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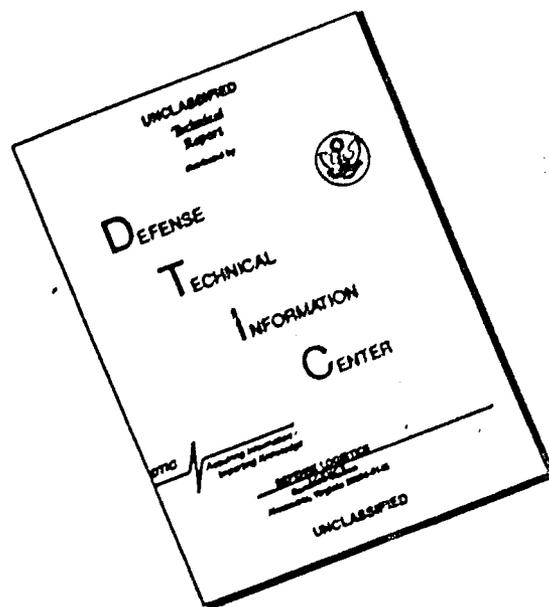
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DEPARTMENT OF THE ARMY
OFFICE OF THE ADJUTANT GENERAL
WASHINGTON, D.C. 20310

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AGDA-A (N) (4 Mar 71) FOR OT UT 703048

9 March 1971

SUBJECT: Operational Report - Lessons Learned, Headquarters, 169th Engineer Battalion, Period Ending 31 July 1970

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1. The attached report is forwarded for review and evaluation in accordance with para 4b, AR 525-15.
2. The information contained in this report is provided to insure that lessons learned during current operations are used to the benefit of future operations and may be adapted for use in developing training material.
3. Information of actions initiated as a result of your evaluation should be forwarded to the Assistant Chief of Staff for Force Development, ATTN: FOR OT UT within 90 days of receipt of this letter.

BY ORDER OF THE SECRETARY OF THE ARMY:

Verne L. Bowers

VERNE L. BOWERS
Major General, USA
Acting The Adjutant General

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 169TH ENGINEER BATTALION
APO 96491

EGBE-OP

11 August 1970

SUBJECT: Operational Report of 169th Engineer Battalion, APO 96491, for
Period Ending 31 July 1970.

THRU: Commanding Officer, 159th Engineer Group, ATTN: EGB-OP, APO 96491
Commanding General, 20th Engineer Brigade, ATTN: AVBI-OS, APO 96491
Commanding General, USAECV (P), ATTN: AVCC-MO, APO 96491
Commanding General, United States Army, Vietnam, ATTN: AVHGC-DET,
APO 96375
Commander-in-Chief, United States Army, Pacific, ATTN: GPOP-DT,
APO 96588

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

Section 1 Operations: Significant Activities

1. Command:

a. Organization: This report covers activities of the 169th Engineer Battalion from 30 April 1970 to 31 July 1970. The Battalion was commanded by LTC Nick J. Andre during the entire reporting period. General Order No. 609 reorganized the 169th Engineer Battalion effective 25 October 1969 under the TOE 5-115G, with a total authorized strength of 38 officers, 10 warrant officers, and 861 enlisted men. One of the major attached units, the 43rd Engineer Company (DT) is organized under the TOE 5-124G with a total authorized strength of 3 officers, 1 warrant officer, and 109 enlisted men. The other, the 544th Engineer Company (CS), attached 31 October 1969, per General Orders 53, Headquarters 159th Engineer Group, dated 31 October 1969, is organized under the TOE 5-114D plus an augmentation of two Quarry sections assigned per General Order 61, Headquarters 159th Engineer Group, dated 27 December 1969, bringing their total authorized strength to 4 officers, 2 warrant officers, and 165 enlisted men.

b. Mission: The mission of the 169th Engineer Battalion in the theater of operations 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.

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c. Area of Responsibility: The 169th Engineer Battalion's areas of responsibility includes the provinces of Binh Tuy and Long Khanh. Additional responsibilities include missions in the Long Binh/Bien Hoa complex.

d. Assignment: The 169th Engineer Battalion has been assigned to the 159th Engineer Group since 30 May 1966. The Battalion headquarters is located at Long Binh RVN.

e. Movements, Attachments and Detachments: During the quarter, the 169th Engineer Battalion had four attached units. They are the 544th Engineer Company (CS) (6 officers and 165 EM authorized); 43rd Engineer Company (DT) (4 officers and 109 EM authorized), EM platoon, 517th Light Equipment Company (1 officer and 25 EM), and EM platoon, 92nd Engineer Battalion (1 officer and 34 EM).

