<table>
<thead>
<tr>
<th>AD NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD855561</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LIMITATION CHANGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>TO:</td>
</tr>
<tr>
<td>Approved for public release; distribution is unlimited. Document partially illegible.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FROM:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution authorized to U.S. Gov't. agencies and their contractors; Administrative/Operational Use; 17 JUL 1969. Other requests shall be referred to Army Assistant Chief of Staff Force Development, FOR-OT-UT, Washington, DC 20310. Document partially illegible.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AUTHORITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ago ltr dtd 29 apr 1980</td>
</tr>
</tbody>
</table>

THIS PAGE IS UNCLASSIFIED
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.
DISCLAIMER NOTICE

THIS DOCUMENT IS BEST QUALITY AVAILABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.
IN REPLY TO
AGAM-P (M) 14 Jul 69 FOR OT UT 692319

17 July 1969

SUBJECT: Operational Report - Lessons Learned, Headquarters, 169th Engineer Battalion, Period Ending 30 April 1969

SEE DISTRIBUTION

1. Subject report is forwarded for review and evaluation in accordance with paragraph 3b, AR 525-15. Evaluations and corrective actions should be reported to AGIFOR 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
Major General, USA
The Adjutant General

1 Incl

as

DISTRIBUTION:

Commanding Generals
US Continental Army Command
US Army Combat Developments Command
Commandants
US Army War College
US Army Command and General Staff College
US Army Engineer School

Copies furnished:
Office, Chief of Staff, US Army
Deputy Chiefs of Staff
Chief of Research and Development
Assistant Chiefs of Staff
Chief of Engineers
CG, US Army Flight Training Center
Commandant of the Marine Corps
Defense Documentation Center

Protective marking cancelled when separated from Inclosure.

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
ASSISTANT CHIEF OF STAFF FOR FORCE DEVELOPMENT
(ARMY) ATTN FOR OT UT WASHINGTON, D.C. 20310

FOR OFFICIAL USE ONLY
DEPARTMENT OF THE ARMY
Headquarters, 169th Engineer Battalion
APO San Francisco 96491

EGSE-3 9 May 1969


Section I. Operations. Significant Activities.

1. Command.
   a. Unit Employment: The 169th Engineer Battalion is located on Long Binh Post, Republic of Vietnam, and is commanded by LTC Clifford C. Flanigan.
   
   b. Mission: The mission of the 169th Engineer Battalion is to construct and rehabilitate roads and airfields, pipeline systems, structures, and utilities; to provide combat and operational support and to assist in emergency recovery operations as directed by the 159th Engineer Group. In addition to the TO&E mission as stated above, the Commanding Officer of the 169th Engineer Battalion is designated as subsector commander and has the responsibility for the security of Long Binh Post in his subsector. The subsector responsibility includes a 1700 meter portion of the Long Binh Post perimeter.
   
   c. Area of Responsibility: The 169th Engineer Battalion's area of responsibility includes the provinces of Binh Tuy, Long Khanh, Phuoc Tuy, and portions of Bien Hoa Province. Additional responsibilities include missions in the Long Binh/Bien Hoa complex and bridge contingencies in the Capitol Military District.
   
   d. Attachments and Detachments: Currently the 169th Engineer Battalion has seven attached units. They are the 43rd Engineer Company (DT) (4 officers and 109 EM authorized), the 22nd Engineer Detachment (MD) (2 EM), 38th Engineer Detachment (MD) (2 EM), 156th Engineer Detachment (MD) (2 EM), 551st Engineer Detachment (MD) (2 EM), 917th Engineer Detachment (MD) (2 EM), and one earthmoving platoon (1 officer, 25 EM) from D Company, 92nd Engineer Battalion. The 92nd Engineer's platoon was attached to D Company, 169th Engineer Battalion, on 15 March 1969, for the purpose of assisting in the LOC construction of National Highway 20.

