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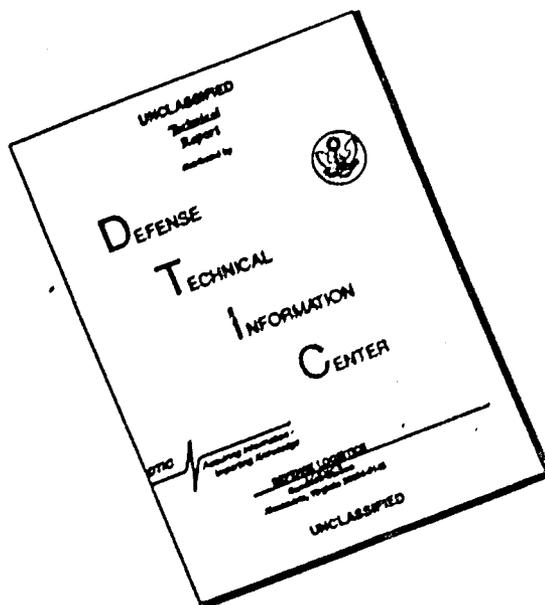
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DEPARTMENT OF THE ARMY
OFFICE OF THE ADJUTANT GENERAL
WASHINGTON, D.C. 20310

IN REPLY REFER TO

AGAM-P (M) (8 Jan 68) FOR OT RD-674010

10 January 1968

SUBJECT: Operational Report - Lessons Learned, Headquarters, 169th Engineer Battalion (Const), Period Ending 31 October 1967

TO: SEE DISTRIBUTION

1. Subject report is forwarded for review and evaluation by USACDC in accordance with paragraph 6f, AR 1-19 and by USCONARC in accordance with paragraph 6c and d, AR 1-19. Evaluations and corrective actions should be reported to ACSFOR OT 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

1 Incl
as

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HEADQUARTERS
169TH ENGINEER BATTALION (CONSTRUCTION)
APO 96491

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SUBJECT: Operational Report-Lessons Learned (RCSCSFOR-65) for Quarterly
Period Ending 31 Oct 67

THRU: Commanding Officer
159th Engineer Group (Construction)
APO 96491

Commanding General
20th Engineer Brigade
ATTN: AVPI-OPN
APO 96491

Commanding General
US Army Engineer Command Vietnam (Prov)
ATTN: AVCC-BC
APO 96491

Commanding General
United States Army Vietnam
ATTN: AVAGC-DH
APO 96875

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

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

SECTION 1, Significant Organization or Unit Activities

1. Command:

a. Unit Employment: The 169th Engineer Battalion (Const) is located on Long Binh Post, South Vietnam and has been commanded by LTC William R. Wray since 1 May 1967. The unit is primarily employed non-tactically and generally operates from its centrally located base camp at Long Binh.

b. Mission: The mission of the 169th Engineer Battalion is to perform engineer construction and provide combat support as directed by the 159th Engineer Group. The construction effort is utilized in support of both U.S. and Vietnamese forces.

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c. Area of Responsibility: The 169th Engineer Battalion has the responsibility for construction support for portions of Long Binh, Long Thanh, the Saigon Military District and the Bien Hoa complex. Additionally, the battalion has the mission to provide combat support for areas designated by the 159th Engineer Group. This support requires work within the 1st Infantry Division area and near Vung Tau.

d. Attachments or Detachments: Currently the 169th Engineer Battalion has one unit, the 43rd Engineer Company (DT) attached. The 43rd Dump Truck Company has an authorized strength of 108 EM and Officers. At the beginning of the next quarter, a two-man well drilling team will be attached for an indefinite period.

e. Unit Operations: All unit activities are described in the functional section elsewhere in this report.

f. Movements: Upon completion of the aircraft hangar at Bearcat, one platoon of Company B moved back on 19 August and began work from our Long Binh Base Camp. Delta Company returned its platoon from Nha Be on 30 August and set them to work on the GOQ at Long Binh Post. From 4 September thru 28 September, the entire 43rd Dump Truck Company moved to Di An for support of the 1st Infantry Division. A portion of the horizontal platoon from D company provided assistance to the Long Thanh Airfield project by moving to Bearcat on 5 October.

2. Personnel, Administrative, Morale and Discipline:

This unit is organized under TO&E-115E with the attachment of one Dump Truck Company. This provides a total of 42 Officers and 971 enlisted men. Although the change from the Delta Series TO&E was effective in June 1967, the transformation to the Echo Series remains incomplete. The rotational change of individuals has provided insufficient personnel to fill the requirements of the new TO&E, particularly in the maintenance section of A Company.

The personnel strengths of the 169th Engineer Battalion and attached company are as follows:

a. 31 August 1967:

	<u>OFF</u>	<u>D</u>	<u>EM</u>	<u>TOTAL</u>
AUTHORIZED	35	7	971	1013
ASSIGNED	29	7	995	1031

b. 30 September 1967:

AUTHORIZED	35	7	971	1013
ASSIGNED	35	7	984	1026

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c. 31 October 1967:

AUTHORIZED	35	7	971	1013
ASSIGNED	36	7	932	975

d. As of 31 October the battalion was 96.2% of total strength. Although the battalion is understrength, there are few personnel problems. The following MOS shortages continue to exist:

(1) 52F Electricians. Electrical work continues to increase in quantity as we now have over 150 various buildings to wire for self help customers in addition to two 500 man mess halls, two 250 man mess halls, seven two-story BOQ's, one microwave building, a radio research structure and all of the remaining buildings within our own cantonment. There is no electrical training school in this area and those personnel must come from rotational procedures. At present we have only 13 of 37 authorized electricians within the battalion. Of these, approximately one half are school trained.

