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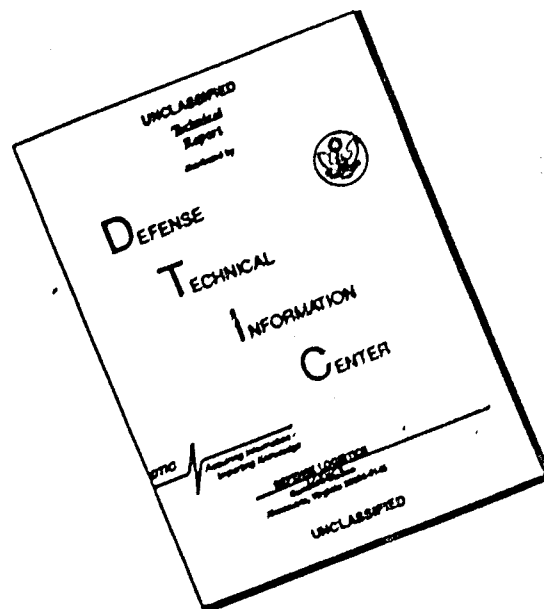
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DEPARTMENT OF THE ARMY
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IN REPLY REFER TO

AGDA (M) (5 May 70)

FOR OT UT 701282

13 May 1970

SUBJECT: Operational Report - Lessons Learned, Headquarters, 46th Engineer Battalion, Period Ending 31 January 1970

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Kenneth G. Wickham

KENNETH G. WICKHAM
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46th Engineer Battalion

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 46TH ENGINEER BATTALION
APO San Francisco 96491

EGBB-OP

14 February 1970

SUBJECT: Operational Report - Lessons Learned, 46th Engineer Battalion,
Period Ending 31 January 1970, RCS CSFOR-65 (R2)

THRU: Commanding Officer, 159th Engineer Group, ATTN: EGB-CP, APO 96491
Commanding General, 20th Engineer Brigade, ATTN: AVBI-OPN, APO 96491
Commanding General, United States Army, Vietnam, ATTN: AVHGC (DST),
APO 96375
Commander-in-Chief, United States Army, Pacific, ATTN: GPOP-DT,
APO 96588

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

Section 1, Operations: Significant Activities

1. Command: LTC M F Meador commanded the 46th Engineer Battalion during the last reporting period.

a. 46th Engineer Battalion organized under MTOE 05-115GPO4 per GO #609, Headquarters USARPAC dated 31 July 1969 effective 25 October 1969.

b. Mission: To construct and rehabilitate roads, airfields, heliports, pipeline systems, structures and utilities for the Army and the Air Force in the communications zone and rear areas of the combat zone; and to assist in emergency recovery operations.

c. AOR: The unit area of responsibility is encompassed by a line starting at the South China Sea and proceeding northerly along the western border of the Tinh Binh Tuy Province to the southern border of Tinh Long Khanh Province. It proceeds westerly along the southern border of Tinh Long Khanh Province to highway LTL2, northerly along LTL2 to YS439956, and westerly along a secondary road to YS319937 on the western border of Tinh Long Khanh Province. It follows the western border of Tinh Long Khanh Province to the southern border of Quan Duc Tu Province, westerly along the southern border of Quan Duc Tu Province to QL-15 and northwesterly to the Song Dong Nai River. It proceeds northerly and easterly along the Song Dong Nai River to the eastern border of Tinh Bien Hoa Province, southerly along the eastern border of Tinh

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Bien Hoa Province to the Suot Gia Duc River, and easterly along the Suot Gia Duc River to QL-20. From QL-20 it runs easterly parallel to QL-1 and approximately 1600 meters north of QL-1 until it reaches the railroad track east of Xuan Loc. It follows the railroad track easterly to the South China Sea and southerly along the South China Sea coast to the western border of Tinh Binh Tuy.

d. Assignment: The 46th Engineer Battalion is assigned to the 159th Engineer Group. It arrived at 159th Engineer Group Command on 25 September 1965 and became operational on 4 October 1965.

e. B Company was moved to Xuan Loc 7 December 1970, to support LOC Restoration of QL-1, 489-0302-0-01. C Company moved to Gia Ray 14 December 1970, to support LOC Restoration of QL-1, 489-0303-0-01. 714th Power Line Detachment was attached 1 January 1970.

f. Visitors and Awards: The following awards have been presented during the reporting period:

(1) Bronze Star	44
(2) ARCOM	76

The battalion established a more effective program to identify those meriting awards. The result was an increase in awards by approximately 98% from last reporting period.

2. Personnel, Morale, and Discipline:

a. Personnel:

(1) The consolidated strength figures for the reporting period are as follows:

(a) As of 30 November 1969:

	Off	WO	EM	TOTAL
<u>1</u> Authorized	35	9	998	1040
<u>2</u> Assigned	38	8	871	917

(b) As of 31 December 1969:

<u>1</u> Authorized	35	9	998	1040
<u>2</u> Assigned	33	9	987	1029

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(c) As of 31 January 1970:

	<u>OFF</u>	<u>WO</u>	<u>EM</u>	<u>TOTAL</u>
<u>1</u> Authorized	35	9	998	1040
<u>2</u> Assigned	38	9	947	994

(2) Critical shortages of personnel were experienced throughout the reporting period. The following is a list of MOS's most critical in the accomplishment of the battalion mission at the end of the reporting period.

<u>MOS TITLE</u>	<u>AUTHORIZED</u>	<u>ASSIGNED</u>	<u>SHORT</u>
36K Field Wireman	12	2	10
51K Plumber	37	8	19
52F Electrician	37	17	20
64B Heavy Truck Driver	60	29	31
62L Wheeled Tractor Operator	45	35	10

(3) Due to the existing shortages of critical MOS's this headquarters has taken the following steps to alleviate the problem:

(a) Records of all newly arrived personnel are thoroughly screened and where applicable, secondary MOS's are utilized to fill critical shortages.

(b) Extensive on-the-job training is being employed by commanders to fill critical shortages.

b. Morale:

(1) The morale has remained very high throughout the battalion during the reporting period.

(2) Minor improvement of facilities and living conditions continued throughout the battalion.

(3) 43 men voluntarily extended their tours of duty for six months or longer during the reporting period and received a 30-day special leave. 30 men extended their tours for less than 6 months.

(4) There have been 12 first term reenlistments and 5 RA Career reenlistments during the reporting period. Again this battalion has surpassed the reenlistment goal set by the Department of the Army and USARV.

(5) A total of 170 men received out-of-country R&R trips to Bangkok, Hong Kong, Hawaii, Tokyo, Manila, Sydney, Taipei and Singapore.

