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DEPARTMENT OF THE ARMY  
OFFICE OF THE ADJUTANT GENERAL  
WASHINGTON, D.C. 20310

IN REPLY REFER TO

AGDA (M) (23 Mar 70) FOR OT UT 701126

24 March 1970

SUBJECT: Operational Report - Lessons Learned, Headquarters, 20th Engineer Brigade, Period Ending 31 January 1970

SEE DISTRIBUTION

1. Subject report is forwarded for review and evaluation in accordance with paragraph 4b, AR 525-15. Evaluations and corrective actions should be reported to ACSFOR OT UT, Operational Reports Branch, within 90 days of receipt of covering letter.

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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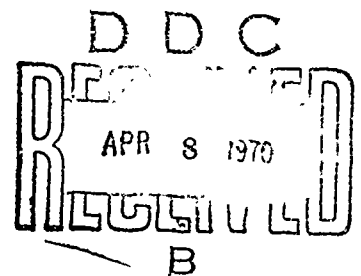
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DEPARTMENT OF THE ARMY  
HEADQUARTERS, 20TH ENGINEER BRIGADE  
APO San Francisco 96491

AVBI-OS

12 February 1970

SUBJECT: Operational Report - Lessons Learned of Headquarters 20th Engineer Brigade for Period Ending 31 January 1970, RCS CSFOR-65  
(R2)

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

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

STATEMENT #2 UNCLASSIFIED

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

SECTION I - SIGNIFICANT ORGANIZATION ACTIVITIES

1. Command:

a. Mission: The basic mission and capabilities of the Brigade Headquarters are stated in TOE 5-111G as modified by MTOE 5-111G dated 2 October 1968. The mission is further defined in USARV Letter of Instruction, AVCC, dated 29 January 1969. Specific Brigade missions during the reporting period were combat and construction operations in the III and IV Corps Tactical Zones of South Vietnam.

b. Principal commanders and staff within the 20th Engineer Brigade at the close of the reporting period were:

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|  |                               |
|--|-------------------------------|
| Commanding Officer                       | Edwin T. O'Donnell, COL, CE   |
| Deputy Commander                         | E. J. Fuller, COL, CE         |
| Chief of Operations                      | Robert S. McGarry, LTC, CE    |
| Adjutant                                 | James E. Mooney Jr., MAJ, AGC |
| Supply Officer                           | Peter E. Smith, MAJ, CE       |
| Commanding Officer, 34th Engr Group      | John E. Sterling, COL, CE     |
| Commanding Officer, 35th Engr Battalion  | James W Ray, LTC, CE          |
| Commanding Officer, 36th Engr Battalion  | Vito D. Stipo, LTC, CE        |
| Commanding Officer, 69th Engr Battalion  | Alfred F. Lawrence, LTC, CE   |
| Commanding Officer, 93rd Engr Battalion  | Michael E. Kallman, LTC, CE   |
| Commanding Officer, 79th Engr Group      | Amos L. Wright, COL, CE       |
| Commanding Officer, 31st Engr Battalion  | Gwynn A. Teague, LTC, CE      |
| Commanding Officer, 62nd Engr Battalion  | Paul C. Driscoll, LTC, CE     |
| Commanding Officer, 168th Engr Battalion | Harry M. Roper, LTC, CE       |
| Commanding Officer, 554th Engr Battalion | James E. Lynch, LTC, CE       |
| Commanding Officer, 588th Engr Battalion | Thomas A Stumm, LTC, CE       |
| Commanding Officer, 159th Engr Group     | Joseph K. Bratton, COL, CE    |
| Commanding Officer, 34th Engr Battalion  | George J. Sells, LTC, CE      |
| Commanding Officer, 46th Engr Battalion  | Marion F. Meador, LTC, CE     |
| Commanding Officer, 92nd Engr Battalion  | Beaufort C. Katt, LTC, CE     |
| Commanding Officer, 169th Engr Battalion | Nick J. Andre, LTC, CE        |

c. Reassignments:

(1) The 595th Engineer Company (Light Equipment) and the Earth-moving Platoon, Company C, 93rd Engineer Battalion (Construction) were relieved from attachment to the 18th Engineer Brigade on 1 November 1969 under GO 3796, HQ, United States Army Vietnam.