Battalion Headquarters, 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 continues to be located at their base camp near the village of Phuong Lam, on QL-20. C Company remained at their base camp on QL-20 near the village of Ka Dinh Hoa. D Company remains at their base camp on QL-20 at the La Nga River. The 544th Engineer Company (CS) remains at their industrial site and base camp located on QL-20 at Nui Soc Lu. The 92nd EM platoon is attached to D Company, and the 517th EM platoon is attached to B Company.

f. Visitors and Awards:

(1) During this reporting period the work sites and base camps of the 169th Engineer Battalion were visited by MG Dillard (Commanding General, USAECV (P)) on 5 May 1970 and 10 May 1970, MG Noble (Commanding General, USAECV (P)) on 28 June 1970, BG Tarbox (MACV Director of Construction) on 14 May 1970, 9 June 1970 and 30 July 1970, BG E.T. O'Donnell (Commanding General, 20th Engineer Brigade) on 26 June 1970, Col Badger (Deputy CG, 20th Engineer Brigade) on 17 June 1970, 18 July 1970 and 26 July 1970; BG Cooper (Deputy CG, USAECV (P)) on 28 June 1970, Col Fuller (Deputy CG, 20th Engineer Brigade) on 9 June 1970, Col Nichols (CO, 34th Engineer Group) on 11 July 1970 and Col Schuder (Director of Construction, USAECV (P)) on 14 July 1970.

(2) During this reporting period, the battalion has awarded 23 Bronze Stars and 195 Army Commendation Medals. Breakdown for the three months are as follows:

	Bronze Star	ARCOM
May	7	87
June	4	55
July	12	53

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2. Personnel, Morale, and Discipline:

a. Personnel:

(1) The personnel strength totals of the 169th Engineer Battalion and attached units for the reporting period were as follows:

(a) As of 31 May 1970

	OFF	WO	EM	TOTAL
Authorized	38	10	1138	1186
Assigned	39	10	1115	1164

(b) As of 30 June 1970

Authorized	38	10	1138	1186
Assigned	34	9	1140	1183

(c) As of 31 July 1970

Authorized	38	10	1138	1186
Assigned	33	7	1094	1134

(2) The following are critical overstrengths and understrengths according to the TOE.

(a) 11 MOS overstrengths are as follows:

MOS	DESCRIPTION	RANK	AUTHORIZED/ASSIGNED
05C20	Radio Teletype Oper	E-4	2/5
51N20	Water Supply Spec	E-3/4	4/6
52B20	Generator Operator/Mechanic	E-4	7/12
62B30	Engr Equip Repairman	E-4/6	21/41
62E20	Crawler Tractor	E-4/5	35/49
62K20	Grader Operator	E-5	18/22
63E20	Wheel Vehicle Repairman	E-5	44/54
76Y20	Tech Supply Spec	E-4/5	3/6

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76Y30	Amorer	E-4	7/12
81B20	Construction Draftsman	E-4/5	6/9
91A10	Medical Corpsman	E-3	1/8

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

MOS	DESCRIPTION	RANK	AUTHORIZED/ASSIGNED
51A10	Construction Worker	E-3	26/8
51D20	Mason	E-4	12/9
51G20	Soils Analyst	E-4/5	4/3
51H40	Construction Foreman	E-6/7	32/23
51K20	Plumber	E-4	37/28
52F20	Electrician	E-4	37/16
62E10	Engr Equip Repairman	E-3	41/12
62D20	Asph Equip Oper	E-4/5	26/13
62J20	Gen Const Mach Oper	E-4	35/28
62N50	First Sergeant	E-8	2/0
62A10	Mech Maint Apprent	E-3	10/5
64B20	Heavy Vehicle Driver	E-4/5	149/83
71T20	Maint Data Spec	E-4	8/2
82A10	Rod & Taperman	E-3	4/0
94A10	Food Service Apprent	E-3	7/4

(3) The imbalance in MOS strength is a result of the difference between the requirements listed in the TOE and the present mission of the battalion. Replacements having different MOS are given OJT in the needed MOS. For example, plumbers (51K) who are not essential to the present mission are being trained as construction foreman, truck drivers, and equipment operators.

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b. Health and Sanitation:

(1) The physical and overall health of the personnel is excellent. Good personal hygiene, cleanliness and personal protective measures are emphasized continuously.

(2) The mess halls and sanitation facilities are inspected regularly, and have been found to be in satisfactory condition. Deficiencies and recommendations are reported to the respective companies for corrective action.

(3) Venereal disease remains a major problem within the battalion although the rate has declined in July. Personal protective measures continue to be stressed to the troops. The highest incidence of venereal disease occurs among the troops stationed in the field. The battalion doctor visits each isolated base camp once a week.

c. Morale:

(1) The battalion chapel attendance has remained above 30% for the period. The battalion chaplain visits each base camp once a week to present character guidance classes and give religious services.