(6) Many recreational facilities and activities are available to the men of this battalion. These include a swimming pool, movie theater, service clubs, athletic programs, and entertainment, both commercial at the EM/NCO clubs

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and domestic talent, supplied by Long Binh Post Special Services, to perform within the battalion.

c. Discipline:

- (1) 114 Article 15's.
- (2) 0 Summary Court-Martials.
- (3) 3 Special Court-Martials.
- (4) 1 General Court-Martial.

d. Casualties: During the current reporting period, the 46th Engineer Battalion suffered the following casualties:

- (1) Killed in Action 0
- (2) Wounded in Action 1
- (3) Non-hostile Deaths 0

3. Intelligence:

a. The battalion intelligence section has maintained a map board showing all significant enemy activity which has occurred recently near operations sites. The board is updated using the ITSUM Report, and information from it is presented to the Company Commanders at a daily operations meeting.

b. During this reporting period, major enemy activity has been reported within three kilometers of a section of QL-1 travelled each day by battalion dump trucks.

4. Operations, Plans, and Training:

a. Completed Projects:

(1) Combat and Operational Support:

(a) CD 189-5433-0-00, FSB Diane, C Company, 46th Engineer Battalion
Dozed perimeter berm, cleared and grubbed around perimeter, and constructed FOL and Ammo Storage areas. Project began 1 January 1970 and was completed 3 January 1970.

(b) OS 207-5964-0-20, Radio Antenna Farm, D Company, 46th Engineer Battalion: The project consisted of the clearing of a 325 foot diameter circle and placing a 3" laterite cover over the area. The area is to be used by the 175th Radio Research Company as an antenna farm. The project was started on 2 November 1969 and completed 17 November 1969.

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(c) OS 207-6008-0-20, Concrete Revetment Construction, D Company, 46th Engineer Battalion: Constructed 64 LF of 4' high revetment. This project started 1 November 1969 and was completed 23 November 1969.

(d) OS 243-5731-0-20, Resor Quarry Perimeter, C Company, 46th Engineer Battalion: This unit constructed a triple concertina and two strand barb wire entanglement perimeter for the 103rd Engineer Company. There was 30,500 linear feet of triple concertina and 31,500 linear feet of barb wire used to complete this project. This project was started on 15 September 1969 and was completed on 24 November 1969.

(e) CD 243-5924-0-20, Defense Upgrade, Plantation, D Company, 46th Engineer Battalion: Project consisted of the construction of 400 meters of pioneer road and the clearing off of 300 meters of hill top of vegetation for improving fields of fire. The project was started on 17 November 1969 and was completed 20 November 1969.

(f) OS 253-5709-0-20, 1st Cav TOC Bunker, B Company, 46th Engineer Battalion: 40' x 60' concrete pad was placed and 12" x 12" columns placed with 12" x 16" beams on top. The roof was decked with 3/8" material, two layers of sand-bags and roofing tin. Revetments 8' high, 24" at top and 48" at bottom were built around the building. Electrical facilities were installed and plywood applied to interior partition. The project was started on 1 August 1969 and was completed on 10 November 1969.

(g) OS 273-5461-0-20, Binh Loi Pier Protection System, B Company, 46th Engineer Battalion: Installation of a special floating collar and fender system was necessary due to tidal action at Binh Loi Pier. This project started 20 March 1969 and was completed 31 November 1969.

(h) OS 289-5961-0-20, POL Protective Berms, B Company, 46th Engineer Battalion: Cleared a 25,000 square yard area and built fuel storage area to accommodate four 10,000 gallon fuel bladders. An area to support 13 choppers at one time was built. Approximately 600 pieces of PSP was laid for helipads, and tacked down with U-pickets. The entire area was penneprimed. The project was started on 13 October 1969 and completed 18 November 1969.

(i) OS 289-5983-0-20, Husky Rehabilitation, B Company, 46th Engineer Battalion: Four firing pads for 175mm and 8" guns were constructed. Also constructed four 12-man living bunkers. Two bunkers were joined to serve as a FDC, aid station, and commo shack. The project was started on 23 October 1969 and completed on 12 December 1969.

(j) During this quarter, The Carpenter Shop, HHC, 46th Engineer Battalion, CD 543-5302-0-20, prefabricated the following items in accordance with operational support directives:

1 5 Columbine, 4 man, fighting bunkers, 10' x 10'

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2 28 Rose, 12 man, reaction bunkers, 28' x 20'

3 6 Daisy, 24 man, Personnel Mortar Bunkers, 7' x 24'

(2) MACV Advisor Facilities:

(a) CD 873-0302-0-01, MACV Advisor Upgrade, Binh Chanh District, D Company, 46th Engineer Battalion: The project consisted of construction of a 9' x 14' 6" latrine and shower using 510 concrete blocks and louvred wood construction. The structure included two water closets, three lavatory sinks, two shower heads and one wall-mounted urinal. The complete water and electrical distribution system were installed. A septic tank 8' x 8' x 5' was built; it was constructed of concrete block and reinforced concrete. A thirty gallon hot water heater was included in the water system. The project was started 17 November 1969 and completed 23 December 1969.

(b) CD 873-0303-0-01, MACV Advisor Upgrade, Cat Lai, D Company, 46th Engineer Battalion: The project consisted of construction of 1,134 SF of billets to include shower and latrine. Constructed water distribution and sewage collection system to include water tower and septic tank. Constructed sidewalks, installed hot water heater and landscaped the area. The project was started on 15 August 1969 and completed 27 October 1969.

(c) CD 889-0302-0-01, III CTZ MACV Advisory Upgrade, B Company, 46th Engineer Battalion: Poured three 12" x 12" footers, erected three 8" x 8" x 11" x 6" columns, and placed stringer 4" x 4" x 7' materials. Then two 500 gallon water tanks were placed on top of the tower, and the tanks were connected to existing plumbing. The project was started on 14 December 1969 and completed on 18 January 1970.

(d) CD 889-0303-0-01, MACV Housing Latrine, B Company, 46th Engineer Battalion: Placed concrete slab floor and laid concrete blocks for walls. Two septic tanks made of CMP and laid in concrete, have concrete lids. The latrine has two sinks, two urinals, and two flush-type toilets. The water is supplied by two water bladders, each 600 gallons. The piping connections are not complete. The project was started 21 October 1969 and completed 31 January 1970.

(3) MER:

(a) CD 159-69-006, MER for 379th Transportation Company (MT), D Company, 46th Engineer Battalion: Hauled, graded and compacted 5,040 cubic yards of laterite fill. Reshaped, graded and compacted 9,950 cubic yards of laterite. Placed 60 ft of 12-inch culvert and 70 ft of 18" culvert. The area was peneprimed with 575 barrels of peneprime. The project was started on 7 November 1969 and completed 7 December 1969.