(2) The 100th Engineer Company (Float Bridge) was reassigned from the 159th Engineer Group to the 79th Engineer Group on 5 December 1969 under GO 1269, HQ, 20th Engineer Brigade.

(3) The 714th Engineer Detachment (Power Line) was reassigned from the 79th Engineer Group to the 159th Engineer Group on 22 January 1970 under GO 102, HQ, 20th Engineer Brigade.

d. The Brigade Headquarters remains at Bien Hoa Army Base, approximately 30 kilometers northeast of Saigon (YT 02201505).

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2. Personnel and Administration:

a. The authorized Brigade civilian strength ceiling was reduced to 3172 spaces. Actual strength was 2778 on 15 January 1970.

(1) USARV G-3, Force Development, has completed the manpower survey in the 34th and 79th Engineer Groups. This headquarters has found the newly determined requirements inadequate for our present missions. Presently an MTOE is being compiled at Brigade level with justifications to deviate from the G-3 requirements.

(2) Plans are being formulated to obtain increased civilian labor requirements for the 94th Quarry Detachment in order to attain maximum civilianization.

b. AIK funds allocated to the Brigade for the 1st Qtr, CY 70, amounted to \$VN 5,895,000. A remaining balance of \$VN 1,710,000 existed from the 4th Qtr, CY 69, giving the Brigade a total AIK reserve of \$VN 7,605,000.

c. The Brigade personnel strength for this period was:

|          | <u>30 NOVEMBER</u> |               |
|----------|--------------------|---------------|
|          | AUTHORIZED         | ASSIGNED      |
| OFFICERS | 605                | 610           |
| WO       | 121                | 114           |
| E9-E6    | 1,497              | 1,188         |
| E5-E1    | <u>10,788</u>      | <u>10,647</u> |
| TOTAL    | 13,011             | 12,559        |

|          | <u>31 DECEMBER</u> |               |
|----------|--------------------|---------------|
|          | AUTHORIZED         | ASSIGNED      |
| OFFICERS | 605                | 589           |
| WO       | 121                | 116           |
| E9-E6    | 1,534              | 1,174         |
| E5-E1    | <u>10,941</u>      | <u>10,620</u> |
| TOTAL    | 13,201             | 12,499        |

|          | <u>31 JANUARY</u> |               |
|----------|-------------------|---------------|
|          | AUTHORIZED        | ASSIGNED      |
| OFFICERS | 605               | 591           |
| WO       | 121               | 122           |
| E9-E6    | 1,534             | 1,139         |
| E5-E1    | <u>10,941</u>     | <u>10,513</u> |
| TOTAL    | 13,201            | 12,365        |

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d. The critical shortages in MDS's for the Brigade over the last three months have been as follows: 00B20, 05B20, 05C20, 51C30, 51D20, 51H40, 51K20, 51N40, 52A10, 62B10, 62D40, 62F30, 62G30, 62G40, 71T20, 76Y40, 82A10 and 94A10. The Brigade was also short Majors, Captains, and E6's during the past quarter.

e. The total Brigade casualties for the period were:

|          | <u>KIA</u> | <u>WIA</u> | <u>NHD</u> |
|----------|------------|------------|------------|
| November | 1          | 38         | 2          |
| December | 1          | 32         | 7          |
| January  | 2          | 45         | 1          |

f. The following awards were approved during the period 1 November 1969 to 31 January 1970:

|               | <u>BSM"V"</u> | <u>BS"ACH"</u> | <u>BS"SVC"</u> | <u>ACM"ACH"</u> | <u>ACM"V"</u> | <u>ACM"SVC"</u> | <u>AM</u> | <u>PH</u> |
|---------------|---------------|----------------|----------------|-----------------|---------------|-----------------|-----------|-----------|
| Brigade Total | 23            | 64             | 721            | 313             | 3             | 2008            | 111       | 74        |