(2) 51H Construction Foreman. Currently we have only 19 of 30 authorized construction foreman. This has seriously hampered our day and night operations because qualified supervisors must be present for all projects. The utilization of senior specialists aids in solving this problem but in turn caused a shortage of qualified equipment operators.

(3) The shortage of surveyors reported last period has been completely alleviated and our capability in this field is satisfactory.

(4) There are no officer shortages at this time.

e. During this period there have been 82 extensions of tours of duty in Vietnam, indicating the high morale of this unit. Among this number have been 3 officer extensions. Additionally, there are 10 EM and one officer extension still pending.

f. The 169th Engineer Battalion receives an average of 60 or 70 R&R leaves a month, well distributed to the various R&R centers out of country. These have been sufficient to enable all those desiring to take R&R to do so. However, this organization could utilize additional in-country R&R's. Currently we receive about 4 a month which are utilized for Soldier of the Month and other awards.

g. Efforts to maintain high morale within the unit appear to be successful as extensions are high and disciplinary problems few in number. A nightly theater and/or floor show, softball and football on a lighted field, basketball and volleyball all contribute to high morale. The 169th Engineer Battalion football team recently won the Long Binh Post Tournament and is preparing to represent this post in the USARV tournament. A new NCO-EM Club is under construction and will greatly enlarge the facilities available to the members of this unit. The Battalion Chapel, constructed by members of all companies in the battalion is scheduled for dedication in early November.

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h. Awards: During the reporting period the men of this battalion have received eight Bronze Stars, Thirteen Army Commendation Medals, one Purple Heart, eight Engineer Command Certificates of Achievement and several letters from superiors and recipients of our constructive efforts. Most significant was the approval by US ARV General Order 5194 on 10 October 1967 of the Meritorious Unit Citation for this battalion for the period from May 1966 to May 1967. The approval was forwarded to DA on 12 October for issuance of the streamer.

3. Intelligence and Counter-intelligence: Our main source of intelligence data stems from a daily SITREP from the Second Field Forces in Vietnam (IIFV) which enables us to pinpoint activity around this area. This allow us to utilize maximum work force and minimum security on the various project sites. Our only contacts with the enemy have been three incidents in which shots have been fired at our vehicles operating at night. No injuries have been sustained from these actions. There have been no Counter-intelligence activities during this quarter.

4. Operations and Training:

a. Combat Support Operations: This unit's Rome Plows are presently operating in support of the Australian Task Force as they aid in clearing the jungle around the Vung Tau area. One Rome Plow was deadlined and returned to this unit but is scheduled to return to work soon. The dump trucks from the 43rd spent 25 days in support of the 1st Infantry Division from 4 September 1967 to 28 September 1967.

b. Training: All training of a formal nature has been conducted during a scheduled two hour period on Sunday mornings. At this time mandatory DA and US ARV subjects, troop information and commanders lectures are presented. All new arrivals are familiarized with their weapon at the Thu Duc Ranger School firing ranges. These newcomers are also provided a status briefing by the Battalion Commander, S-3, medical officer and chaplain shortly after their arrival at this battalion. During the last quarter, the two hour training period has at times been foregone in order to take advantage of the good construction weather. Make up training is accomplished when construction activity is curtailed. On the job training continues at all phases of work.

c. Construction Operations: The last period saw the rainy season continue, but due both to previous experience and a gradually lessening in intensity, there was considerable accomplished under the adverse conditions. The outstanding wet weather technique proved to be the cement treatment of base material, a procedure allowing us to progress at a constant rate on the large earthwork projects under construction.

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d. Projects and related activities:

(1) Projects completed this period:

(a) Aviation Support Facility: Command Directive 46-208-03-T-65. During this period, the 75' X 202' steel structure was erected for the USARV Airfield at Long Thanh. This included placing approximately 580 cubic yards of reinforced concrete floor slab.

(B Co)

(b) Bien Hoa Communications Center: Command Directive 66-122DC-159. Begun in June of 1966, this 40' X 60' wood frame structure was prepared to house sophisticated communications equipment under strict security controls. Built on a reinforced concrete slab, the building required acoustical and floor tile, an extensive 200,000 BTU Air Conditioner and a separate power source from a generator site located near the center. ~~Waterborne~~ sewage added to the exacting requirements.

(B Co)

(c) X-Ray Building Extension, 24th Evacuation Hospital: Command Directive 66-135DC-159. Approximately 2,400 man hours were expended in constructing the 21' X 28' extension. Started on 6 June 1967 and finished the 10th of October, the extension consist of a cooling system for the X-Ray negative printer, two air conditioners, wiring for lighting and X-Ray equipment, and finally a lead lining for the walls.

(D Co)

(d) GOQ, Bien Hoa: Command Directive 67-205-01-T-68. Work began on 23 March 1967 in constructing a two-bedroom, two bath GOQ. The work including installing hot and cold running water, flush toilets, an all electric kitchen, air conditioning, ceramic tile bath and a large patio. The project was completed on 8 August 1967 and has housed both the Commanding General US Army Engineer Command and the Commanding General of the 20th Engineer Brigade. Modifications and landscaping have since been added to the structure.