(2) The battalion theater continues to show movies seven nights a week. Each of the four company base camps also show movies seven nights a week.

(3) Each of the four isolated companies operate approved Other Sundry Funds for the purpose of serving beer, soft drinks, and snacks.

(4) The isolated companies are served by the 169th Engineer Battalion Post Exchange. A mobile truck operated by IIC visits the base camps once a week to sell items not available through Sundry packs and impress funds. The 544th Engineer Company (CS) base camp has a gift shop located within the compound.

(5) Out-of-country R & R allocations are sufficient to accommodate all personnel that desire to participate. The battalion has been receiving one (1) allocation per month for the new in-country R & R site at China Beach. The battalion has established an R & R facility at IIC, Long Binh Post. Each isolated company can reward deserving enlisted men who perform their duty in an exemplary manner a two or three day pass to the battalion R & R center.

d. Discipline: During the reporting period there have been 61 company grade Article 15's and 31 field grade Article 15's. The majority of these Article 15's were for failure to report for duty and disobedience of orders. Five special court-martials have been convened during the reporting period with two pending as of this date.

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c. Casualties: During the reporting period the battalion has suffered the following casualties:

(1) Killed: one struck by lightning

Killed: one shot accidentally

(2) Wounded in Action: None

(3) Injuries, non-hostile causes: The battalion suffered 11 personal injuries during the period. One (1) resulted from accidental or intended weapons incident. Two suffered injuries in vehicle accidents. The remainder were sustained while on duty status.

(4) The battalion had one patient evacuated from Vietnam for psychiatric disorders.

3. Intelligence, Counter Intelligence, and Enemy Activity:

a. Intelligence and Counter Intelligence:

(1) The battalion has performed no Combat Intelligence function during the past reporting period other than reporting to higher headquarters all incidents involving enemy activity in the AOR that involve either units within the battalion or security forces provided for the battalion.

(2) The battalion receives intelligence information concerning the Long Binh area and Long Khanh Province in the form of Intelligence summaries from Long Binh Post, II Field Force, and Long Khanh Province Advisory Teams. These INTSUMS are received daily.

(3) Periodic intelligence briefings are given to officers of the battalion by the 18th ARVN Division, the districts along QL-20, and the 1st Air Cav. Division. By means of close personal contact with the ARVN and districts, the battalion is kept abreast of the tactical situation.

(4) Reconns in the form of sweep teams are conducted 2 times a week forward of the 159th Engineer Group sector of the defensive perimeter.

b. Defense Responsibilities:

(1) The 169th Engineer Battalion falls under the control of the 159th Engineer Group for Long Binh Post perimeter defense. The 169th Engineer Battalion provides guards for three 12 hour posts and one 24 hour post. In addition, a reactionary force is provided on call.

(2) Each isolated company is responsible for its perimeter defense. Each company is assisted by an RE/PF company that provides manpower to the bunkers.

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c. Enemy Activity:

(1) There were no construction days lost due to enemy activity during the period.

(2) On 4 June 1970, 2 (two) rounds passed through the windshield of an A Co 3/4 ton truck traveling in vic of YT 4433. No injuries.

(3) On 29 June 1970, 4 (four) lowbed trailers and 10 (ten) ton tractors were ambushed about 20 kilometers east of Vo Dat. Several tires were shot but no injuries sustained. Tractor and trailers were on combat support mission.

(4) On 2 July 1970, a 1/4 ton truck from the 43d Engineer Co was fired upon by small arms in the vicinity of Trang Bom (QL-1). Rounds hit the road causing no damage to vehicles or people.

4. Operations, Plans, Training:

a. Projects completed during reporting period:

(1) Combat and Operational Support

(a) 140-5580-0-20, Equipment Support, 79th Engineer Group, A Company, 169th Engineer Battalion: Provided one fork lift. Starting date 11 May 1970, completed 27 May 1970.

(b) 189-5588-0-20, Equipment Support IIFV, C Company, 169th Engineer Battalion: Provided dozer to construct 6 berms and gun position. Starting date 5 June 1970, completed 29 July 1970.

(c) 189-5595-0-20, Equipment Support 79th Engineer Group, A Company, 169th Engineer Battalion: Provided four 25 ton trailers with 10 ton tractors. Starting date 14 May 1970, completed 18 May 1970.

(d) 190-5691-4-23, Equipment Support 79th Engineer Group, A Company, 169th Engineer Battalion: Provided three 25 ton trailers with 10 ton tractors. Starting date 21 June 1970, completed 24 June 1970.

(e) 191-5589-0-20, Equipment Support, 79th Engineer Group, A Company, 169th Engineer Battalion: Provided two 25 ton trailer with 10 ton tractors. Starting date 31 May 1970, completed 3 June 1970.