### 3. Operational Support Section:

a. A total of 40 Combat Support and 112 Operational Support directives were issued during the reporting period.

b. Operational support was directed in the normally required areas with emphasis on fire support bases, MSR maintenance, bridge protection systems, forward airfields, tactical roads and base camp defense construction.

c. One of the major projects undertaken by the Brigade during the reporting period was the upgrade of the Phuoc Vinh Airfield. Major earthwork was involved and a 12 inch base of soil cement was placed in preparation for asphalt paving operations. On 21-22 January 1970, combined assets of both the 79th and 159th Engineer Groups paved the first 2200 feet of the runway. Asphalt for this paving was hauled from both the Xom Tam and Phu Loi plants. Upon completion of the final paving phase in February 1970, the Phuoc Vinh Airfield will meet the requirements of a Type II, C-130 airfield.

d. Since 1 December 1969, the entire assets of the 41st Engineer Company (Port Construction) have been engaged in reconstructing the pier protection for the Dong Nai Bridge. The original contractor-installed system had been extensively damaged by river currents and barge traffic since its completion in June 1969. This major reconstruction effort is scheduled for completion in March 1970.

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e. Significant operational support projects completed during the period were the tank range at Trang Bom, expansion of LZ Buttons into a Brigade base for the 1st Cavalry Division (AM), and the anti-sapper boom at the Ben Luc Bridge. Also completed were land clearing operations around the Long Binh Post perimeter, to include Providence Village and Finger Ridge.

f. During the reporting period, the three land clearing companies of the 62nd Engineer Battalion cleared a total of 30,743 acres of vegetation and timber. Areas of operation included the Gang Toi area, QL-14 to Duc Phong, an area in the vicinity of Phuoc Vinh, the Hat Dich area, QL-14A from Loc Ninh to Bu Dop and areas around Bu Dop. A clearing operation in the Nhon Trach area was completed and a road clearing operation was started on TL-4 from FSB St. Barbara to Katum Special Forces Camp. Secondary growth land clearing was begun around the Long Thanh - Bearcat perimeter utilizing Marden Brush Cutters and Rome Disc Harrows. In conjunction with this project, an evaluation of this equipment will be made by ACTIV.

g. ARVN/US Cooperative Program:

(1) Brigade units continue to emphasize on-the-job training as their most effective method to Vietnamize the war effort. Presently 165 ARVN trainees are receiving instruction. Joint instructional projects are also being planned for the remainder of the construction season.

(2) The 34th Engineer Group is currently training arc welder operators, 290M scraper operators and mechanics. They recently completed an asphalt plant assembly course and a quarry blasting operations course.

(3) The 79th Engineer Group is firmly engaged in training the ARVN 318th Engineer Company (Land Clearing). Eventually this unit will assume land clearing operations in the III Corps Tactical Zone and will replace one US land clearing company.

(4) The 159th Engineer Group continues to train ARVN engineer mechanics under "Project Buddy." Training is also being conducted on the operation and maintenance of 830 MB hydraulic scrapers, continuous mix asphalt plants and paving train techniques.

4. Construction Operation:

a. At the end of the reporting period, the Construction Operations Section had the following number of open projects:

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- (1) Minimum Essential Requirements - 24
- (2) Lines of Communication - 32
- (3) MACV Advisor Facilities - 59
- (4) Base Construction - 144
- (5) Revolutionary Development Support - 1
- (6) Materials Issue - 16

b. A summary of significant effort within the Brigade during the reporting period follows:

- (1) Man-hours Expended:
  - (a) Construction - 2,005,682.
  - (b) Combat and Operational Support - 1,274,064.
- (2) LOC Surfaced: Paved to MACV Standards - 47.73 KM
- (3) Land Cleared - 30,743 Acres.
- (4) Rock Crushed - 392,412 CY
- (5) Asphalt Laydown - 71,423 Tons
- (6) Concrete Placed - 6,635 CY.

c. During the reporting period, several relocated industrial sites became operational. These new sites provide most of the base course and asphalt rock, and asphaltic concrete mix in support of the Brigade LOC program. At the end of the reporting period the following sites were operational:

- (1) Resor Industrial Site consists of a quarry; a crusher complex containing a 225 TPH jaw crusher; an Allis-Chalmers 45" cone crusher; three secondary units; and an asphalt batch plant. The asphalt plant is a new military unit drawn from depot which became operational on 31 December 1969.