FOR OFFICIAL USE ONLY

692319

FOR OFFICIAL USE ONLY

e. Movements and Location: Headquarters Company, A Company, and the 43rd Engineer Company (DT) continue to be located at Long Binh Post in the 169th Engineer Battalion cantonment area. B Company is based at Xuan Loc, with one platoon at Ham Tan. C and D Companies each maintain their headquarters and a platoon (−) on Long Binh Post, with the bulk of their personnel located at two separate base camps situated along National Highway 20.

2. Personnel, Administration, Morale, and Discipline.

a. Personnel.

(1) The 169th Engineer Battalion remains organized under TO&E M5-115G type B w/augmentation, and has a total authorized strength of 42 officers and 681 enlisted men. Its major attached unit, the 43rd Engineer Company (DT) is organized under TO&E 5-1240 with a total assigned strength of 4 officers and 109 enlisted men. The personnel strengths of the 169th Engineer Battalion and attached units for the reporting period are as follows:

(a) February 1969 (as of last day of the month)


<table>
<thead>
<tr>
<th></th>
<th>OFF</th>
<th>WO</th>
<th>EM</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorized</td>
<td>37</td>
<td>9</td>
<td>800</td>
<td>846</td>
</tr>
<tr>
<td>Assigned</td>
<td>35</td>
<td>7</td>
<td>898</td>
<td>940</td>
</tr>
</tbody>
</table>

(b) March 1969

 Authorized | 37  | 9  | 800 | 846   |
 Assigned    | 36  | 8  | 904 | 948   |

(c) April 1969

 Authorized | 37  | 9  | 800 | 846   |
 Assigned    | 36  | 8  | 853 | 897   |

NOTE: Above strengths are exclusive of the attached platoon of the 92nd Engineer Battalion.

(2) As of 30 April 1969 the Battalion, with attached units, was 1% overstrength. However there is an imbalance in MOS strength.

(a) Two significant MOS overstrengths are 64B Heavy Vehicle Driver (47 assigned, 31 authorized) and 51B Carpenter (79 assigned and 56 authorized).
FOR OFFICIAL USE ONLY

9 May 1969


(b) Significant areas of understrength include construction supervision, and maintenance. These include:

<table>
<thead>
<tr>
<th>RON</th>
<th>DESCRIPTION</th>
<th>REE</th>
<th>ASSIGNED/AUTHORIZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>62D</td>
<td>Mason</td>
<td>E-4</td>
<td>4/13</td>
</tr>
<tr>
<td>62K</td>
<td>Plumber</td>
<td>E-4</td>
<td>10/39</td>
</tr>
<tr>
<td>62N</td>
<td>Const Foreman</td>
<td>E-5</td>
<td>2/7</td>
</tr>
<tr>
<td>62N</td>
<td>Const Mach Supervisor</td>
<td>E-5</td>
<td>2/7</td>
</tr>
<tr>
<td>62H</td>
<td>Eng Equip Spec</td>
<td>E-4,E-5</td>
<td>2/32/38</td>
</tr>
<tr>
<td>64G</td>
<td>Med Tech in Spur</td>
<td>E-4</td>
<td>15/19</td>
</tr>
<tr>
<td>64K</td>
<td>Gov Vehicle Span</td>
<td>E-5</td>
<td>2/7</td>
</tr>
<tr>
<td>71T</td>
<td>Field Radio Spec</td>
<td>E-4</td>
<td>3/7</td>
</tr>
</tbody>
</table>

(2) The imbalance results in the use of inexperienced personnel to fill the required slots. For example senior equipment operators are used to fill construction foremen slots, and heavy equipment repairman slots.

b. Morale: Morale has remained high throughout the reporting period for the battalion as a whole. This is evident by the low rate of disciplinary actions and high number of extensions (75). The factors which contribute to high morale in the battalion include: softball, basketball, volley ball and football activities; movies in the battalion theater and base camps; a modern NCO-EM club with regularly scheduled entertainment; officers club; and a battalion chapel. Factors which inhibit the promotion of high morale include: (1) a heavy construction load with little time off during the dry construction season, and (2) a heavy guard duty commitment due to Long Binh Post defense requirements and remote unit base camp defense.

