE equipment.

OBSERVATION: Hydraulic hose repair equipment presently organic should be augmented in order to provide this capability.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

LESSONS LEARNED: MAINTENANCE

ITEM: Refrigeration.

DISCUSSION: Due to the quantity of refrigeration required most all generators are overloaded. Because at a lack of qualified personnel, refrigerator repair is almost non-existent in this area.

OBSERVATION: Allowance should be made to augment TOE generators to allow for the large refrigerator requirement. Availability of refrigerator repair personnel and parts should be increased.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

LESSONS LEARNED: MAINTENANCE

ITEM: HD-16M Crawler Tractor.

DISCUSSION: Forty-one (41) of subject items have been issued to this Group for replacement of unserviceable items and standardization of the fleet. Only thirteen (13) were in serviceable condition upon receipt. Equipment arrived with broken brake pedal return springs, throttle linkages and steering clutches frozen, with rust, battery and various other electrical system components either missing or unserviceable. This can largely be attributed to insufficient preparation for shipment and open deck shipping on surface vessels. Several tractors arrived without the accessory packs which contain the knobs, seats, lights, and other removable items.

OBSERVATION: Complete standardization cannot be accomplished until these tractors are placed in a serviceable condition.

FOR OFFICIAL USE ONLY

2

LESSONS LEARNED: EQUIPMENT

ITEM: HD-16M Crawler Tractor

DISCUSSION: Subject item is capable of operating hydraulic scrapers but not cable-operated scrapers. If standardization to HS-16M were complete we would have no scrapers capability with crawler tractors.

OBSERVATION: If no ~~hydraulic scrapers~~ are available by the time standardization is complete, the only capability to operate on hand scrapers will be dozers (D-8 and TD-20) we are presently authorized to retain over and above TOE.

LESSONS LEARNED: EQUIPMENT

ITEM: Equipment Operator Licensing.

DISCUSSION: Presently no facilities exist for proper licensing of equipment operators. At present there are no battery II testing stations in the theatre. This is a seriou deficiency in view of the hazardous driving conditions which demand proper qualification testing of truckdrivers.

OBSERVATION: Recommend action be initiated to correct this deficiency.

FOR OFFICIAL USE ONLY

LESSONS LEARNED: EQUIPMENT

ITEM: Rough Terrain Forklift

DISCUSSION: The most practical piece of equipment to use in the operation of supply yards is the subject item. There is no authorization for this item within the Group.

OBSERVATION: Recommend each Battalion S-4 section be authorized subject item since their work involves operation of supply yards and handling of large quantities of lumber, prefabricated buildings, palletized cement, and other construction materials.

FOR OFFICIAL USE ONLY

23

FOR OFFICIAL USE ONLY

LESSONS LEARNED: EQUIPMENT

ITEM: Aircraft

DISCUSSION: The TOE aircraft (2 fixed wing, 1 rotary) are not capable of providing the support required of them. This is brought about by the fact that in many cases a battalion will have elements in three locations mutually inaccessible except by air. This applies to separate companies as well.

OBSERVATION: Aircraft (2 rotary wing) and pilots have recently been made available via transfer from another Group where the requirement is not as critical. This has been an invaluable aid in satisfying aviation requirements.

FOR OFFICIAL USE ONLY

24

FOR OFFICIAL USE ONLY

LESSONS LEARNED: EQUIPMENT

ITEM: Five Ton Wreckers:

DISCUSSION: One TOE wrecker is not capable of keeping abreast of the work required within a construction battalion. "A" frames have provided a partial solution to this problem.

OBSERVATION: Recommend that construction battalions be authorized two(2) wreckers, one to be found in the "A" Company maintenance platoon and one in Headquarters Company for various lifting requirements and for use as a recovery vehicle.

FOR OFFICIAL USE ONLY

25

AVEB-10 (15 May 66)

1st Ind

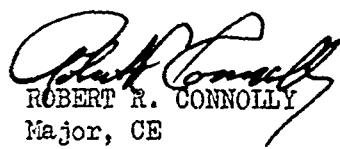
SUBJECT: Operational Report on Lessons Learned for Quarterly Period
Ending 30 April 1966 (RCS CSGPO-28 (RI))

HEADQUARTERS, 18TH ENGINEER BRIGADE, APO US FORCES 96307, 7 June 1966

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

Concur with commander's observations.

FOR THE COMMANDER:



ROBERT R. CONNOILLY
Major, CE
Adjutant

CONFIDENTIAL

AVEB-DBC (14 May 66)

1st Ind

SUBJECT: Operational Reports of Lessons Learned (RCS CSGPO-28 (R-1))

HEADQUARTERS, 18TH ENGINEER BRIGADE, APO 96307, 21 July 1966

TO: SEE DISTRIBUTION

The following comments are furnished pertaining to the Operational Report of Lessons Learned, 159th Engineer Group:

Section II

a. (C) Paragraph 1c

(1) Adequate stocks of all types of construction equipment have been ordered as Theatre stock. The situation should show substantial improvement by the 1st quarter FY 67.