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(2) Xom Tam Industrial Site consists of a quarry, a crusher complex, and an asphalt batch plant. The crusher units at Xom Tam are similar to those presently at Resor. The 150 TPH asphalt plant was formerly located at Cu Chi.

(3) Gia Kiem Industrial Site (Banana Quarry) consists of a quarry, a crusher complex and an asphalt batch plant. The primary unit is a 410 TPH jaw crusher. All units were relocated from Nui Be Den which closed in November 1969. The Banana Quarry site became fully operational during January 1970.

(4) Gia Ray Quarry consists of a quarry and crusher complex. The primary unit is a 250 TPH MCA/LOC crusher.

(5) Vung Tau Quarry consists of a quarry and a crusher complex. The latter is presently being relocated at Vung Tau with a 250 TPH MCA/LOC crusher unit being added at the new site. Other units are 225, 150, and 75 TPH crushing units. The relocation is expected to be completed during the latter half of February 1970 with the site attaining maximum production shortly thereafter.

(6) Phu Loi Asphalt Plant consists of a 150 TPH asphalt batch plant. Asphalt aggregate for this plant is obtained chiefly from Xom Tam Industrial Site.

(7) Vinh Long Asphalt Plant consists of an asphalt batch plant. The unit installed here is a contractor rebuilt plant which began operating during the latter half of January. It has not yet attained regular production because of various mechanical difficulties.

d. Difficulties have been encountered in trying to obtain non-standard repair parts for crusher and batch plant equipment. This problem is significant and could result in an unacceptable amount of equipment downtime with a subsequent drop in production if not corrected. Commercially rebuilt units are contributing disproportionately to equipment down time.

e. MACV Advisor Facilities:

(1) The Brigade has a total of 128 construction directives for MACV Advisor Facilities. Of these, 106 were directed under Program V and 22 under Program VI.

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(2) Construction has been completed at 99 of the Program V sites. The remaining 7 are scheduled for completion in March 1970.

(3) Under Program VI, 7 sites have been completed. The remaining 15 sites are to be completed by October 1970.

f. Minimum Essential Requirements (MER): A total of 11 MER directives were issued during the period as compared to 13 the previous quarter. Most directives were issued in support of tactical unit relocations based on AOR changes or for support at isolated sites. The vast majority of the MER effort expended was in support of the 1st Cavalry Division at widely dispersed locations, with major effort at Tay Ninh, Phuoc Vinh, and LZ Buttons. Ranking second was effort expended for the 1st Infantry Division, especially at Lai Khe and Tay Ninh and the relocation from Blackhorse to Bien Hoa of the 11th Armored Cavalry Regiment (Rear). A large effort was expended to complete and close out directives issued during the past year. At the end of the quarter 24 MER projects are active in the Brigade AOR.

g. Lines of Communication (LOC):

(1) The following report represents the status of the LOC program at the end of the reporting period:

| <u>ROUTE</u>   | <u>FROM</u> | <u>TO</u>           | <u>KM</u> | <u>% COMPLETE</u> | <u>CONSTRUCTION UNIT</u> |
|----------------|-------------|---------------------|-----------|-------------------|--------------------------|
| QL-1           | QL-20       | Gia Ray             | 37        | 20                | 46th Engr Bn             |
| QL-1/<br>QL-22 | Cu Chi      | Tay Ninh            | 64        | 98                | 554th/588th Engr Bn      |
| QL-4           | My Thuan    | Binh Minh           | 38        | 85                | 36th/69th Engr Bn        |
| QL-4           | Can Tho     | Soc Trang           | 56        | 15                | 69th/35th Engr Bn        |
| QL-13          | Phu Cuong   | Ap Ben Cau          | 29        | 97                | 34th Engr Bn             |
| QL-13          | Ap Ben Cau  | An Loc              | 48        | 18                | 34th/554th Engr Bn       |
| QL-20          | QL-1        | Gia Kiem            | 9.5       | 99                | 169th Engr Bn            |
| QL-20          | Gia Kiem    | II/III CTZ Boundary | 66        | 23                | 169th Engr Bn            |