R&R allocations for the 169th Engineer Battalion average 65 leaves per month for out-of-country locations. The battalion receives three allocations to Vung Tau per month. While out-of-country allocations are deemed adequate to accommodate personnel in this battalion, additional in-country allocations could be used to reinforce the incentive awards program.

d. Awards. During this reporting period the men of this battalion received 5 Army Commendation Medals, 13 Bronze Stars, and 11 Purple Hearts. In addition there are 17 ACM's, 10 Bronze Stars, and 18 20th Brigade Certificates of Achievement pending.

e. Intelligence and Counterintelligence. The battalion has experienced few combat intelligence functions during the reporting period. Our main sources of intelligence data include a daily SITREP from II Field Force Vietnam, a Long Binh Post Intelligence Bulletin, and a SITREP from Long Kanh Province which enables us to pinpoint enemy activity in our area of responsibility. Two areas of engineer reconnaissance have been performed by this battalion. A periodic recon is made of the four bridges in the Capital Military District (Saigon) for which this battalion retains contingency plans. Aerial and ground recons were also made by this unit and higher headquarters to find possible quarry locations along National
SUBJECT: Operation Report of 169th Engineer Battalion, APO 96491, for Period Ending 30 April 1969

highway 20. As a result of these recon a crusher unit is now operating at Phu Tho on National Highway 20.

Training. Nearly all training of a formal nature has been conducted on Sunday mornings and Tuesday evenings. At these times mandatory DA and USARV subjects, troop information, and commander's lectures are presented. All new arrivals also receive battalion and company level orientation briefings soon after their arrival. Training is periodically conducted for personnel manning perimeter bunkers to include instruction on starlight scopes, claymore mines, fire discipline, alert systems, individual weapon training, and fire plans.

3. Enemy related Activity. During this period operations by C and D Companies on National Highway 20 were hampered by the continued presence of hostile forces. Thirty-nine company construction days have been lost during this period due to the enemy presence.

a. on 26 March 1969 D Company construction personnel were ambushed on highway 20 by a numerically superior force. A firefight ensued for approximately 3 hours during which four pieces of equipment were damaged, and one U.S. personnel wounded. Countermeasures were taken to include artillery and air strikes, and a final sweep of the area.

b. At 0200 on 15 March 1969 C Company base camp came under attack. During this attack the base camp received 25 8-40 rockets, 5 60mm mortar rounds, and an unknown number of grenades. In the ground attack that followed the VC broke through the perimeter wire but were stopped at the interior barn. The attack terminated at 0500 hours. Casualties included 4 VC KIA, 1 VN KIA, 2 VC WIA, 2 VN-WIA. On the following night the VC launched a stand off attack with 30-40 mortar rounds. There was no damage nor casualties.

c. At 2310 hours on 11 April 1969 34 mortar rounds were received at the C Company base camp. No casualties or damages resulted.

d. At 0200H 23 Feb 69 the 169th Engineer Battalion cantonment area and that portion of the Long Binh Post perimeter defended by the 169th came under rocket/mortar attack. Approximately 8-12 rocket rounds landed in the battalion area in the initial phase of the attack. A counter rocket/mortar plan was initiated.

At approximately 0230 hours a ground attack was launched against the 169th Engineer Battalion portion of the perimeter by an estimated 200-man force. Reaction forces of the 169th Engineer Battalion and of other units were deployed to the area. Infantry units, armor, artillery, and gunships became involved in the defense of the area.

The attack terminated at approximately 0630 hours. Casualties included 8 wounded in the 43rd Engineer Company. No damages were suffered in the battalion cantonment area. 21 enemy were confirmed killed during the action.
FOR OFFICIAL USE ONLY


a. Projects completed during reporting period:

(1) Combat and Operational Support:

(a) 159-68-262 Well at Nui Pa Ben Quarry, A Company, 169th Engineer Battalion. Well was drilled to a depth of 180 feet. Steel casing was installed. Project was cancelled due to lack of water. Starting date: 6 March 69. Completion date: 20 April 69.

(b) 159-68-262 Well at Nui Pa Ben Quarry, A Company, 169th Engineer Battalion. Well was drilled to a depth of 45 feet. Steel casing was installed. Project was cancelled. Starting date: 10 Jan 69. Completion date: 21 April 69.