(b) CD 343-5311-0-20, Hardstand and Access Road for 543 Trans Co, D Company, 46th Engineer Battalion: Construction of 22,600 SY of hardstand with

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access road around pad. 30,000 CYs of fill hauled. Latrines and showers were prefabricated and erected on site. This project started on 25 June 1969 and was completed 7 November 1969.

(c) CD 343-5318-0-20, MER, 9th Med Lab, Long Binh Post, D Company, 46th Engineer Battalion: The project consisted of the construction of a 3,800 square yard penneprimed hardstand with two access roads and placing 60 feet of 36 inch culvert. The hardstand area required 1880 cubic yards of fill. The project was started on 22 October 1969 and completed 15 November 1969.

(d) During this quarter, The Carpenter Shop, HHC, 46th Engineer Battalion, MER 391-5311-0-20, prefabricated the following items in accordance with minimum essential requirements directives:

- 1 2 4-hole latrines, skid mounted
- 2 9 6-hole latrines, skid mounted
- 3 2 12-hole latrines, skid mounted
- 4 3 4-head showers, skid mounted
- 5 3 6-head showers, skid mounted
- 6 1 8-head showers, skid mounted

(e) During this quarter, The Carpenter Shop, HHC, 46th Engineer Battalion, MER 391-5310-0-20, Prefabricated the following items in accordance with minimum essential requirements directives:

- 1 5 12-head showers, skid mounted
- 2 1 6-head shower, skid mounted
- 3 6 12-hole latrines, skid mounted
- 4 2 9-hole latrines, skid mounted

(4) LOC:

(a) CD 159-68-004, Resor Quarry Cantonment Area, C Company, 46th Engineer Battalion: Constructed ammo bunkers, mess hall, orderly room, supply room, latrine, shower, troop billets, flood and security lighting, electrical distribution, sanitary sewage system, and water storage tank for the 103rd Engineer Company. This project was started on 22 October 1968 and was completed on 4 November 1969.

(b) CD 407-5301-0-20, Site Preparation and Relocation of Asphalt Plant, Resor Quarry, D Company, 46th Engineer Battalion: The project con-

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sisted of laying out, forming and pouring concrete pads for the asphalt plant. In addition headwalls, access roads, open storage areas and ground culvert drainage were installed. The project was started on 27 September 1969 and completed 20 January 1970.

(c) CD 443-5212-0-20, Laterite Pit, A Company, 46th Engineer Battalion: The Laterite Pit was operated and maintained for the purpose of supplying fill materials. Trucks were loaded and tallied as required by S-3 directives. Project started 14 December 1968 and completed 5 December 1969.

(5) Base Construction:

(a) CD 525-0304-0-01, Removal and Storage of Pre-Engineered Buildings, Dong Tam, D Company, 46th Engineer Battalion: The project consisted of dismantling one 70' x 144' Pascoe Building and three 40' x 96' Pascoes and hauling them to the 46th Engineer Battalion S-4 Yard. Also hauled two Pascoes to 46th Engineer Battalion S-4 Yard that had been stored in the 93rd Engineer Battalion S-4 Yard. The project started on 29 September and this portion was completed on 27 October 1969. However, it was carried as an active project throughout this reporting period, because of participation of the 93rd Engineer Battalion.

(b) CD 543-0301-0-01, SEA Signal School, D Company, 46th Engineer Battalion: The project consisted of forming and pouring thirteen 20' x 60' concrete pads; forming and pouring one 35' x 120' concrete hardstand; construction of a detached latrine and shower with water tower and water storage tank, 400 LF of fence; construction of thirteen 20' x 60' Adam Huts; and interior and exterior wiring for the buildings. The project was started 25 February 1969 and completed 29 December 1969.

(c) CD 543-0303-0-01, LOC Maintenance Facility, A and D Companies, 46th Engineer Battalion: Construction of a 600 x 400' hardstand with drainage and access road, a 3 building maintenance complex with asphalt parking area, a wash rack, a loading ramp, a latrine and a security fence. This project started 28 April 1969 and was completed 12 November 1969.

(6) Base Construction: Suspended:

(a) 43-292-08-T-MA, Ammo Renovation Building.

(b) 43-360-01, 25th Aviation Technical Supply Facilities.

(c) 43-370-02, Aviation Support Facilities, Plantation.

(d) 43-387-01-159, 95th MP Battalion, Motor Repair Shop.

(e) 507-5306-0-20, Aviation Support Facilities.

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(7) RDS: None.

(8) Material Issue:

(a) CD 743-0305-0-01, Concrete Block for Amphitheater, Long Binh Post, D Company, 46th Engineer Battalion: The project consisted of the issue of 22,160 concrete blocks, made in the company block shop, to Long Binh Post Special Services for use as seats in the Long Binh Post Amphitheater. The project was started on 14 November 1969 and was completed 26 December 1969.

(b) CD 773-5302-0-20, Concrete Block Issue for Protective Bunkers, MACV Headquarters, Saigon, D Company, 46th Engineer Battalion: The project consisted of the issue of 6,000 palletized concrete blocks to MACV Headquarters, Saigon. The project was started on 20 December 1969 and completed 19 January 1970.

(c) CD 791-5303-0-20, Rock Issue to Installation Engineers, 103rd Construction Company (CS): Project started 14 August 1969 and completed 31 December 1969.

b. Active Projects:

(1) Combat and Operational Support:

(a) CD 243-5729-1-23, Maintenance of Base Camp Perimeter, D Company, 46th Engineer Battalion: Work accomplished during this period included continuous repair of perimeter bunkers; capping of revetment barrels around billets with cement; and clearing vegetation from the perimeter area in the companies area of responsibility. The project was started on 19 March 1969 and is continuous.

(b) CD 243-5897-0-20, Revetment Construction, 93rd Evacuation Hospital, Long Binh, D Company, 46th Engineer Battalion: Work accomplished during this period was the forming, pouring and erection of reinforced concrete revetments around the ward buildings in the 93rd Evacuation Hospital area. 560 feet of revetments have been set during this period. The project was started on 1 November 1969 and is 52% complete.

(2) MACV Advisor Facilities:

(a) CD 889-0304-0-01, III CTZ MACV Advisor Facility, B Company, 46th Engineer Battalion: Site layout has been planned for a well, pump/chlorinator shed, 10,500 gallon water with tower, and 400 SF of waterfill hardstand. The 169th Engineer Battalion is providing well-drilling support and has experienced cave-in problems. Project started 16 January 1970 and is 0.2% complete.

(3) MER:

(a) CD 389-5302-0-20, MER for C Company, 46th Engineer Battalion:

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Latrines and showers are constructed, and interior roads have been upgraded. Effort has been diverted to LOC Construction. Project started 13 December 1969 and is 43% complete.

(b) CD 389-5303-0-20, Mess Hall Slab, B Company, 46th Engineer Battalion: Poured approximately 5 cubic yards of concrete for floor and extended walls to accommodate expanded floor. The project is 40% complete.