(D Co)

(e) 90th Replacement Battalion Water System: Command Directive 66-272DC-159. On 4 January 1967 a 126,000 gallon storage tank and associated system were begun. A loop type distribution system to the existing facilities, an 8' X 10' pump house with in-line chlorinator and a truck and trailer fill stand with two outlets completed the construction effort. The project was completed 23 August 1967

(D Co)

(f) GOQ, USARV: Command Directive 43-222-01-T-68(B). Started on 21 September and completed in late October, this General Officers Quarters was identical to the one previously constructed in Bien Hoa. Previous experience and better availability of special materials greatly aided the completion time.

(D CO)

(g) Gutters and Down Spouts: Group Directive 159-238. Complete drainage facilities for the 11 GOQ's at USARV were constructed during this period. This entailed approximately 2,200 linear feet of gutter work and all necessary downspouts.

(A Co)

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(h) Re-Deck Bien Hoa Railroad Bridges: Group

Directive 159-153. A civic action project, this work involved redecking and retreating two bridges, one 50 feet and the other 850 feet spanning the Song Dong Nai. Because this was a vital communication route and a narrow bridge besides, all work was accomplished between 2200 hours and 0400 hours, the only hours when the bridge could be closed to traffic.

(B Co)

(i) MER for Traffic Management Agency: Group

Directive 159-237. A rush job with high priority, this project required five laterite pads, two latrines, showers, one water tower and a 70' X 56' parking area.

(C Co)

(j) 500 Man Mess Hall, USARV Hill: Group Directive

159-76. Begun on 31 July 1967, this 40' X 150' facility included septic tank, scullery and water tower to accompany the main structure. This project combined both the prefab yard and on the site construction crews.

(C,D Co)

(k) Group Theater: Group Directive 159-162. A 72' X 33'

theater was constructed for the 159th Engineer Group. Concrete footers, sheetmetal roofing, open sided construction with stage and balcony were all included in the work.

(D Co)

(L) Nha Be Helipad: Group Directive 159-144. On

27 July one platoon constructed a 150' X 400' M8A1 matted helipad. The pad, five revements and a dust palliative treatment were all finished by 30 August.

(D Co)

(m) Two Story BQ (USARV): Group Directive 159-132.

Begun on 13 July 1967 and completed 15 September 1967, this effort included seven each pads, concrete foundations, 20' X 108' two story billets and the surrounding landscaping. Approximately 27,000 GI and 10,000 VN Manhours were required for completion of the project.

(B,C Co)

(2) Projects under construction during the reporting period.

(a) Long Thanh North Airfield: Command Directive

46-206-02-T-66. During this quarter, over 85,000 cubic yards of laterite were hauled, filled and compacted, bringing the total to 233,500 cubic yards placed to date. In addition, 12,300 cubic yards of select base were placed, stabilized and compacted. 60,000 square yards of asphalt have been laid. In spite of the heavy monsoon rains, this project has progressed by the use of intelligent construction techniques, stabilized material and a day and night shift that made full utilization of all available time. The runway is completed, the parking apron is usable and early in the next month completion will be achieved.

(B Co)

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(b) Bearcat-Long Binh MSR Restoration: Command Directive 43-267-15-T-M1. Restoration of National Highway #15 between Long Binh and Bearcat was started on 21 September and scheduled for completion in June 1968. It consists of upgrading the lat-rite sub-base, laying a base course of select fill and paving 3 inches of asphalt cement. The road must be upgraded to MACV standards, a task entailing drainage renovation, widening to 40' total width and upgrading of all bridges. Four bridges must be upgraded to class 90 two way as opposed to the narrow existing bridges installed by the French. An estimated 156,300 man hours will be expended on this project.

(C Co)

(c) Two story BOQ's for II Field Forces: Command Directive 43-261-01-T-66. Construction of six two story 20' X 108' BOQ's was started on 14 August 1967 and is scheduled for completion in late November. Each building consists of thirty-two individual rooms with a latrine on each floor. Extensive wiring and plumbing systems are included with waterborne sewage scheduled for installation. One building has been turned over to II Field Forces Units and a second building is ready for occupancy.

(C Co)

(d) Medical Storage Area: Command Directive 43-233-10-T-66. The six 70' X 210' Inland steel building placed side by side to form two 140' X 210' structures have been completed and are operational at this time. The unavailability of electrical supplies continues to prevent utilization of all circuits within the building. A rear storage area with associated power supply was installed along with concrete ramps for all entrance ways. The paving around the buildings has been discontinued until dry weather permits complete working of the area.

(D Co)

(e) Microwave Relay Building: Command Directive 43-243-04-T-75. Begun 11 September 1967, this 20' X 100' structure is designed to house complicated electronic equipment utilized by the Signal Corps. A 180,000 BTU air conditioning system will be ducted into this structure and a series of concrete ducts will house the electrical wiring necessary for operation. The structure is a series of these quonsets forming a "T" and joined by a wood framed walkway. Completion is expected in late November 1967.

(D Co)

(f) Quarry Operations: Group Directive 159-40. Unable to operate our own quarry because of blasting limitations and water infiltration, this unit began hauling blast rock from the Xom Tom Quarry operated by the 557 LE Company. Currently the battalions quarry and crushing equipment has been sent to the 62nd and 92nd Engineer Battalion and to the 103rd Construction Support Company and is operating in support of their activities.