(c) 159-68-604 Well at Dien Hoa Quarry, A Company, 169th Engineer Battalion. Well was drilled to 27 feet. Project was discontinued due to large rock formations. Starting date: 16 Jan 69. Cancellation date: 25 Feb 69.

(d) 159-69-050 Mine Clearing, Han Tan, B Company, 169th Engineer Battalion. Project consisted of clearing a minefield near a MACV compound. Field was hand swept and probed, then cleared with a D/2 dozer. Starting date: 4 Mar 69. Completion date: 7 Mar 69.

(e) 150-68-200 Hawk Compound, C Company, 169th Engineer Battalion. Erected a 20' steel observation tower. Installed a red obstruction light on a previously constructed 60' tower. Completion date: 16 April 69.

(f) 159-407, Newport Bridge Lighting, C Company, 169th Engineer Battalion. Lighting was transferred to contractor. Temporary floodlighting was installed, and weekly inspections were made. Permanent lighting completed on 15 March by contractor. Temporary lights removed. Completion date: 15 March 69.

(g) 289-5407-0-20, Maintenance Revetments, C Company, 169th Engineer Battalion. Constructed 5 aircraft revetments, 6' high, 50' long. Starting date: 1 March 69. Completion date: 15 March 69.

(h) 68-159-163, USARV Dat- Service Center Revetments, D Company, 169th Engineer Battalion. Assembled 765 linear feet of 9' high revetments filled with laterite. Reinforced concrete was used for the revetment sides and 3' of concrete was placed on top. Starting date: 20 Oct 69. Completed 10 Feb 69.

FOR OFFICIAL USE ONLY
SUBJECT: Operation Report of 169th Engineer Battalion, APO 9649 for Period Ending 30 April 1969

FOR OFFICIAL USE ONLY

9 Mar 1969

(2) LOC.

(a) B59-69-002, Paving Bearcat Access Road, A Company, 169th Engineer Battalion, 26,660 sq. was paved, completing 3,566K of road. Starting date: 8 Mar 69. Completion date: 27 March 69.

(b) 46-206-02-T-68 Paving Long Thanh Airfield, A Company, 169th Engineer Battalion, 2.0 miles of road were paved, for 14,080 sq. Starting date: 27 Jan 69. Completion date: 12 April 69.

(c) 98-231-LC-A59, North Saigon Bypass, A Company, 169th Engineer Battalion, 5.4 miles of single lane were paved for 38,036 sq. Starting date: 15 Jan 69. Completion date: 6 March 69.

(3) MER

159-68-023, MER for 54th Artillery Group, D Company, 169th Engineer Battalion. Assembled 8 pairs of laterite-filled revetments, 4 high x 40' long. Kaiser Steel Corporation %-"All" were used with a %" concrete cap placed on top. Starting date: 28 Jan 69. Completion date: 24 March 69.

(4) Base Construction

(a) 43-365-01, USARV Stockade, C Company, 169th Engineer Battalion, Project partially completed by other unit. Constructed one 20' x 108' billets and one water tank. Completion date: 3 April 69.


(c) 43-353-01 15th MP Brigade Billets and Admin/Supply Building, C Company, 169th Engineer Battalion. Project called for construction of three 20' x 108' billets and one 20' x 48' Pasco admin building. Forms were placed. Project was cancelled. Cancellation date: 7 April 69.

(d) 73-223-01-T-75, 493 Man Cantonment, Saigon, D Company, 169th Engineer Battalion. Constructed nine 2-story, 20' x 108', tropical wood buildings for the 92nd MP Battalion. Six were used entirely for troop billeting; three were used for both troop billeting and administration. All buildings were constructed with concrete slabs.

b. Active Projects

(1) Combat and Operational Support:

(a) 159-68-006, 'Yell at 160th Signal, A Company, 169th Engineer

FOR OFFICIAL USE ONLY
FOR OFFICIAL USE ONLY

SUDJÄT; Operation Report 169th Engineer Battalion, APO 96491 for Period Ending 30 April 1969

Battalion, Well was drilled to a depth of 79 feet, with 65 feet of casing. Formation was rock. Starting date: 21 April 1969.