(c) CD 389-5304-0-20, MER for 2nd Battalion/35th Arty, FSB Nancy, Headquarters Company Carpenter Shop: One 4-head shower complete. Project started 20 January 1970 and is 50% complete.

(4) LOC:

(a) 98-201-15-T-MA, O&MA, Road and Bridge Maintenance and Repair, B Company, 46th Engineer Battalion: No work was required in 20th Brigade AOR this period.

(b) 407-5302-0-20, Operations of Resor Quarry and Asphalt Plant, 103rd Engineer Company (CS), 46th Engineer Battalion: 12,992 cubic yards of 3"(-) base course, 34,955 cubic yards of 2"(-) base course, 5,116 cubic yards of 1½"(-) base course, 20,044 cubic yards of ¾"(-) stockpiled and then used for asphalt aggregate, and 14,224 tons of Type IV asphalt cement were produced during the reporting period. Work was completed on the installation of the KA-60 Asphalt Plant and operation was started the 29th of December 1969.

(c) CD 407-5304-0-20, Additional Cantonment Facilities for 103rd Engineer Company (CS), Resor Quarry, D Company, 46th Engineer Battalion: Work completed during this period included the dismantling and transporting of six SEA huts from Camp Redball to Resor Quarry and providing technical assistance to the 103rd Engineer Company (CS) for the re-erection of the SEA huts, forming and pouring the concrete pad for the buildings, construction of a generator shed, and construction of a burnout latrine and field shower. The project was started on 21 November 1969 and is 55% complete.

(d) CD 489-0302-0-01, LOC Restoration QL-1, B Company, 46th Engineer Battalion: Subgrade has been completed from the intersection of QL-1 and QL-20 (YT343102) to the south end of Xuan Loc (YT452081) except for Section II between YT380102 and YT390102. Base rock has been placed in a 4" lift between YT343102 and YT380102 and also between YT390102 and YT430101. The first layer of asphalt, a 3" lift, has been placed between YT343102 and YT375102. By-pass roads have been built all along QL-1 between YT343102 and YT465051, wherever possible. The project started 14 November 1969 and is 27% complete.

(e) 489-0303-0-01, LOC Restoration of QL-1, C Company, 46th Engineer Battalion: Subgrade has been completed from YT464054 to YT523059. Project started 1 December 1969 and is 14% complete.

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(f) 489-5302-0-20, O&MA, Base Camp Construction for C Company, 46th Engineer Battalion: Motor pool, generator shed, maintenance shed, antenna tower and interior roads completed. Project started 3 November 1969 and is 95% complete.

(g) 489-5314-0-20, O&MA, Site Preparation and Construction of Facilities, C Company, 46th Engineer Battalion: Rock crusher set-up, explosives magazine, water line, and haul road completed. Overburden is stripped from quarry site. Project started 24 November 1969 and is 98.2% complete.

(h) 489-5315-0-20, O&MA, Operation and Maintenance of Quarry and Crusher Complex, C Company, 46th Engineer Battalion: No work required this period. Project started 4 December 1969.

(i) CD 489-5316-0-20, Base Camp Construction, B Company, 46th Engineer Battalion: Placed approximately 5000 sand-bags on new commo bunker. Put up perimeter lights around compound. Repaired perimeter fence and obstacles.

(5) Base Construction:

(a) CD 43-350-01, MCA, BOQ's and BEQ's Plantation, D Company, 46th Engineer Battalion: Site planning is in progress. Project was started 11 October 1968, suspended on 11 August 1969, and reactivated on 7 January 1970. Project is 7% complete.

(b) CD 43-368-01-T-67S/7S, MCA, Medical Warehouse, Long Binh, D Company, 46th Engineer Battalion: Project was started 10 May 1969, suspended 11 August 1969, and reactivated 7 January 1970. It is 25% complete.

(c) CD 543-0306-0-01, MCA, Cantonment Facilities, 6th Trans Bn, D Company, 46th Engineer Battalion: Project started 30 July 1969, was suspended 11 August 1969, and reactivated 9 January 1970. Six Pascoes are nearly complete. The project is 35% complete.

(d) CD 543-0310-0-01, Post Exchange, Long Binh, D Company, 46th Engineer Battalion: Work accomplished during this period included the excavation of the job site; forming and pouring a 70' x 144' concrete pad; penning two vehicle parking areas; erection of a 70' x 144' Pascoe Building; forming and pouring three air conditioning pads, and started work on interior walls and electrical distribution system. The project was started on 24 November 1969 and is 43% complete.

(e) CD 543-0311-0-01, Exchange Administration Building, Long Binh, D Company, 46th Engineer Battalion: This project is due to start 16 March 1970, but earthwork for it has already been finished due to concurrent work on adjoining project. It is 5% complete.

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(f) CD 543-5301-0-20, Carpentry and Fabrication Shop, Headquarters Company, 46th Engineer Battalion: Operation and maintenance of a wood fabrication shop to supply current and future demands. Project started on 29 October 1969 and is continuous.

(6) RDS: None.

(7) Materials Issue:

(a) CD 717-5301-0-20, Rock Issue to ROK Troops, 103rd Engineer Company (CS): Eighty (80) cubic yards of rock have been issued. The project started 6 January 1970 and is 17% complete.

(b) CD 743-0303-0-01, Rock Issue to US Army Depot, 103rd Engineer Company (CS): A total of 344 cubic yards of 1½"(-) rock and 75 cubic yards of 2"(-) rock were issued this period. Project started on 4 October 1969 and is 23% complete.

(c) CD 743-0306-0-01, Construction Materials for Long Binh Power Plant, D Company, 46th Engineer Battalion: Issued 140 cubic yards of sand thus far. Project started 7 January 1970 and is 60% complete.

(d) CD 773-5301-0-20, Rock Issue to Capital Military Assistance Commission, 103rd Engineer Company (CS): No rock required this period. Project was started 1 November 1969 and is continuous.

(e) CD 773-5304-0-20, Hot Mix to Public Works, Gia Dinh, 103rd Engineer Company (CS): No asphalt was issued this period due to LOC commitments. Project started 10 January 1970.

(f) CD 791-0301-2-20, ARVN Dependent Housing, 46th Engineer Battalion: Issued plywood, soft lumber, nails, lead, cement and anchor bolts. Project started 22 January 1970 and is 60% complete.

c. Engineer Plans:

(1) Bridges: Standard plans for a 60-foot class 60 steel stringer bridge with concrete deck are being modified and adapted to the requirement for 2 class 60 bridges of 60 feet, and one class 60 bridge of 40 feet on the QL-1 Project.