(A Co)

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(g) 500 Man Mess Hall: Group Directive 159-181. Required for the 199th Infantry Brigade, this 40' X 150' structure contained a reinforced concrete pad, 17' X 112' scullery, a 4,200 gallon water tank and tower and an extensive electrical system required for the kitchen equipment available. Currently, the project is 90% complete.
(B Co)

(h) 250 Man Mess Hall: Group Directive 159-76. This 40' X 88' wood frame building, containing plumbing, wiring, water tower, grease trap and other necessities will be utilized by the 44th Signal Battalion nearby. It is scheduled for completion early in November.
(B Co)

(i) Prefabrication Operations: Group Directive 159-90. A total of 35 men, 30 VN and 5 GI, are utilized in this battalion's prefab operation. The GI's are supervisors and Dealt saw operators. By directive, this operation is tasked for prefabbing 500 man mess halls, standard one story buildings, latrines and any other structure requiring their particular services. A list of task assignments completed includes eight (8) two story BEQ's, six (6) two story BOQ, one story BOQ, five (5) 500 man mess halls, two (2) 250 man mess halls, pews for the chapel and a host of other erect structures.
(C Co)

(j) Asphalt Paving: Group Directive 159-39. Taking up the majority of one company's horizontal effort, paving continues to be a full time project for this battalion. During this period some 16.2 miles of road were paved to include Long Thanh Airfield, Rt. 15 through Tam Hiep and Bien Hoa, 93rd and 24th Evacuation Hospitals, the US RV Heliport, and numerous roads within the Long Binh Complex. The major feat this period relates to the paving of US RV HQ's parking and roads complex and the area surrounding that headquarters. Within a period of less than a month, during the height of the rainy season, this battalion was required to prepare the base and pave 9.5 miles of roadway, parking lots and helipads. The contractor was unable to meet the deadline, so with day and night operations, under close scrutiny of the entire US RV Headquarters Staff, a finished product of high quality was produced in a minimum of time. In order for a continuous schedule to be maintained during the daily rainfall cement treated base was essential to this achievement.
(D Co)

(k) 199th Staging Area: Group Directive 159-176. Planned as a convoy staging area, this location required a great deal of fill and extensive base preparations. Upon completion of the US RV Airfield at Long Thanh, work will proceed in this area.
(D Co)

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(1) M.C. Administration and Training Center in Saigon: Brigade Directive 20-009-67. A civic action project placed in directive form, this project was designed to develop the RVN M.C. Cantonment area in Saigon. Approximately 7,000 cubic yards of fill were required and efforts to level the area are under way.

(D,43rd)

(m) 43rd Engineer Company (DT) Support of Battalion Projects.

1. Support to the 92nd Engineer Battalion started on 3 August 1967 hauling laterite to MACV Headquarters at Ton Son Hut. Approximately 8,000 empty barrels were hauled to the 62nd laterite pit where they were loaded with laterite and hauled to MACV. The majority of barrels were hauled at night with the commitment completed on 23 August 1967.

2. Support to the 46th Engineer Battalion was begun on 12 August 1967 when laterite fill was hauled for the new access road they are building from I Field Forces to Bien Hoa. This commitment has been met both during the day and at night. To date the 5 ton dump trucks of the 43rd Engineer Company have hauled approximately 4,000 cubic yards of laterite.

3. Support to the 1st Infantry Division: The 43rd Engineer Company began a combat support mission for the 1st Infantry Division on 4 September 1967. The entire company of 45 trucks was utilized hauling select base and rock from RMK Quarry to Di An, Lai Khe and Phouc Vinh. The mission ended on 28 September 1967. During the time the 43rd supported the 1st Infantry Division, this company hauled approximately 3,200 cubic yards of material while travelling over 38,000 miles.

4. One noteworthy event was the accomplishment of driving over 1,000,000 miles since arriving in country. This company has been hauling in support of the 159th Engineer Group and in particular the 169th Engineer Battalion during this quarter. Projects that have been supported are the M.C. Administration and Training Center in Saigon, II Field Forces staging area, 483rd Field Service Company Cantonment area, Long Binh Heliport, Tam Hiep paving project and numerous other smaller projects.

(n) Chapel Construction: Battalion Task 169-123. The goal to have the first of thirteen newly authorized chapels on Long Binh Post and to provide a place of worship for our Battalion and the surrounding units was realized by the end of the quarter in the form of a 30' X 54' structure to be dedicated 5 November. A true battalion effort, construction was accomplished by all units within this organization. With an A line roof, steeple with bell, stained wood frame with fluorescent lighting, fans, and rooms for the Chaplain, this structure is an outstanding feature on the face of Long Binh Post. Landscaping was accomplished with the aid of local nurseries and private citizens.

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(c) Battalion Electric 1 Team: Group Directive 159-65. Self help electrical requirements have been continually expanding as new units arrive at Long Binh Post. As a result, our commitment has risen to over 175 buildings requiring wiring along with the standard projects such as the IIFEV BOQ's. The critical shortage of electricians and of certain materials prevent the rapid accomplishment of our requirements.