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| <u>ROUTE</u>    | <u>FROM</u> | <u>TO</u>  | <u>KM</u> | <u>% COMPLETE</u> | <u>CONSTRUCTION UNIT</u> |
|-----------------|-------------|------------|-----------|-------------------|--------------------------|
| LTL1A/<br>TL-2A | QL-13       | Phuoc Vinh | 40        | 34                | 34th Engr Bn             |
| LTL7A           | Vinh Long   | Ap An Dien | 30        | 4                 | 36th Engr Bn             |
| TL-24           | My Tho      | Go Cong    | 34        | 19                | 93rd Engr Bn             |

(2) One of the major problems in the LOC program appears to be delays in receiving A/E surveys and drawings when required. Until these drawings are available, the construction unit can do virtually no advance planning or construction scheduling. In several instances work has actually been started before final designs or alignments for sections of the roadway have been available or right-of-way has been obtained.

(3) A potential problem also exists in the area of materials procurement, specifically asphalt and cement. Several LOC projects are designed using cement stabilized material in lieu of crushed rock as a base course. These projects will be delayed if an adequate supply of cement is not available. Early indications are that shortages of cement will exist periodically. Asphalt for producing asphaltic concrete mix for surfacing these roads has been critically short during the reporting period. Emphasis on asphalt acquisition, hauling, and delivery is imperative to the successful and timely completion of the LOC program.

(4) A revised MACV Directive 415-6 has still not been published, although a draft has been circulated on a limited basis. This new regulation will establish slightly different design criteria for both roadway and bridge designs. No firm guidance has been provided by USARV to indicate which criteria should be used for projects presently in the design stage.

#### h. Base Construction:

(1) Consolidation of Base Construction projects has been accomplished by the review and determination of essentiality by the Facilities Review Board. The status of the majority of active projects has been released through USAECV(P) to Brigade units for scheduling and construction.

(2) Construction materials for all types of vertical construction have generally become available within the Brigade's AOR for approved MACV and BACON projects. The only shortages which have affected the completion of base construction projects have been items with long lead times for electrical or water treatment installations.

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(3) During the reporting period pre-engineered buildings removed from Dong Tam were reerected at Long Binh, Binh Thuy, Vinh Long, and Can Tho. With the closing of a major portion of the USARV facilities currently located at Vung Tau, relocation of pre-engineered buildings is programmed for Binh Thuy, Long Thanh North and Phu Loi.

(4) Principal base construction projects completed during the reporting period were: Upgrade of Ghi Lang Special Forces Cantonment and Operational Facilities; Phuoc Vinh Control Tower; reconstruction of the mess hall for Headquarters Company, 1st Cavalry Division, Phuoc Vinh; and Phase II of the SEA Signal School Facilities, Long Binh.

i. Revolutionary Development Support (RDS): In September 1969 two screening and detention facilities were directed, one each for Kien Phong and Ba Xuyen Provinces. Construction was completed on the Ba Xuyen facility in December 1969. Construction on the Kien Phong facility commenced on 2 January 1970 and is scheduled for completion in March 1970.

#### 5. Intelligence:

a. The S-2 section handled 33 SECRET and 614 CONFIDENTIAL documents during this period.

b. A semi-annual counterintelligence inspection was conducted for the 34th Engineer Group. The S-2 sections of four battalions were also inspected during scheduled staff visits by the Brigade staff. Corrective action is being taken in all cases where discrepancies were noted.

c. Approximately 35 Security Clearances were processed during this period.