(2) Fiscal Year 1971: Plans are being formulated for moving the 46th Engineer Battalion if necessary, opening a quarry and setting up a Crusher/Asphalt Plant Complex for upgrade of TL-2B from QL-1 to Ham Tan, and LTL-23 from Ham Tan to Xuyen Moc. This is part of the LOC 71 Program.

d. Plant Operations:

(1) 103rd Engineer Company (CS) conducted the following activities

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during the reporting period.

(a) Quarry Operations: 12,992 CYs of 3"(-) base course, 34,955 CYs of 2"(-) base course, 5,116 CYs of 1½"(-), 20,044 CYs of ¾"(-) asphalt aggregate.

(b) Asphalt Operations: The set-up and testing of the new KA-60 Asphalt Plant was complete and 14,224 tons of asphalt produced this period.

(2) C Company, 46th Engineer Battalion:

(a) Quarry Operations: A new 250 TPH Crusher with jaw-type primary and cone-type secondary was installed at Gia Ray. It went into operation 30 December 1969 and has produced 16,495 CYs of 2"(-) this period.

(b) Asphalt Operations: None.

d. Training: The 46th Engineer Battalion spent fourteen days during the reporting period in training. This included weapons qualification/familiarization and classes on supply economy, Code of Conduct, escape and evasion, field sanitation, helicopter sling loading, sentry duty, Geneva Convention and relations with the Vietnamese.

5. Logistics:

a. Construction Materials on Hand:

	<u>QNTY O/H</u>		<u>QNTY O/H</u>
1x4	472	3x12	7,812
1x6	1,100	4x4	5,678
1x8	5,000	4x6	3,924
1x10	19,282	4x8	11,581
1x12	1,569	4x10	26,323
2x4	51,285	4x12	118,887
2x6	792	6x6	3,708
2x8	59,023	6x8	442
2x10	8,544	6x12	10,112
2x12	6,072	8x8	45,043
8x10	22,308	10x12	25,600
8x12	528	Shiplap 1x6	34,747
10x10	3,158	1x8	3,980

b. Equipment Status:

(1) Critical items received from depot:

<u>NOMENCLATURE</u>	<u>QNTY</u>
Roller Mtzd 5-8 ton	1
Roller Mtzd 10-12 ton	2

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<u>NOMENCLATURE</u>	<u>QNTY</u>
Roller Towed 13 Wheel	1
Roller Towed 7½-50 ton	5
Sheepsfoot	1
Shop Equip Contact Maint	2
Shop Woodworking	2
Spreader Aggregate	2
Tagline crane 3/4-1 CY	4
Truck dump 5-ton	14
Fork lift 6000 lg	1
Fork lift, 15,000 lb	1
Truck MTN earth bore	1
Truck tractor 5 ton	2
Truck tractor 10 ton	3
Truck jeep ½ ton	7
Dall wrecker 3 ton	1
Boom EXT 10 ton	2
Compressor 15 CFM 175	2
Conveyor Belt 50'	2
Crane shovel 40 ton	3
Ditching machine	1
Heater hot oil	1
Laying machine	1
Pump deep 100 GPM	3
Radio set AN/CRC 106	3
Radio set AN/VRC 46	1
Radio set AN/VRC 49	1
Radio set Control Group AN/GRA 39	1
Distribution bitum 800 gal	4

(2) Equipment Shortages RIC-1 lines

Total RIC-1 items authorized	126
Number of lines at 100-90%	86
Number of lines at 90-80%	6
Number of lines at 80-70%	2
Number of lines at 70-1%	15
Number of lines at 0%	17

(3) Critical items shortages

	<u>AUTH</u>	<u>O/H</u>
Semi-Trailer low-bed 25 ton	28	19
Roller towed sheepsfoot	6	5
Vibrator concrete	12	2
Shop equipment contact maintenance	7	6
Shop equipment organization repair light	1	0
Truck maintenance		
Night vision sight	11	3
Welding shop trailer 300 AMP	7	5

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	<u>AUTH</u>	<u>O/H</u>
Scraper earthmoving towed	12	10
Roller air mobility vibrating	3	0
Sweeper gas driven	3	0
Roller tandem	4	3
Roller gas driven 5-8 ton	3	2

c. MCA/LOC Equipment

	<u>O/H</u>
Loader scoop 6 CYs	3
Crusher 250 TPH	1
Gradall excavator	1
Roller self-prop vibrator	1
Spreader aggregate	1
Compactor hand	3
Roller self-prop hyster	1
Crusher cone	1
Compressor 600 CFM	4
Drill rock	3
Sharpener (Drill bit)	1
Welder 400 AMP	2
Welder attachment	1
Welder 600 AMP	1

d. Republic of Vietnam Armed Forces Improvement:

During this reporting period this battalion has transferred the following equipment to the Armed Forces of the Republic of Vietnam:

<u>ITEM</u>	<u>NUMBER TRANSFERRED</u>
25 ton lowboy	2
Tool kit electricians set number one	1
Boom extension 10 ft, 20 ton crane	1

e. Maintenance:

Weekly classes for all Officers and key specialists is a continuing feature of operations. Subjects covered are those subjects which have created problems in the maintenance program. Of specific interest are problems related to supply procedures and preventive maintenance operations. To add concrete realism to all classes, training aids are used. As of 31 January 1970, all major end items of equipment in use in this battalion have been used as training aids. In order to familiarize all officers with the various functions of the battalion staff, each staff section presents a scheduled briefing, and an orientation tour to cover all aspects of its operations. This program has been extended to the tech supply operation of the direct support maintenance facility. A team concept is in use to assist PLL Clerks and TAERS personnel. A team concept is in operation to assist in

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maintenance problems. This system has proved successful in that Headquarters Company, 46th Engineer Battalion, passed its FY70 CMMI during this period.

f. Communications:

(1) The Battalion Communications Section has recently established two additional radio nets. This was necessary in order to maintain reliable communications with deployed units.

(a) An automatic radio retransmission station was installed on Nui Chau Chan Mountain. It consists of an AN/VRC - 49 radio sets and 2 each AC-292 antennas. One man operates the station which is powered by AC generators provided by C Company, 53rd Signal Battalion. The AC is changed to DC by using a FP-4763 power supply. The setup has been very successful in maintaining communications with our deployed units.

(b) An AM radio net was also established. The net consists of 3 each AN/GRC 106 radio sets. One is located at battalion headquarters and one is with each deployed unit. The AM net is used primarily to pass administrative traffic and ASA backup to FM radio communications.

g. Mineral Products:

(1) Rock: The battalion obtained 3,408 cubic yards of 2"(-) rock and 150 cubic yards of 5"(-) rock from the 169th Engineer Battalion Quarry at Gia Kiem. Also received 13,817 cubic yards of 1½"(-), 138 cubic yards of 3/8"(-) and 321 cubic yards of #4 fines from RMK.

(2) Ready-mix: The battalion obtained 816 cubic yards of ready-mix concrete from the 92nd Engineer Battalion during this reporting period.