5. Logistics:

a. Supply: The status of supply falls generally into two main areas, the TO&E equipment disposition and those items which are difficult to obtain for construction projects. Regarding equipment, the following shortages of items markedly affect the operational capability of this battalion: Seventeen (17) 5-ton tractors with trailer, fourteen (14) 5 ton dump trucks, two (2) graders and four (4) front loaders. The loading and hauling capacity lost because of the non-availability of this equipment hampers efficient operations. In reference to material shortage, such items as repair parts for crusher equipment have deadlined equipment for extended periods of time. Cement has at various times throughout the quarter been in short supply but this has been due mainly to the vast quantities utilized in cement treated base rock to aid construction during the rainy season. Petroleum products have become supply problems due to the great time, equipment and manpower requirement to insure adequate supply. Individual handling of asphalt products consumes the efforts of approximately one half of our supply capability. Finally, electrical supplies continue to be a problem because one or more of the many standard electrical supplies continue to be in short supply. Currently, the large (20 and more) circuit breaker boxes, junction boxes and connectors are in short supply and hamper our wiring capability.

b. Maintenance: The maintenance personnel of the 169th continued their outstanding record again this quarter. The quarterly average deadline rate for engineer equipment was 2.3% and for ordnance equipment 2.6%. Work experience has shown that 5-ton dump trucks are a critical problem. The extensive use of dump trucks in almost all phases of construction has gradually increased the down time of dumps as they get older. Periodically, the battalion experiences an unusually high deadline rate for these items. Repair parts for dumps are difficult to obtain. Other ordnance repair parts support varies, shortages are periodic and the follow up procedure of our maintenance personnel lessens the problem. Engineer repair parts, especially for low density items, are a continual problem. At present the battalion has two jaw type rock crushers and one roll crusher which have been deadlined in excess of thirty days. Redball requisitions have improved slightly this quarter. 60% of the organization's redball requisitions submitted in the last quarter have been filled. The overall deadline rate has been low. The high degree of skill and dedication of the 169th Engineer Battalion maintenance personnel has yielded an outstanding record, enabling the battalion to continue to effectively accomplish the construction mission.

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6. Force Development: Continued use of the highly competent civilian advisors has greatly aided the quality of the battalion's work and produced numerous solutions to problems encountered.

7. Command Management: None this period.

8. Inspector General: The service's of the acting Inspector General have been utilized two times during this quarter, but no problems have arisen that have not been resolved at the battalion level to the satisfaction of all concerned.

9. Information: The acquisition of a new photographic unit has allowed for extended pictorial coverage of all battalion activities and is continually used to supplement PIO articles. All persons arriving or promoted have appropriate articles sent to their home town newspapers. In addition, a daily news release is forwarded to Group for publication in one of the several newspapers published in Vietnam.

10. Civic Affairs: Aid to local inhabitants has taken several forms this quarter. During August we distributed lumber and plywood to the Vien Giac School. Additionally, clothing was given to a Vietnamese orphanage. In October, fill was provided for the roads in Tam Hiep and the battalion is currently engaged in filling a depressed area for a school and Pagoda. A foundation will eventually be placed upon the fill. The Battalion Surgeon devoted three hours in a nearby hamlet providing first aid and hygienic tips to the Vietnamese. Gifts in the amount of \$8,000 VN have been given during this period and thirty pounds of clothing have been sent to orphanages. Additionally, the paving of the roads through Tam Hiep has provided good will throughout the area.

SECTION 2, Part I, Observations (Lessons Learned)

1. Item: Construction of a double throw safety switch:

a. Discussion: Large panel boxes and safety switches of various sizes have been a problem for this unit, as wiring of sophisticated electrical systems places severe requirements on the electrical capabilities of a construction battalion. One such problem was the requirement of a large double throw switch to connect both permanent commercial and backup power to a large facility.

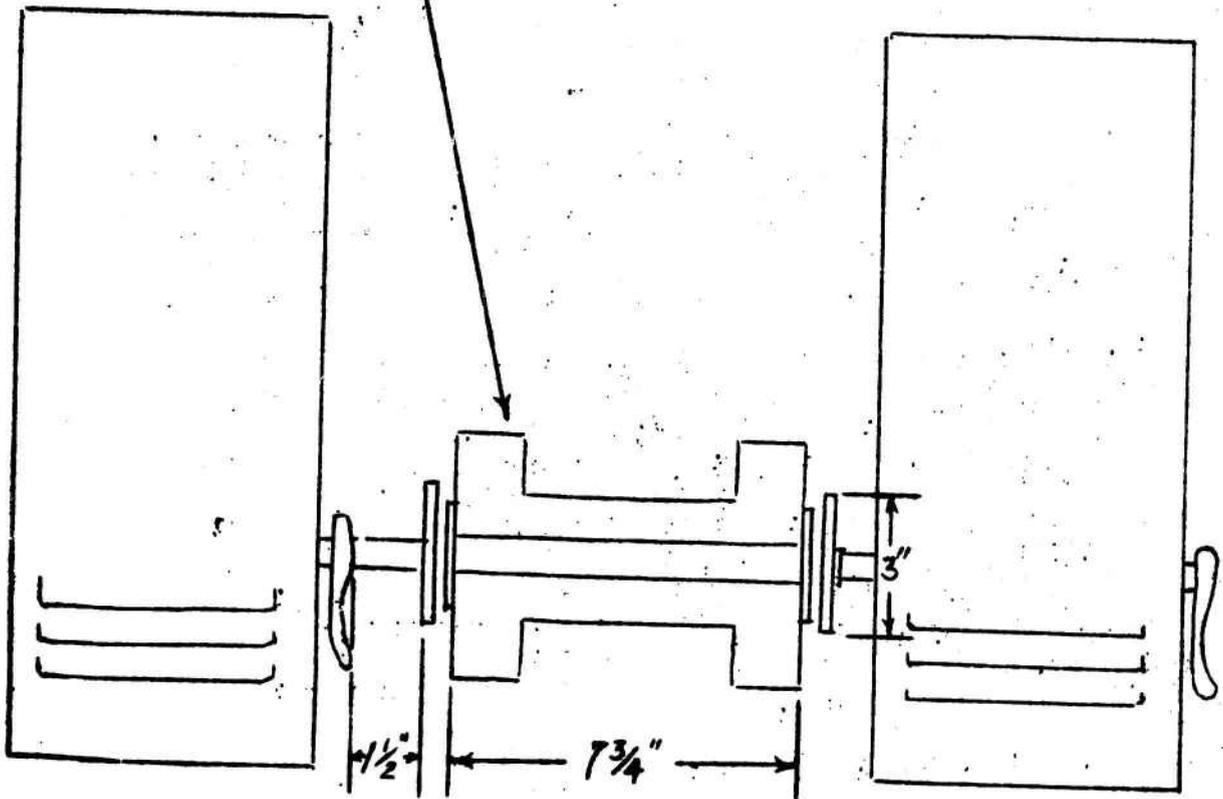
b. Observation: Because no double throw switches in sufficient sizes were available for a high priority medical warehouse, two single throw switches were used to hook up both the primary and secondary power sources, this provides a safety hazard if both switches were on simultaneously. The device depicted prevented the two switches box from being in use at the same time. It was constructed of 3/16" plate steel, 1/2" round stock and 1 1/2" pipe.