#### 6. Communications:

a. In line with the present troop reductions, creating the problem of insufficient signal personnel to maintain communications systems, USARV is putting increased emphasis on commands retaining only those circuits which are mission essential. All Defense (DCS), Integrated (ICS), and Corps (CACS) communications circuits within the Brigade were reviewed, revalidated, and assigned new restoration priorities. In all, 37 circuits were justified and retained and 4 were deactivated as no longer required.

b. A Brigade Signal Officers Conference was held during the month of December to orient newly assigned Signal Officers with the mission and

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communications requirements of the Brigade. Among those topics discussed were Battalion Communications, Frequency Allocations and Assignments and Circuit Outage Reporting. In addition, handouts were made available from the 101st Radio Research Company outlining the COMSEC assistance and advice that is available to the Signal Officers within the Brigade.

7. Brigade Surgeon: None.

8. Brigade Chaplain:

a. The approximate doubling of chapel attendance this quarter over the same quarter last year is attributed to the concerted effort by our chaplains to increase the number of worship opportunities.

b. Chaplain training conferences were held each month for Brigade Chaplains. Because of the increasing VD rate within the Brigade, the conference on 14 January 1970 was dedicated to an in-depth study of this problem.

9. Information: None

10. Maintenance: None

## SECTION II - LESSONS LEARNED

1. Personnel: None

2. Intelligence: None

3. Operations:

a. Maintenance of Forward Airfields:

(1) Observation: Numerous requirements exist to perform both hasty and deliberate airfield maintenance and repair. The response time is nearly always desired to be immediate because the airfield has been closed due to runway failures.

(2) Evaluation: The requirement normally is to remove matting, repair subgrade failures, and then either replace the matting or seal the existing surface. Job duration is usually three to four weeks and equipment needs consist of trucks, a dozer, front loader, grader and compaction equipment. Most of the airfields concerned are not accessible by land routes of communication, and airlifting of equipment and personnel is frequently required.

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(3) Recommendation: A task force organization has been developed as a means to react to this rapid response requirement. The team consists of 1 officer and 16 EM augmented with airmobile equipment. Upon arrival in the unit of the necessary equipment, this airmobile team concept will be tested and evaluated for 60 days. It is felt that this concept will be a successful solution to maintaining isolated forward airfields.

b. Distribution of Equipment Effort:

(1) Observation: Equipment hours committed to the LOC and Tactical Road Programs provide a more realistic picture of the distribution of Brigade assets than do man-hours.

(2) Evaluation: Analysis of the distribution of effort in a typical dry season week shows that 77.8 percent of Brigade equipment hours are committed to the LOC and Tactical Road Programs as compared with only 61.8 percent of the man-hours.

(3) Recommendation: The distribution of effort reporting system should be modified to include equipment hours as well as man-hours.

4. Organization: None

5. Training: None

6. Logistics:

a. Ration Control:

(1) Observation: Many problems are encountered by commanders not requiring Battalion S-4 Officers to control C-Ration Accounts.

(2) Evaluation: The Class I supply points do not maintain a balance of C-Rations on hand for our units. Due to this the control of C-Rations by our units has been lacking.

(3) Recommendation: The Battalion S-4 must keep a log of the balance on hand of C-Rations for each unit. The Brigade Food Advisor and Group Food Advisor are working with Class I Officers and Battalion S-4 Officers to insure proper command control of all rations.

b. Subsistence Support:

(1) Observation: The subsistence support provided by security forces to Engineer Land Clearing units has not been complete.

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(2) Evaluation: Problems are encountered everytime we change security forces which are responsible for subsistence support. Most of the time, bread, milk, ice cream and produce are not delivered. Other times 3 or 4 cases of C-Rations get lost between the supply point and field kitchen.

(3) Recommendation: The Battalion S-4 Section must contact the support section before the start of each operation to work out the subsistence support. The commanders and Group Food Advisor are keeping a close check of shortages of subsistence for land clearing units. The 62nd Engineer Battalion can and is providing supplies, condiments and ice not normally issued for units in the field.

c. Lift Data to USAICCV:

(1) Observation: The process of "thru-putting" materials coming into RVN directly to the using unit has been attempted with asphalt and cement.