6. Force Development:

During this reporting period, Headquarters and Headquarters Company of the 46th Engineer Battalion have been located on Long Binh Post.

Company A is located on Long Binh Post and has been reorganized into a IOC Restoration Support Company. All paving and dump truck assets have been attached to the company.

Company B is located at Xuan Loc with D Company earthmoving platoon attached and is engaged in upgrading QL-1 from QL-20 to LTL-2.

Company C is located at Gia Ray, with a quarry platoon of A Company attached, is engaged in upgrading of QL-1 from LTL-2 to Gia Ray and is operating a quarry/crusher complex at Gia Ray.

Company D minus its earthmoving platoon is located at Long Binh Post and is primarily engaged in Base Construction.

The 103rd Engineer Company (CS) is located at Resor Quarry and operates a Crusher/Asphalt Plant Complex in support of QL-1 upgrade.

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7. Command Management:

With the beginning of the QL-1 Project, command emphasis has been placed on quality control to insure a finished product which will meet designated specifications. To augment such a program the battalion has organized three (3) surveying teams which include assigned personnel and personnel attached from the 159th Engineer Group, and the 66th Engineer Topo Company. Two soils teams have been organized with soils specialists from Headquarters Company augmented by personnel from B and C Companies.

To insure an efficient logistics program for the two companies separated from the battalion, a Liaison Non-Commissioned Officer from each company has remained at battalion Headquarters and functions as a coordinator of supplies, repair parts and personnel support.

8. Inspector General Activities: During the present reporting period, this Battalion has undergone a change in appointed inspector generals. All problems which have been presented, were dealt with in a prompt and efficient manner.

9. PIO:

a. The Battalion Information Office has an active program. The Battalion has submitted 263 hometown news releases and 15 feature stories during the reporting period.

The Battalion has had stories published in the following publications: Army Times, MACV Advisor, Army Reporter, and Castle Courier. A special report on concrete prefab revetments will be published in the Military Engineer Magazine. SP4 Pites, the Battalion Information Specialist, went on a special assignment for the Engineer Troops - Vietnam Information Officer. His story on the Royal Australian Engineers appeared in "The Kysu" magazine.

A Battalion newspaper "The Practice Alert" is published monthly. This paper further notes the accomplishments and events of the battalion.

10. Civic Action: None.

11. ARVN Training: On 20 November 1969, Project Buddy, OJT Training of ARVN soldiers, graduated 11 OJT mechanics from class two. At the end of this reporting period, class three was in the tenth week of twelve weeks of training.

12. Base Defense:

a. Long Binh Post: During this reporting period the units of the 46th Engineer Battalion on Long Binh Post expended 11,780 manhours on guard commitments.

b. Resor: During this reporting period the 103rd Engineer Company expended 11,000 manhours on guard commitments for defense of Resor Industrial Complex.

c. Xuan Loc: During this reporting period B Company, 46th Engineer Battalion, expended 7650 manhours on guard commitments for defense of their compound at Xuan Loc.

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d. Gia Ray: During this reporting period C Company, 46th Engineer Battalion, expended 1,937 manhours on guard commitments for defense of cantonment at Gia Ray.

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

1. Personnel: None.

2. Intelligence: None.

3. Operations:

a. Spreading Base Rock for QL-1, B Company:

(1) Observation: When laying base rock for roads using an aggregate spreader, some difficulty was found in bonding one row to the next.

(2) Evaluation: Rather than rocking outside row, center row, outside row, a better tie-in was produced when the sequence was changed to outside, outside, and then center row.

(3) Recommendation: When base rock is spread in three or more rows, lay the center row last. Trucks feeding the spreader will at times have to drive over freshly laid rock, but the results are better and more easily achieved.

b. D Company was assigned the task of removing mud from a mud hole in the 379th Transportation Company (MT) MER site.

(1) Observation: This unit was faced with the problem of removing and refilling a large mud hole located in an existing laterite hardstand used for a motor pool. The mud hole had been in existence for a long time and consequently was extremely deep.

(2) Evaluation: At first it was felt that the mud could be best removed with a 20-ton RT crane using a clamshell. This proved to be slow and inefficient.

(3) Recommendation: A more efficient method was found to be the use of a frontloader in the following manner: New fill would be stockpiled near the mudhole and then pushed into the hole and compacted using a dozer. The frontloader could then be used to get to the mud, using the compacted fill as a bridge, and remove the mud. Although the frontloader also frequently became stuck, it was easily winched out by the dozer. This method significantly reduced the time required for this job.

c. D Company was assigned the task of precasting and setting reinforced concrete revetments.

(1) Observation: This unit was faced with the problem of damaged concrete revetments when they were being removed from the forms.

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(2) Evaluation: The method previously used was inadequate due to when the lifting vehicle started to pull the revetment up by the two rebar eyes set in the ends of the revetment, the rebar eyes would bend back and crack and chip chunks of concrete from around the rebar eyes.

(3) Recommendation: A more efficient method was devised when two rebar eyes were placed in the center of the revetment protruding through the concrete about four feet apart. The additional rebar eyes were tied into the rebar mat on the interior of the revetment. So when the lifting vehicle removed the revetment from the form by the new rebar eyes, no damage to the concrete was noted.

d. 103rd Engineer Company (CS): Closed Loop Installation of the Allis Chalmers Cone Crusher (9 x 45").

(1) Observation: During the initial operating period of the cone crusher at Resor Industrial Complex, it was employed in an open loop configuration, i.e. the material from the primary jaw crusher made only one pass through the unit. Sized material from the jaw would be screened off and discharged, while oversized rock would be further reduced in the cone and fed directly to the discharge belt without further screening. It was found that the characteristics of the jaw were to slab the rock which would pass through the cone, thus making it difficult to control the product.

(2) Evaluation: It was felt that closed looping the cone unit by feeding the cone discharge back through the screen would more closely control top product size. This was implemented by constructing approximately 60 feet of 30" channel frame conveyor, running from the cone side discharge to the screen feed belt. Thus, sized material is 100% screened, and all product downstream of the cone is size controlled by the top screen. In addition, to preventing oversized material from reaching the roll units, it also permits the obtaining of a base course material directly from the cone.

(3) Recommendations: That the cone crusher be installed in a closed loop configuration at all sites to provide a closely controlled product top size. Provisions should also be made to supply the needed conveyors for this application.

4. Organization:

a. Formation of a Dump Truck Platoon Provisional

(1) Observation: The Engineer Construction Battalion has assigned 48 - 5 ton dump trucks to four lettered companies and this fragmentation sometimes causes low efficiency because of lack of centralized control.

(2) Evaluation: When a Construction Battalion is assigned a very specialized battalion project such as LOC Restoration, centralized control is essential to good management, efficiency, and better availability.