(b) 509-0302-0-01, Well at Xuan Loc, A Company, 169th Engineer Battalion. Well is being wired to determine capacity. Drilling will begin pending results of surge test. Starting date: 7 May 1969.

(c) 269-3160-504, Revetments, C Company, 169th Engineer Battalion. Original project called for the construction of 12000 LF of revetments around the billets of B Company # 3 on Long Binh Post. The scope was increased to include 18,000 LF. 600 LF remain to be filled and capped. Project is 86% complete. Expected completion date: 30 May 1969.


(e) 263-3114-1-23, Long Binh Post Defense, C & D Companies, 169th Engineer Battalion. Project authorizes repair and upgrade of AIF perimeter fences in 169th subsector. Perimeter fence was repaired, RPG standoff fences were installed, trip flares were placed, claymores cemented in place, and latrines constructed. This project is continuous.

(2) LOC

(a) 43-331-15-T-75, Long Binh Post Pavement, A & D Companies, 169th Engineer Battalion. No paving has been accomplished this reporting period. Project is presently 55% complete.

(b) 98-260-159-LOC, 1-20 Restoration; A, B, C, and D Companies, 169th Engineer Battalion. Project requires clearing, ditching, installation of drainage structures, and surfacing of 58 kilometers of National Highway 20 in Long Khanh Province. At this time approximately 5 KM of road has been raised to MACV Standard, and another 25KM has been resurfaced or repaired. Approximately 16 drainage structures have been replaced and/or constructed, and 29 culverts have been upgraded. 55% of a 60' steel stringer bridge has also been accomplished. The project is 55% complete. Estimated completion date: 21 July 1969.

(3) NER = None

(4) MACV Advisor Facilities.

43-359-01 MACV Advisor, Ham Tan, B Company, 169th Engineer Battalion. Scope of work completed this period includes one 20' x 36' Commo bunker, one 20' x 36' billet, one 20' x 161' billet and the removal of an old security fence and the installation of a new one.

FOR OFFICIAL USE ONLY
FOR OFFICIAL USE ONLY

SUBJECT: Operation Report of 169th Engineer Battalion, DIO 964.91 B.
Period Ending 30 April 1969.

(5) Base Construction,

(a) 07-234-01-7S, 175th Radio Research Building, C Company, 169th Engineer Battalion. During this period, security lighting was installed, a 801 guard tower was erected, and steel doors and locks were installed in the operations building. Project is being inspected pursuant to acceptance on 135.

(b) 89-206 Cantonment Facilities Blackhorse, C Company, 169th Engineer Battalion. Service club facility was restarted on 14 April 69. Ceiling has been completed. All paneling, plumbing, and electrical portions remain. Completion date: 14 July 69.
Twenty-five maintenance buildings are required. Seven have been completed, seven have been framed, and ten of the concrete pads have been poured. This portion of the project is on a self-help basis. Project is 25% complete.

(c) 89-205 Aircraft Maintenance Hanger Blackhorse, C Company, 169th Engineer Battalion. The 10,1 Maintenance Hanger Facility of the project was completed on 1 April 69. Additional facilities include an operations building and wash aprons. Latter portion of project is to be done on a self-help basis.

(d) 07-240-01-7S Water Supply Facilities, Bien Hoa, D Company, 169th Engineer Battalion. Project consists of 2 water storage tanks and towers, and a water treatment facility. The well has been drilled, both towers are nearly complete, and one tank has been assembled. Project is 45% complete. Estimated completion date: 30 Jun 69.

(e) 07-241-01-7S Water Supply Facilities Bien Hoa, D Company, 169th Engineer Battalion. Project consists of 2 wells with 3 water storage tanks with steel towers, and two water treatment facilities. Two water tanks with towers and one water treatment facility near completion. Project is 66% complete. Estimated completion date: 30 Jun 69.

(2) Continuous.


(6) Projects Pending.


(2) 359-01-159 Well Drilling at Pan Tan, A Company, 169th Engineer Battalion.
FOR OFFICIAL USE ONLY


(3) 43-396-01 Well Drilling at Tanh Linh, A Company, 169th Engineer Battalion.