(2) A request was submitted by this Headquarters in April 1966, to reorganize all engineer units of this command under the "E" series TO&E. It is still pending approval. Additionally, a request for personnel augmentation of Brigade units by a total of 15% was submitted on 9 June 1966 to Headquarters USARV. If approved, this augmentation will serve to provide the additional capability required for operations in Vietnam but not provided by the "E" series TO&E. WFM

b. (U) Paragraph 1d. Shortages of construction materiels and other supplies are being reduced slowly but surely. Comments with respect to organization and staffing of Logistical units and commands are the 159th Group Commanders observations and are not wholly supported by this command.

c. (U) Paragraph 1e. In June 1966, this Headquarters requested additional fixed and rotary wing aircraft to support its many units in isolated locations and on combat support missions. Headquarters USARV has not concurred with this request. It is still considered vitally important that engineer units be assigned, as a minimum, aircraft authorized by TO&E.

d. (U) Lessons Learned: 11 HD-16M Crawler Tractors have been placed in a satisfactory condition. The 159th Engineer Group has been instructed to submit an Equipment Improvement Report on the HD-16M.


P. W. RAMEE
Colonel, CE
Deputy Commander

CONFIDENTIAL

CONFIDENTIAL

AVEB-DBC

21 July 1966

SUBJECT: Operational Reports of Lessons Learned (RCS CSGPO-28 (R-1))

DISTRIBUTION:

Original-Assistant Chief Of Staff for Force Development, DA,
Washington, D.C. 20310, (Thru Channels)

Cy 1 - Asst C of S for Force Development, DA, Washington, D.C. 20310 (Direct)

Cy 2 - Commanding General, USARPAC, APO US Forces 96558, ATTN: GPOP-MH

Cy 3, 4, 5 - Commanding General, USARV, ATTN: AVC

Cy 6 - Unit Files

CONFIDENTIAL

CONFIDENTIAL

AVHGC-DH (13 May 66)

2nd Ind

SUBJECT: Operational Report on Lessons Learned (CS:CSGPO-28 (R1))

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96307 06 AUG 1966

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

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

1. (U) This headquarters concurs with the 159th Engineer Group
operational report on lessons learned as indorsed.

2. (U) Reference paragraph a(2), 1st indorsement: The 18th Engineer
Brigade's request to reorganize units was forwarded to USARPAC on 2 June
1966. It was subsequently returned with directions that modification
tables of organization and equipment (MTOE's) be submitted. The 18th
Engineer Brigade has established an ad hoc committee to develop MTOE's
for each type of unit assigned to its command. It is anticipated that
this work will be completed in approximately thirty days. Upon receipt
of the MTOE's, this headquarters will provide expeditious processing. *PP*

3. (C) Reference paragraph d, 1st indorsement: Requests for
aircraft from all combat support and combat service support units were
considered by this headquarters. Action is now being taken to make equitable
distribution of available aircraft to these units. The 18th Engineer Brigade
is scheduled to receive additional aircraft as soon as they are available.
In determining priorities for assignment of aircraft to units the tactical
units are given highest priority.

FOR THE COMMANDER:

Wayne M. Duncan
WAYNE M. DUNCAN
Capt. AGC
Asst Adjutant General

OWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

CONFIDENTIAL

8-036

CONFIDENTIAL

GPOP-MH (13 May 66)

3d Ind (U)

SUBJECT: Operational Report on Lessons Learned (CS CSGPO-28 (RL)) (U)

HQ, US ARMY, PACIFIC, APO San Francisco 96558 12 OCT 1966

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

1. The Operational Report on Lessons Learned of the 159th Engineer Group for the period 1 January - 30 April 1966 is forwarded herewith. It is believed that other copies of this report were mailed directly without passing through U.S. Army channels.

2. Reference Section II, paragraph 1c, basic ORLL; paragraph a(2), 18th Engineer Brigade 1st Indorsement; and paragraph 2, USARV 2d Indorsement. On 14 June 1966 this headquarters directed USARV to prepare required MTOE's, but to date no reply has been received.

3. Reference Section II, paragraph 1d, basic ORLL. Machinery presently exists to assure the arrival in-country of maintenance units with appropriate ASL. The single item that will most help set this machinery in motion is for the gaining command to provide identification of units to be supported. Given this information, USAMC (USAMIDA) can provide the appropriate ASL to units earmarked for the gaining command. In any case, it is believed that many of the problems set forth in the reference paragraph have been overcome by the course of time.

4. Reference Annex A, Item on PLL's and ASL's, basic ORLL. The recommendation that PLL's and ASL's be considered for revision is not favorably considered by this headquarters. Lists are initially established by TM's, but should be consistently revised and adjusted on the basis of actual usage factors, as per AR 735-35, paragraphs 6-2 and 6-6.

5. Reference Annex A, Item on HD 16M Crawler Tractor, basic ORLL. The condition of HD 16 tractors upon receipt in Vietnam was earlier brought to the attention of this headquarters and corrective actions were taken by the Pacific Mobility Service Office to:

- a. Improve preparations for future shipments of engineer equipment;
- b. Provide technical assistance to process the equipment before issue to users.

In March and April 1966, 118 HD 16 tractors were distributed to Vietnam to fill shortages and augment construction capability. Standardization is being effected on D7 Caterpillar tractors with shipments now underway.

6. Reference Annex A, Second Item on HD 16M Crawler Tractor. The standardization program now underway for earthmoving equipment provides for

CONFIDENTIAL

GPOP-MH (13 May 66)

12 OCT 1966

SUBJECT: Operational Report on Lessons Learned (CS CSGPO-28 (R1)) (U)

compatible scrapers (Le Tourneau CT 4 and Euclid 58 SH-G) to be towed by wheeled tractors (Clark 290M). These scrapers and tractors were to become available beginning in September 1966.

FOR THE COMMANDER IN CHIEF:

Copy furn:
CG USARV, Attn: AVHGC-DH


D. A. HARRISON
Capt, AGC
Asst AG

CONFIDENTIAL