(2) Evaluation: Lift data on vessels proceeding to RVN is given to the USAICCV which decides the quantities that will be allocated to various agencies (i.e. the Army, USAID, ARVN, etc). This headquarters is then notified of the quantity we are to receive and is asked to allocate the quantity to specific units. The breakout is then given to the ECMY Stock Control Section which is responsible for preparing the releases and sending them to the ECMY Shipping Section. The Shipping Section then prepares a TCMD and submits it to the MCC, which (sometime in conjunction with TMA) is responsible for providing transportation assets. The problem is that the lift data is normally not available until the vessel is almost in port. It is therefore very difficult for MCC or TMA to provide timely transportation assets. The materials are either offloaded and set on the docks or, if the transportation assets cannot be provided within a few days, are trucked to the ECMY Storage Yard in Long Binh. This is not acceptable because of the extra time and handling involved in a double shipment.

(3) Recommendation: That lift data be provided sooner to the USAICCV and that the entire process outlined in the above paragraph be speeded up. This would allow transportation assets to be available as soon as the vessel arrives at port.

7. Communications:

a. Observation: Frequent outages have occurred with the Amplifier, AM-3349/GRC-106.

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b. Evaluation: These outages have been attributed to the overheating caused by excessive output voltage of the DC Power Supply, PP-4763 when the amplifier is used in the teletypewriter configuration AN/GRC-142/122.


c. Recommendation: Although the AM-3349 is designed to operate at a maximum input voltage of 28.5 volts, it has been found that a setting of 27.0 volts is the most satisfactory setting. This setting has greatly reduced amplifier failure and no decrease in equipment efficiency has been noted.

8. Material: None.

9. Other: None

~~1 Incl~~

~~20th Engr Bde Troop Unit Listing~~  
Incl wd HQ; DA

  
E. T. O'DONNELL  
Colonel, CE  
Commanding

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AVHGC-DST (23 Feb 70) 1st Ind

SUBJECT: Operational Report - Lessons Learned of Headquarters, 20th Engineer Brigade for period ending 31 January 1970, RCS CSFOR-65 (R2)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 963752 6 FEB 1970

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

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

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 January 1970 from Headquarters, 20th Engineer Brigade.

2. Comments follow:

a. Reference item concerning Manpower Survey, paragraph 2a(1), page 3; ~~concur~~. USARV G3, Force Development Division, has completed the manpower utilization survey of only a portion of the 79th Engineer Group. The manpower utilization survey of the 34th Engineer Group, with the exception of the 94th Engineer Detachment (Q), was conducted at a time when their mission assignment contained a heavy vertical workload. Since that time, the primary mission assignment of the 34th Engineer Group has changed to Lines of Communications with a corresponding reduction in LMDH personnel requirements.

b. Reference item concerning critical shortages in MOS's, paragraph 2d, page 4. USARV records confirm shortages in the specific skills indicated except that the 20th Engineer Brigade is at 125 percent of authorization in MOS 62G40. MOS 00B20/30, 05B20, 05G20, 51H40, 51N40, 52A10, 62B10, 62G30, and 71T20 are equal to or above the USARV average. MOS 51C30, 51D20, 51K20, 62F30, 62D40, 76Y40, 82A10 and 94A10 are currently below the USARV average, however the reduced authorization of the brigade and programmed assets from the 1st Infantry Division under Phase III reduction will materially improve the posture in these shortages. The ~~shortage~~ of junior grade non-commissioned officers in grade E6 is being experienced throughout USARV and is expected to continue with some relief as a result of Phase III reductions. The 20th Engineer Brigade is being maintained equitably with the USARV average in captains and majors.

c. Reference item concerning Repair parts, paragraph 4d, page 7; ~~concur~~. Special efforts have been made (Project Code IMG) to provide PLL/ASL/TASL repair parts tailored for each quarry. Some units are currently receiving these parts. Similar action has been taken for MCA LOC equipment for a one time buy through USAMECOM and parts are starting to come in. It should be noted that there is no rebuild capability in-country. The Vinnell Corporation has a contract for overhaul and general support level maintenance.