(4) 66-26-6, Airfield Maintenance, B Company, 169th Engineer Battalion, Continuous.


(6) 6-309, 30K BT Tower Plant Xuan Loc, B Company, 169th Engineer Battalion.

(7) 3-343, 566th Field Depot, C-8 Area, A Company, 169th Engineer Battalion.

(8) 3-369, LCT Maintenance, 169th Engineer Battalion.

(9) 743-0331, NACV Advisor Facilities, C Company, 169th Engineer Battalion.

(10) 305-0332, NACV Advisor Facilities, B Company, 169th Engineer Battalion.

(11) 743-0302, NACV Advisor Facilities D Company, 169th Engineer Battalion.

Section II. Significant Lessons Learned.

1. Personnel: None

2. Operations:

   a. Establishing long range radio communications:

   (1) Observation: The normal operating range of the VRC-46 does not allow direct radio contact between Long Binh Post and the base camps of this unit's out lying companies.

   (2) Evaluation: This problem was encountered when C and D Company moved to base camps on National Highway 20. It was necessary to establish communications from the Battalion Command Post to the Company Command Posts so a relay station was set up in a location where loud and clear communications for all stations can be achieved. The relay station is manned 24 hours per day.

   (3) Recommendations: In addition to the relay station with an operator on duty at all times a retransmission unit could be installed which would allow the commander direct, responsive contact with the men on the job. With this direct contact there is little chance that the commander's tone, urgency, and message content will be lost during the relay process.

FOR OFFICIAL USE ONLY
b. Shoulders on National Highway 20.

(1) Observation: Many failures of asphalt concrete pavement occur at the edge as a result of water standing on the shoulder or in some other manner seeping under the pavement edge.

(2) Evaluation: If the roadway is properly compacted, crowned and sealed the problem of standing water and seepage under the edges of the asphalt concrete is minimized.

(3) Recommendation: The shoulders as well as the base course be shot with asphalt to keep water proof the surface and lengthen the life of the road. This procedure also presents a pleasing road appearance and aids in holding down the dust.

c. Utilization of a Grid Roller in Base Preparation:

(1) Observation: In ripping the old French stone base course in preparation for final base work for paving on IL-20, numerous problems arose in obtaining the finished surface. Large stones were appearing on the surface which tended to ravel or required pans to bring in additional binder material to cap the surface.

(2) Evaluation: That after ripping and scarifying, graders working to shape the crown and shoulders, in moving material back and forth across the road were losing all the fines, with the larger rock remaining on the surface.

(3) Recommendation: Utilization of the Grid Roller in conjunction with water and the grader resulted in breaking the larger stone or driving it down into the base. With no outside material being added to the rock, more water could be added without the base turning soft. With the additional moisture to retain fines plus the larger stone driven down, no additional binder material was required. This provided a durable base course for paving.

d. Crusher Operations:

(1) Observation: That rock that has been exposed to rain and mud filled will not efficiently go through the crusher.

(2) Evaluation: That if some dewatering method can be found, effective operations can continue.

(3) Recommendation: A 1,000 gallon water distributor with hose was used to periodically clean the shaker box and waste chute. The mud did require the divider screen below the shaker box to be removed resulting in a small loss of fines. However, the material off the waste conveyor proved to be excellent fill material and was utilized as such.
e. Using sand as fines material in Asphalt Concrete

(1) Observation: The use of sand as fines material often causes production time to increase and increases the possibility of bad loads.

(2) Evaluation: A bad situation occurs when the sand being used is especially wet. If the mix is made in the moist sand and is not properly dried a bad load will result.

(3) Recommendation: Fine crushed rock be used instead of sand in the proper proportions with 3/8" (-) aggregate to insure a tight, water proof, durable wearing surface of asphalt concrete.

f. Using a front loader and a series of barrel hooks to move barrels of asphalt from one location to another.

(1) Observation: Standard barrel hooks like the ones used on cranes do not facilitate movement of barrels at the rate necessary to stay ahead of need.