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(3) Recommendations: Consolidation of a given battalion asset should be considered if a battalion-size project of medium-to-long duration is assigned.

b. Major End Item Augmentation Without Personnel Augmentation:

(1) Observation: The battalion has been augmented by many major pieces of engineer equipment such as two LOC-MCA crushing units, loaders, drills and Euclid Trucks without an increase in personnel to man the equipment.

(2) Evaluation: The increase of major engineer equipment without an increase in personnel causes difficulty in properly manning all assigned equipment in the battalion without decreasing the strength of the vertical construction effort in the battalion. Although road construction is essentially horizontal in nature, many man-hours are required for culvert/bridge construction.

(3) Recommendations: MCA-LOC equipment augmentations should be like a TOE 5-500 augmentation. This would include equipment with operator and adequate maintenance personnel if the density warrants it.

5. Training: None.

6. Logistics:

a. Battalion S-4 has experienced change in supply effectiveness since cancellation of hand-carry requisitions.

(1) Observation: The supply system placed a ban on hand-carry requisitions through depot.

(2) Evaluation: Since the stopping of hand-carries through depot, requisitions have been filled faster and in greater quantity.

(3) Recommendations: The ban on hand-carries through depot requisitions be continued.

7. Communications:

a. Battalion communications section placed a retransmission station near Gia Ray to improve communications with units in the field.

(1) Observation: The main problem with the radio retransmission station has been the crowded frequencies.

(2) Evaluation: Discrete frequencies are necessary for efficient operations.

(3) Recommendation: Suggest higher screening of retransmission frequencies.

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8. Materials: None.

9. Maintenance:

a. Waste oil disposal by motor pools:

(1) Observation: Disposal of waste oil is a problem which must be solved for fire safety.

(2) Evaluation: A central burning point where used oil could be run from a storage point to a burning pit would be a great help. Oil could be burned on the same principle as diesel fuel in an immersion heater. A heavy metal plate would concentrate heat once the oil was ignited and act as an igniter.

(3) Recommendation: Where there is a concentration of companies, a central burning point should be set up. Oil could be burned as often as necessary to keep storage tanks from flowing over. Contamination of soil to a large degree would be eliminated.

b. Difficulty of obtaining parts through P.D.O.

(1) Observation: Present ground rules make it difficult to obtain needed parts from P.D.O.

(2) Evaluation: Critical items are often available at P.D.O. but are not available at the normal supply points or the Retrograde Yard for use by military units. Buyers are given priority in obtaining such items once the items are offered for bid.

(3) Recommendation: Serious consideration should be given to make parts available regardless of the sale status unless the item is actually purchased.

c. Lubrication of universal joints on wheel, drive and propellor shafts:

(1) Observation: Before lubricating universal joints on the wheel drive shafts of the M151, the vehicle can be jacked-up, all wheels removed and the grease fittings placed in an ideal position by turning the prop shaft by hand.

(2) Evaluation: This is an excellent way to assure proper greasing of the bearings. In remounting the wheels, rotating the tires can also be accomplished.

(3) Recommendation: That this system be adopted for use throughout the battalion. It should be put up for consideration in the other battalions.

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d. Repair Parts for low density engineer items:

(1) Observation: Repair parts for the following low density engineer pieces of equipment are difficult to impossible to obtain with any degree of responsiveness.

- (a) Rock Crushers
- (b) Asphalt Plants
- (c) D-9 Dozers, Full-Track
- (d) Euclid Dump Trucks
- (e) Rock Drills, Air Track

(2) Evaluation: Low density engineer equipment normally associated with rock crusher/asphalt facilities are operated on a day-to-day basis with many repairs made with a "hope it lasts the day" philosophy caused by the difficulty in obtaining repair parts. Experience has shown that repair parts have been on requisition up to 180-plus-days without receiving the item. This type of resupply is untenable when dealing with low density critical pieces of equipment.

(3) Recommendation: A specialized supply system should be set up to provide the following responsive and direct repair parts supply system for critical low density engineer equipment:

- (a) A direct supply channel to USARV with a single project manager in charge.
- (b) The project manager at USARV should have a direct line to MECOM to a similar single project manager at MECOM.
- (c) The project manager, MECOM, should have direct purchasing authority to the commercial market.
- (d) Items requested should then be expedited direct from manufacturer to using unit.
- (e) The entire period should not take longer than 14 days.

Additionally, two other means will provide adequate in-theater stockage and equipment availability.

- (a) Theater stock levels for all repair parts associated with low density items should be on a one-per-machine basis.

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(b) Major items such as rock crushers and asphalt plants should be programmed on a eleven-month working season with a one-month rebuild/inspection period.



ARTHUR S KUBO
MAJ, CE
Commanding

1 Incl
Organizational Structure

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EGB-OP (14 Feb 70) 1st Ind
SUBJECT: Operational Report - Lessons Learned, 46th Engineer Battalion
Period Ending 31 January 1970, RCS CSFOR-65(R2)

DA, HQ, 159th Engineer Group, APO 96491

28 February 1970

TO: Commanding Officer, 20th Engineer Brigade, ATTN: AVBI-OS, APO 96491

1. Submitted in accordance with USARV Regulation 525-15, dated 13 April 1969.

2. Comments are made on the following paragraphs:

a. Section I, paragraph 2 a (2): Weekly reports of critical MOS shortages are sent to 20th Engineer Brigade.

b. Section I, paragraph 5 b (3): These shortages have been reported on the Commander's Critical Items List, and valid requisitions for all equipment have been verified.

c. Section II, paragraph 4 b: This headquarters strongly concurs.

d. Section II, paragraph 7: Discrete frequencies are currently assigned for retransmission stations by IIFFV. The high density of traffic and number of nets prohibits clear channel frequencies especially when stations are located on high ground where the range of interface is great. Alternate frequencies are approved for stations experiencing heavy interference.

e. Section II, paragraph 9 b: Past practice has been to keep low density engineer items in the CC&S yard only three to four days prior to shipment to the Property Disposal Yard because of storage limitations. On 13 and 16 February 1970 the 79th Maintenance Battalion indicated that it would keep these items 30 days in CC&S before shipment to Property Disposal. During this 30 day period parts could be obtained for valid dues-out on mission essential equipment.

f. Section II, paragraph 9 d: This headquarters strongly concurs with the recommendations of this paragraph.