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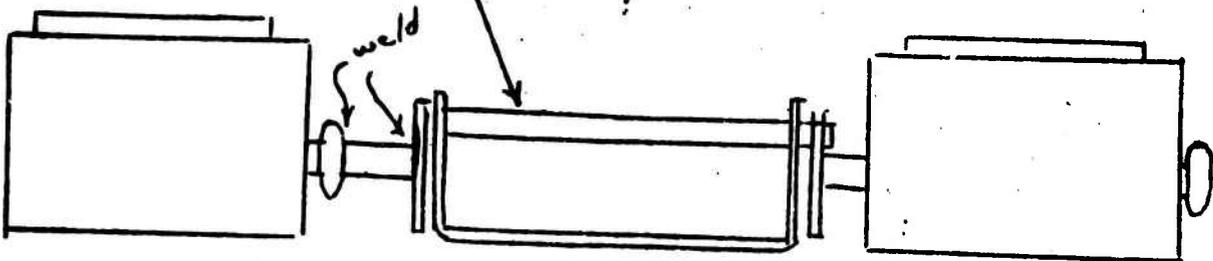
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BRACKET MADE FROM $\frac{3}{16}$ " PLATE



$\frac{1}{2}$ " DIA SHAFT $8\frac{1}{2}$ " LONG



SHAFT IS NOW IN
LOCK POSITION FOR THIS BOX

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2. Item: Use of 75TPH screening plant in conjunction with 75TPH crushing and screening plant.

a. Discussion: In August of 1967 it came to the attention of the operations sections of both the 169th Engineer Battalion and the 159th Engineer Group that the crusher site operated by Company A, 169th Engineer Battalion was not producing the amount of material required to economically operate the Group asphalt plant. Research disclosed that the screening unit of the 75 Ton Per Hour washing and screening unit owned by the 103rd Engineer Company, if placed into the crushing plant set-up, would enable the plant to screen the 3/4" minus out of the original rock after it had passed the jaws of the primary unit. This would feed only 1 1/2" down to 3/4" with some minus, into the secondary crushing unit. By reducing the size and gradation of the rock to be crushed, the cycle time of the secondary would be reduced and the work load on the plant as a whole would be eased.

b. Observation: On September 1967, the 75TPH screening unit was incorporated into the crushing plant by placing it between the primary and secondary units of the 75TPH crushing and screening plant. This enabled the original 4" minus scalplings to pass the primary jaws as 1 1/2" minus. This was fed into the screening unit where it was separated into three sizes; the 1/4" minus was conveyed into one pile, the 3/4" down to 1/4" into a second pile and anything larger fed into the secondary unit where it passed through the roll crushers set at minimum clearance and was separated into the same sizes as in the screening unit. The most effective result of this realignment was the fact that the cycle time of the secondary unit was reduced from an average of ten minutes to approximately three minutes. The additional screening capacity also enables the primary unit to run continuously, feeding the other units. In the past it was necessary to feed sporadically because of the longer cycle time of the secondary would not allow it to keep pace with the primary. The following statistics will indicate the success of the addition of the screening unit to the crushing plant.

(1) From 14 May 1967 through 4 September 1967 the original crushing plant which consisted of two 75TPH crushing and screening plants, produced a total of 2150 cubic yards of gravel and 27 cubic yards of fines per week. The equipment had a possible 119 operational hours and was down for a total of 610 hours or 54% of the possible time. This last figure includes days lost for any reason and is balanced by the fact that three full days were lost during the test period for lack of a front loader.

(2) From 4 September 1967 through 24 September 1967, the realigned plant, which consisted of one 75TPH crushing and screening plant and one 75TPH screening unit, produced a total of 2530 cubic yards of gravel and 1297 cubic yards of fines for a weekly average of 420 cubic yards of fines and 717 cubic yards of gravel. The equipment had a possible 420 operational hours and was down a total of 144 hours or 35% of the time. There was no requirement for additional manpower with the addition of the screening unit.