(2) Evaluation: When off loading many barrels at a rapid rate it is definitely advantageous to stack the barrels neatly as they are taken from the truck. This is not always possible and barrels end up scattered from here to there.

(3) Recommendation: Special barrel hooks which are adaptable to a front loader can be made and used to great advantage. As many as nine hook arms can be made allowing the off loading of 9 barrels at a time, decreasing overall time of operation.

g. Use of percussion type well drilling rigs in hard rock formations.

(1) Observation: Drill bits on percussion type well drilling rigs become dull and splayed in a short time when drilling through hard rock formations.

(2) Evaluation: When drill bits become dull and splayed the drilling efficiency of the rig goes down. In hard rock this problem is more acute because of the rapid deterioration of the bit. It is necessary to dress and or change the bit frequently, but well dressed bits soon become scree and forges for dressing the dull bits are not available. A situation which usually results in an abandoned hole is created, then, if the proper tools and forges were available the hole could be continued in search of a good aquifer.

(3) Recommendation: That a bit dressing forge be made part of the TOE equipment of each well drilling detachment and instructions given on how to use it.

h. Subgrade stabilization where a high water table exists.
FOR OFFICIAL USE ONLY


(1) Observations: A high water table at drainage structure No. 5 on National Highway 20 caused a major subsurface failure.

(2) Evaluation: At one point in the construction operations it was noted that when a 35 ton pneumatic tired roller was rolled over this section the soil rolled up in front of the wheels, depressed, and surged back after this work had been completed. The more it was rolled the worse it became. It was decided to excavate and back fill with a clean granular material of small enough size to provide a filter blanket over the saturated soil and of high enough design CBR to provide a good subgrade. It was decided that river sand would do the job.

(3) Recommendations: Because of the high water table at this location, drains were installed through out the fill. Perforated pipe was employed in a trench and packed with gravel aggregate, and the remainder of the excavation was back filled with sand. It is felt that this procedure is sound and is recommended for similar situations.

3. Training

a. NEC LCC Equipment operator training.

(1) Observation: This battalion is receiving a number of pieces of civilian construction equipment on an Army equipment buy program. In nearly all cases the equipment is being operated by personnel with no experience on that particular type or make of equipment.

(2) Evaluation: In the course of construction operations, one of the engineers was reduced to an experienced operator of the same type of equipment. For example, the operator of an Army T-6 10 ton roller may, with a minimum amount of check-out time, be fully capable of operating and maintaining a civilian purchased 8-12 ton roller. On the other hand, an attempt to convert a tractor operator to a roller operator, while producing a capable operator, may not necessarily result in a man trained to maintain that type of equipment.

(3) Recommendations: Where possible, personnel to be utilized on new, civilian-purchased equipment should be drawn from operators of similar types of equipment. This method requires minimum amount of CBT. Where this is not possible, the individual to operate the equipment must be given instruction on operator maintenance in addition to operation of the equipment.

4. Organization.

Organization of an engineer construction battalion to expend a majority of their effort on the construction of Class A high-ways.
FOR OFFICIAL USE ONLY

EGBE-3


9 May 1969

(1) Observation: The organization of an engineering construction battalion is based on three identical units with three identical capabilities. A battalion committed to highway construction essentially has one job that can be broken down into several distinct parts each different from the other.

(2) Evaluation: If an engineer construction battalion were to approach a highway job from a TOE-organization standpoint they would have to operate on three separate fronts. Effort would be duplicated and the units would be in competition for spare parts, equipment and personnel. If the battalion were broken down into a task force organization where there was an embankment and excavation task force, a grading and compaction task force, a paving task force, a hauling task force, and vertical construction task force, more efficient operations would result. The job would be able to progress from one operation to another and spare parts equipment and personnel would generally be peculiar to each task force thus minimizing internal competition and maximizing organized maintenance.

(3) Recommendations: That engineer construction battalions that are committed to highway restoration and upgrading consider reorganization into task forces to enhance their overall capability and efficiency.