J. K. BRATTON
COL, CE
Commanding

CF:
CO, 46th Engr Bn

AVBI-OS (14 Feb 70) 2nd Ind
SUBJECT: Operational Report of 46th Engineer Battalion (Construction) for
the Period Ending 31 January 1970, RCS CSFOR-65 (R2)

DA, HEADQUARTERS, 20TH ENGINEER BRIGADE, APO 96491

10 MAR 1970

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

1. Submitted in accordance with USARV Regulation 525-15, dated 13 April 1968.
2. This headquarters concurs with the submitted report with the following comments:

a. Section 2, paragraph 3d, page 20: It is within Group authority to close loop their cone if so desired. Additional conveyor equipment must be requisitioned thru supply channels, obtained from PDO, or contact could be made with Vung Tau to check RMK excess equipment.

b. Section 2, paragraph 6, page 21: Recommend against the ban on hand-carries. The commander must retain an override option in case the logistics system fails to respond to the immediate mission needs.

c. Section 2, paragraph 9, pages 22-24:

(1) The 64th Quartermaster Battalion has oil burning facilities available. Instructions for turn-in can be obtained by contacting their disposal office. Another use for this oil would be as a dust palliative.

(2) Parts may be obtained at anytime during the first 5 days an item is in PDO or his designated representative by submitting DA Form 1348-1 to the PDO. Once an item is put up for sale it normally cannot be touched. For emergency reasons, however, material can be withdrawn from sale and be made available to military units.

(3) This is a good idea, however, the overriding problem is to get the vehicle in for lubrication in the first place. Once this problem is solved, the unit should submit an EIR if the method is felt to need improvement.

(4) The proper agency to obtain supplies from is 1st Logistical Command. This type program has been suggested many times in the past and has merit. A return to a tech supply concept would definitely improve engineer equipment availability. The only solution at the present time is to straighten out unit PLLs, ASLs and follow-up on IMG requisitions in order to have a stockage of parts on hand to take care of these breakdowns.

FOR THE COMMANDER:

Kenneth J. Koeber 14CE
7u H. V. GOSWEILER III
1LT, CE
Assistant Adjutant

Copies Furnished:
CO, 159th Engr Gp
CO, 46th Engr Bn

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PROTECTIVE MARKING IS EXCLUDED
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(PARA. 13, AR 340-16)

AVHGC-DST (14 Feb 70) 3d Ind
SUBJECT: Operational Report - Lessons Learned, 46th Engineer Battalion
Period Ending 31 January 1970, RCS CSFOR-65 (R2)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 28 MAR 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 January 1970 from Headquarters, 46th Engineer Battalion and concurs with the comments of indorsing headquarters.

2. Comments follow:

a. Reference item concerning "Major End Item Augmentation Without Personnel Augmentation", page 21, paragraph 4b(1): nonconcur. DA guidance regarding MCA program equipment augmentations provides that the items will not be picked up on the property books of the receiving units and will be manned from current authorized resources.

b. Reference item concerning "Supply Effectiveness," page 21, paragraph 6(1) and 2d Indorsement, Comment 2b: concur. Increased supply responsiveness was the objective of the hand-carry ban. Nonconcur with paragraph 2b of 2d Indorsement. Major commanders have not been precluded from making arrangements for special handling of requests on a case by case basis.

c. Reference item concerning "Repair Parts for Low Density Engineer Items", page 23, paragraph 9d(1): concur. The intent of the recommendation is to establish a responsive means of resupply for repair parts for low density equipment. A study of this situation is now being conducted by USARV/USARPAC/DA and is nearing completion. Even if the system for resupply of these parts is changed however, it will remain the responsibility of the commander to request supplies in a timely manner and to use authorized Red Ball procedures to obtain urgently needed parts.

FOR THE COMMANDER:


J. E. MICHELS
MAJ, AGC
Assistant Adjutant General

Cy furn:
20th Engr Bde
46th Engr Bn

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GPOP-DT (14 Feb 70) 4th Ind

SUBJECT: Operational Report of HQ, 46th Engineer Battalion for Period
Ending 31 January 1970, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 2 APR 70

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

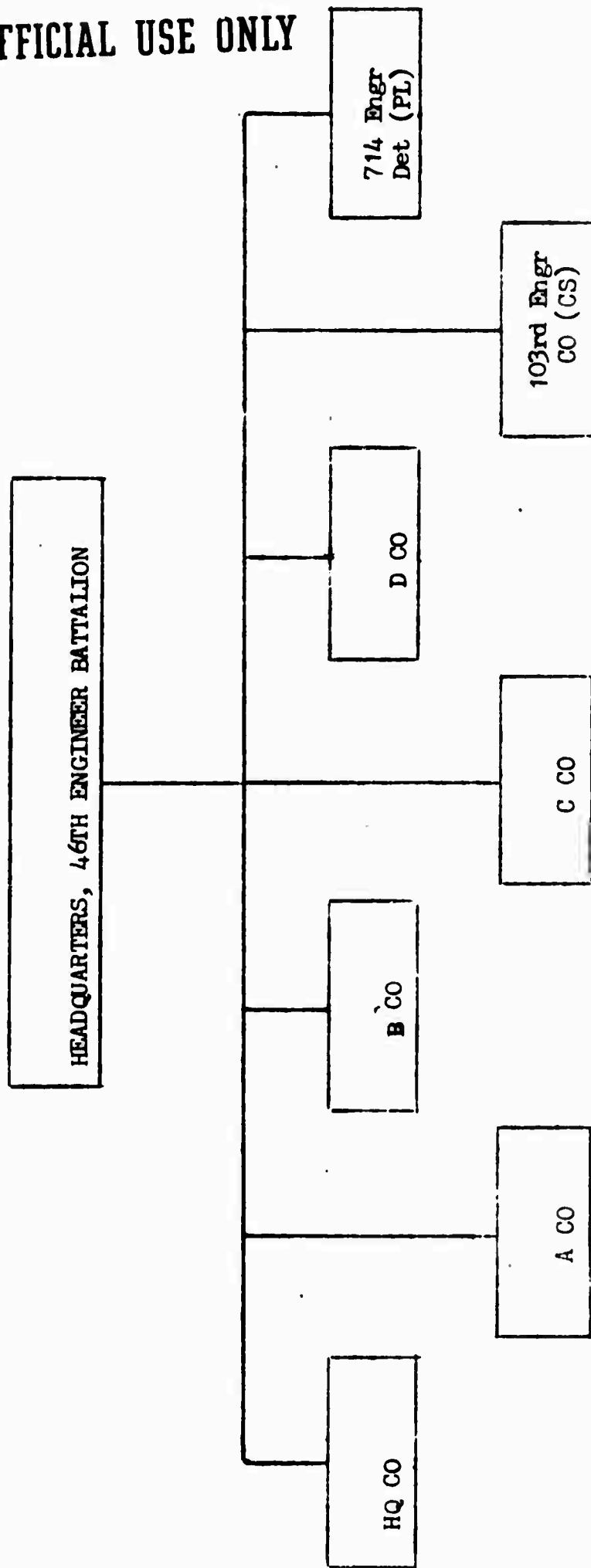
This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:

D.D. Cline

D.D. CLINE
2LT, AGC
Asst AG

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