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d. Reference item concerning "delays in receiving A/E surveys", paragraph 4g(2), page 9; concur. There are eleven highway restoration projects currently being constructed by engineer troop units. Construction was initiated on at least five of these projects before final design drawings were received by the constructing unit. While it is desirable to have final designs before starting construction, work can begin without them. The constructing units receive 20 percent, 50 percent and 90 percent drawings for review and comment prior to receiving the final designs, and these intermediate drawings serve as a basis for construction planning. The 20 percent (preliminary) drawings show the general alignment of the proposed road. The 50 percent drawings included the initial plan and profile sheets from which approximate earth quantities can be determined. The 90 percent drawings include nearly all the information which would influence construction planning scheduling. Of the projects started during December 1969 and January 1970, two had 50 percent drawings and one had 100 percent drawings. Ninety or 100 percent drawings on the other two were completed on 28 January and 5 February, respectively. Design time for a 20 km section road takes about 40 to 50 working days on the average and review of the drawings at each intermediate stage (20,50,90%) takes 30 to 40 days. During these reviews the brigades must field check the design and submit their comments through this headquarters to OICC. Major changes must be submitted to MACV for approval. Total design and review time approximates 170 working days. This interval is difficult to compress and still produce quality engineering work.

e. Reference item concerning "material procurement", paragraph 4g(3), page 9; concur. Failure to receive cement and asphalt would seriously impede LOC projects. Delay in procurement process resulted in cement shortages for the 2nd Qtr, FY 70. Cement is now arriving in the Republic of Vietnam in sufficient quantities to meet programmed engineer requirements. Asphalt was also delayed in procurement. Contracts now in force call for phased delivery during Feb, Mar, and Apr 70. No firm lift data is available for bulk of requirements, but quantities adequate to maintain work progression are enroute to Republic of Vietnam. Quantitative data on forecasted requirements and contracted amounts are on record, this headquarters.

f. Reference item concerning, "MACV Directive 415-6", paragraph 4g(4), page 9. MACV Directive 415-6 was sent for publication on 9 February 1970. A letter for MACDC's signature has been prepared requesting that all designs beyond the 50 percent design stage be completed and constructed IAW the former MACV Directive.

g. Reference item concerning "lift data", paragraph 3c, page 13. Concur with the recommendation concerning lift data on shipments of asphalt.

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(R2)

and cement. Analysis of this problem indicates that the shipments originating in Taiwan and Singapore are the ones for which lift data was required but not received in time for direct shipment to customer.

h. Reference item concerning frequent outages of the Amplifier, AM-3349/GRC-106, paragraph 7a, page 13. USAECOM concurs that heat is a major factor in the Mean Time Between Failure (MTBF) of this system, especially when used in the teletype configuration which is effectively continuous keying. With the power amplifier keyed, more power is used, therefore more heat.

These systems have been tested from about 26VDC to 30 BDC. The optimum voltage setting is 27.5 VDC. The PP-4763 is a highly regulated power supply which is protected from over-voltage by a Zener diode. Tests conducted here have proven that variation of input voltage, within prescribed limits, will have no noticeable effect on the MTBF as long as the air conditioning system is operating properly.

Modifications are presently being installed which include a filament regulator and other protective circuits, which will improve the heat problem, however, the system will still require an air conditioner when operated in RVN. It is suggested that all units pay particular attention to preventive maintenance on the air conditioning units. Temperature is critical.

FOR THE COMMANDER

C. E. MICHELS  
MAJ, AGC  
Assistant Adjutant General

Cy furn:  
20th ENGR BDE, APO S F 96491

GPOP-DT (12 Feb 70) 2d Ind  
SUBJECT: Operational Report of HQ, 20th Engineer Brigade for Period  
Ending 31 January 1970, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 2 MAR 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:

*C. L. Shortt*  
C. L. SHORTT  
CPT, AGC  
Asst AG

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