5. Intelligence: None

6. Logistics: None

7. Other: None

DISTRIBUTION:

15 - CO, 159th Engr Gp, ATTN: EGB-3, APO 96491
2 - USARPAC, ATTN: GPOP-DT
6 - CG, USARV, ATTN: AVHGC (DST)
4 - CO, 20th Engr Bde, ATTN: AVH-06
10 - CO, 169th Engr Bn, ATTN: EGBE-3, APO 96491

FOR OFFICIAL USE ONLY
MAN: 169th Engineer Group, 15 May 1945

To: Commander, 169th Engineer Group

1. Submitted in accordance with the V111.07-25, dated 12 April 1945.

2. Reference: Section I, paragraph 3 (v), page 7. The figures on overstrength in (f) to Heavy Truck Driver 11 (6 assigned, 41 authorized). More correction figures include the 431 Eng Bn (2) which was omitted in the basic letter. The battalion figures shown on the basic letter indicate an overstrength due to a partial reduction in authorization in this area. As personnel relate the assigned total will approach the authorized number. It should be pointed out, however, that the heavy truck drivers have been civilians, but the group has been able to fill only a small percentage of authorized positions. As a result heavy truck drivers are a critical lack item.

3. Reference: Section I, paragraph 4 (b), page 13. Construction battalions are suited for a variety of missions, one of which is lines of communication restoration and upgrade. However, instead of establishing a task force or modification to a battalion in order to best suit a specific mission, augmentation with appropriate special purpose units such as dump trucks and light equipment companies is more effective and flexible.

4. Subject report for the 169th Engineer Battalion (Construction) has been reviewed and is considered adequate.

[ Signature ]

MAN: W.D. DEWEY

Jt., 169th Bn

To: Commander, 169th Engineer Group
AVBI-05 (15 May 69) 2nd Ind
SUBJECT: Operational Report for 169th Engineer Battalion (Const)
for Period Ending 30 April 1969, RCS CSFOR-65(R

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

1. Submitted in accordance with USARV Regulation 525-15, dated
13 April 1968.

2. Subject report for the 169th Engineer Battalion (Construction)
has been reviewed and is considered adequate.

FOR THE COMMANDER:

J. J. MONTGOMERY
Major, AGC
Adjutant

Copies Furnished:
CO, 159th Engr Gp
CO, 169th Engr Bn
SUBJECT: Operational Report of 169th Engineer Battalion for Period Ending 30 April 1969

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

1. This headquarters has reviewed the Operational Report—Lessons Learned for the quarterly period ending 30 April 1969 from Headquarters, 169th Engineer Battalion.

2. Reference ia ea concerning use of percussion type well drilling rigs in hard rock formations, section II, page 11, paragraph 2(g); concur. However, presently a MTOE for USARV Well Drilling Detachments is being finalized that will satisfy this requirement by authorizing a new Drilling Machine, Well, Combination, Semi Trailer Mounted (FSN 3820-901-1337). As an interim solution, a bit dressing forge can be fabricated from locally available material as prescribed in TM 5-297. Unit will be advised of above comment.

FOR THE COMMANDER:

Cy furn:
169th Engr Bn
20th Engr Bde

W. C. ARNIZ
CPT, AGC
Assistant Adjutant General
GPOP-DT (9 May 69) 4th Ind

SUBJECT: Operational Report of HQ, 169th Engr BN for Period
Ending 30 April 1969, RCS CSFOR-65 (R1)

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

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

This headquarters has evaluated subject report and forwarding indorse-
ments and concurs in the report as indorsed.

FOR THE COMMANDER IN CHIEF:

D A TUCKER
CPT. AGC
ASST AG
### Operational Report - Lessons Learned, Hq, 169th Engineer Battalion

Experiences of unit engaged in counterinsurgency operations, 1 Feb 69 to 30 Apr 69.

**CO, 169th Engineer Battalion**

<table>
<thead>
<tr>
<th>9. REPORT DATE</th>
<th>10. TOTAL NO. OF PAGES</th>
<th>11. NO. OF REFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 May 1969</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

N/A

<table>
<thead>
<tr>
<th>11. SUPPLEMENTARY NOTES</th>
<th>12. SPONSORING MILITARY ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>OACSFOR, DA, Washington, D.C 20310</td>
</tr>
</tbody>
</table>

13. ABSTRACT

18