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SUBJECT: Operational Report-Lessons Learned (RC3CFOR-65)
for Quarterly Period Ending 31 October 1967

(3) From the statistics, as stated in the above paragraphs, it is quite obvious that the addition of the screening unit has accomplished the following:

(a) Taken an expensive and here-to-fore unused piece of equipment out of the motor pool and put it to good use.

(b) Increased the production of gravel seven times over and the production of fines greatly.

(c) Reduced the amount of down time on the plant by reducing the work load on each individual unit of the plant.

3. Item: 2"x 4" Concrete forms:

a. Discussion: In observing concrete operations by REK-BRJ, the use of 2"x 4" forming material rather than bulky, heavy, 8 inch steel forms used by most Army Engineer units here in Vietnam was noted. Most floor slab designs for mess halls, barracks, etc., requires 4" slabs. The 2"x 4" forms reduced the requirement of digging 4"x 8" trenches, in addition to the required footer in which the steel forms are placed to obtain a four inch finished frame. 2"x 4" forms requires less man hours in placing than do the 8" steel forms.

b. Observations: In view of the above discussion, Bravo Company, 169th Engineer Battalion has been using 2"x 4" forms for some time. The 2"x 4" forms have proven, in comparison with 8" steel forms less time consuming, easier to erect and a lower man power requirement. It is recommended in future construction requiring 4 inch floor slabs, a plan to use 2"x 4" forming material be implemented.

4. Item: Removal of Airfield Matting:

a. Discussion: The 2nd platoon, Company D, had the task of removing a helipad of M811 Airfield Matting; to be re-used at a later time. This task is difficult and time consuming when done entirely by hand.

b. Observation: The operation was simplified by attaching one end of a 6 foot length of 4" channel iron to the lifting shackle on the front of a 2 1/2 ton cargo truck. The other end of the inverted channel iron was placed against the end of an M811 panel and the 2 1/2 ton truck pushed the panel forward, unlocking it. The panel was then removed easily by hand.

5. Item: In-tank fuel pump in 5 ton Multi-fuel Dump Trucks:

a. Discussion: The in-tank fuel pumps, FSN 2910-931-5076, in the 5 ton multi-fuel dump trucks were requiring replacement because of age, wear and dirt even in strained fuel. Replacement pumps were difficult to obtain.

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b. Observation: Operational requirements demanded a field expedient pump be used to keep the dump trucks on the road. The fuel transfer pump, FSN 2910-735-4014, was installed in place of several defective in-tank pumps. This pump runs a sufficient quantity of fuel to the injector pump, but at a lower line pressure. A technical representative of the Continental Engine Manufacturing Company was consulted. His recommendation was that the pump was an adequate field expedient since it supplies the engine with sufficient fuel. Four trucks have been operating from two to four months with this modification, while awaiting the correct model pump, with no loss of operating efficiencies.

6. Item: Handling of Asphalt Products:

a. Discussion: At present AP-3 is delivered in individual thin-walled drums to the Field Depot Area by contract truck. The user then loads the AP-3 on lowbeds or stake and platform trucks and transports the materials to the asphalt plant. Each time the drums are handled some damage occurs to the barrels. During each period of storage, AP-3 leaks from the damaged barrels and makes movement of the bottom row of barrels in a pile virtually impossible.

b. Observation: The use of thick-walled, palletized drums, handled by fork lifts greatly increases efficiency. RMK-BRJ contractors utilizing individual thin-walled drums and thick-walled palletized drums find an overall AP-3 loss of 5% with the individual thin-walled drums as opposed to 3-5% loss with this thick-walled drums on pallets. Additionally, one crane and 4 to 8 laborers are required to handle individual drums at a very slow pace. The 159th Engineer Group uses AP-3 at an average rate of 3,000 drums per month. The cost of AP-3 is approximately \$10.00 a drum. 3% loss represents a loss to the Gov't. of \$13,500 a month. Handling the 3,000 drums individually, requires more than 8,000 man hours while palletized operations reduce this figure to 60 man hours. This amounts to an annual saving of \$162,000 and 95,280 man hours if thick-walled, palletized drums are used.

SECTION 2, Part II, Recommendations:

The 169th Engineer Battalion (Construction) changed from the delta to the echo series TO&E in June 1967. This change removed the ordnance direct support capability from the Engineer Construction Battalion. The effects of the change were realized during the past quarter.

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In October 1967 a request for an MTO&E was submitted by several Construction Battalions in this area. This MTO&E was designed to retain a small ordnance direct support shop in place of the newly authorized battalion maintenance section in the equipment and maintenance company (TO&E 5-117E) with appropriate organizational maintenance skills changed to direct support skills. Engineer mechanics in the battalion maintenance shop were transferred to the engineer direct support section.

Several requirements prompted this request. The primary consideration was command control. Operational requirements fluctuate requiring changing maintenance priorities on deadlined equipment. Organizational control can easily shift emphasis to suit operations. In addition, mission capability is critically dependent on the availability of ordnance construction vehicles, particularly 5 ton dump trucks. At present, priority of ordnance direct support effort is very correctly given to combat units. However, this situation causes deadlined dump trucks requiring direct support repairs to be out of operation for excessive periods. Hauling capacity is impaired to an extent that is highly undesirable and unacceptable to the commanders concerned. Experience has shown the ability to determine ordnance direct support maintenance effort is absolutely essential to the construction battalions ability to perform its assigned mission.

A change in priority in favor of the Engineer Combat Support units is obviously not feasible as the combat elements should get higher priority. This situation requires establishing a small ordnance direct support capability which will give the engineer commander the control he needs to keep his dump trucks and other mission essential equipment operating.

The organic ordnance direct support capability is sufficient support for most requirements. Overflow requests could continue to be placed on external ordnance direct support units organized for that purpose.

The 169th Engineer Battalion strongly recommends re-instatement of organic ordnance direct support. It is necessary for the construction battalion if it is to effectively perform its mission and has proven its value through one year of the most taxing conditions by a continued outstanding maintenance record. The quantity of construction required of this battalion and similar battalions demands operational vehicles and a minimum of down time, a goal achieved by the organizational 3rd echelon ordnance capability.

William R. Gray
WILLIAM R. GRAY
LTC, CE
Commanding

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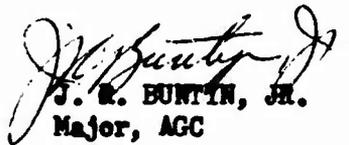
EGB-3 (6 Nov 67) 1st Ind
SUBJECT: Operational Report-Lessons Learned for Quarterly Period Ending
31 October 1967

DA, HQ, 159th Engineer Group, APO 96491 27 NOV 1967

TO: Commanding General, 20th Engineer Brigade, APO 96491

1. Forwarded for your acceptance.
2. This headquarters concurs with the recommendations in the basic correspondence.

FOR THE COMMANDER:


J. E. BUNTIN, JR.
Major, AGC
Adjutant

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AVBI-CPH (11 Nov 67) 2nd Ind
SUBJECT: Operational Report - Lessons Learned (RCS-CSRCA-05) for
quarter, Period ending 31 October 1967

By: Headquarters, 20th Engineer Brigade, APO 96391, 27 Nov 67

TO: Commanding General, USMC(P), Attn: A-30-P80, APO 96391

1. The subject report submitted by the 109th Engineer Battalion has been reviewed by this headquarters and is considered comprehensive and of value for documentation and review of the reporting units activities and experiences.

2. This headquarters concurs with the submitted report, with the following comments:

SECTION 2, PART I

Ref para 0:

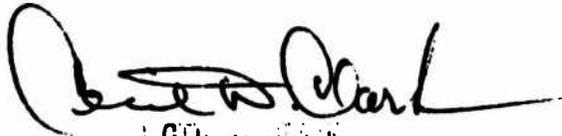
This headquarters concurs in the use of thick-walled, palletized drums. Bulk asphalt handling should be reviewed in light of technical advancements in material handling adopted by the Army.

SECTION 2, PART II

a. Concur. This headquarters has approved the WFOE submission in question and forwarded it through channels for approval.

b. This headquarters has taken action to re-instate a direct support capability organic to construction battalion to keep the critical 5-T dumps on the job. Engineer effort is seriously hampered by the loss of these 5-T trucks. The effect of their loss is difficult to coordinate with priorities in support units. Experience has shown, however, that engineer effort in country nearby comes to a halt when support units provide required services to tactical units and engineer support units under present administrative procedures.

FOR THE COMMANDER:



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as

MAJOR, US
MAJUTANT

COPY TO: 109th Engineer Battalion

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AVCC-P&O (30 Nov 67) 3d Ind CPT Whitley/wvo/LEN 4163
SUBJECT: Operational Report - Lessons Learned (RCS-CSFOR-65) for
Quarterly Period Ending 31 October 1967

HEADQUARTERS, UNITED STATES ARMY ENGINEER COMMAND
VIETNAM (PROV), APO 96491 7 DEC 1967

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

The subject report, submitted by the 169th Engineer Battalion, has been reviewed by this headquarters and is considered adequate.

Reference Section 1, paragraph 5a, page 10, item concerning supply: Concur. Reference TOE equipment: shortages are expected to be filled during 2QFY68.

FOR THE COMMANDER:

Paul A. Loop
PAUL A. LOOP
Colonel, CE
Chief of Staff

~~4 Incl~~

Info cys furn:

CG, 20th Engr Bde
CO, 159th Engr Gp
CO, 169th Engr Bn

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AVHGC-DST (11 Nov 67) 4th Ind
SUBJECT: Operational Report-Lessons Learned (RCSCSFOR-65) for Quarterly
Period Ending 31 Oct 67

HEADQUARTERS, UNITED STATES ARMY VIETNAM, APO San Francisco 96375

18 DEC 1967

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

1. This headquarters has reviewed the Operational Report-Lessons Learned for Quarterly period ending 31 October 1967 from Headquarters, 169th Engineer Battalion (Construction) (BALA) as indorsed.

2. Concur with report as indorsed. Report is considered adequate.

FOR THE COMMANDER:

Philip J. Getchell

PHILIP J. GETCHELL

he

Captain, AGC

Assistant Adjutant General

cc:

HQ, 169th Engr Bn (Construction)
HQ, USAECV (P)

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GPOP-DT(11 Nov 67) 5th Ind
SUBJECT: Operational Report for the Quarterly Period Ending 31 October
1967 from HQ, 169th Engr Bn (UIC: WBALAA) (RCS CSFOR-65)

HQ, US ARMY, PACIFIC, APO San Francisco 96558

20 DEC 1967

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

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

FOR THE COMMANDER IN CHIEF:



HEAVRIN SWIDER
CPT, AGC
Asst AG