(f) 243-6311-0-20, Equipment Support 79th Engineer Group, B Company, 169th Engineer Battalion: Provided one 60 ton trailer. Starting date 5 June 1970, completed 10 June 1970.

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(g) 243-5729-3-23, Maintenance of Base Camp Perimeter, Long Binh Post, IHC, 169th Engineer Battalion: Repaired bunkers and installed concertina and trip flares. Starting date 2 July 1969, completed 9 June 1970.

(h) 289-6109-0-20, Maintenance of Base Camp Perimeter, 544th Engineer Company: Repaired bunkers and installed concertina and trip flares. Starting date 2 December 1969, completed 9 June 1970.

(i) 289-6111-0-20, Maintenance of Base Camp Perimeter, B Company, 169th Engineer Battalion: Repaired bunkers and installed concertina and trip flares. Starting date 2 July 1969, completed 9 June 1970.

(j) 289-6112-0-20, Maintenance of Base Camp Perimeter, C Company, 169th Engineer Battalion: Repaired bunkers and installed concertina and trip flares. Starting date 2 July 1969, completed 9 June 1970.

(k) 289-6113-0-20, Maintenance of Base Camp Perimeter, D Company, 169th Engineer Battalion: Repaired bunkers and installed concertina and trip flares. Starting date 2 July 1969, completed 9 June 1970.

(2) MACV Advisor Facilities: None

(3) Minimum Essential Requirements: None

(4) Lines of Communications:

(a) 489-5307-0-20, Base Camp maintenance, B Company 169th Engineer Battalion. Minor repair to mess hall, shower, latrines, and electrical wiring. Starting date 26 December 1970, completed 30 June 1970.

(b) 489-5308-0-20, Base camp maintenance, C Company 169th Engineer Battalion. Minor repair to mess hall, latrines, and electrical wiring. Starting date 26 December 1970, completed 30 June 1970.

(c) 489-5309-0-20, Base camp maintenance, D Company 169th Engineer Battalion. Minor repair to mess hall, shower, latrines, and electrical wiring. Starting date 26 December 1970, completed 30 June 1970.

(d) 489-5312-0-20, Base camp maintenance, 544th Engineer Company (CS), 169th Engineer Battalion. Minor repair to mess hall, shower, latrines, and electrical wiring. Starting date 26 December 1970, completed 30 June 1970.

b. Active Projects:

(1) Combat and Operational Support

(a) 291-6308-3-23, Maintenance Long Binh Post Perimeter. The 169th Engineer Battalion repaired bunkers and installed concertina wire and trip flares. Continuous.

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(b) 291-6308-7-23, Maintenance of base camp perimeter, each company on QL-20. Repaired bunkers and installed concertina wire and trip flares. Continuous.

(c) 489-0304-0-01, FY70 Program, Restoration of QL-20 from Gia Kien to II/III Corps Border, 169th Engineer Battalion: Constructing 65.4 kilometers of MACV standard class A highway. 1,230,495 SY of clearing and grubbing, placed 1,445,634 CY of subbase, placed 159,000 CY of base course rock, paved 52.75 kilometers of 1st lift and 28.09 kilometers of 2nd lift using 129,000 tons of asphaltic concrete, placed 489 LF 24" culvert, 1389 LF 30" culvert, 2814 LF 36" culvert, 2861 LF 48" culvert, 1869 LF 60" culvert, 216 LF 108" culvert, constructed 107 headwalls using 1584 CY concrete. Started 15 Sept 1969, estimated completion date 1 Dec 1970.

(5) MACV Advisor Facilities:

(6) Base Construction:

(a) 43-280-01-T-7S (B & D) Outdoor Recreation Facilities, Long Binh Post, Company C, 169th Engineer Battalion: Project consists of constructing four softball fields, four tennis courts, four basketball courts and thirty volleyball courts. Project has not been started due to low priority.

(b) 543-0308-0-1 Road paving, Long Binh Post, Company A 169th Engineer Battalion: Consists of paving arterial streets on Long Binh Post, project to be started after completion of QL-20.

(c) Engineer Plans: During this quarter the battalion continued to make field changes to the plans on QL-20. The as built drawings are being kept current.

(d) The crusher complex at Gia Kien produced 50,395 CY of 2" (-), 13,315 CY of 3/4" (-), and 20,432 tons of asphalt during the reporting period.

f. Training:

(1) Formal training is conducted in the battalion on Sunday and Tuesday evenings. Mandatory DA and USARV subjects are taught. The majority of the training is carried on at the company level in commander's lectures and regular classes. At battalion level, a class in counter-Sapper techniques is conducted every two weeks by the S-2 staff and officers from the companies. The class is given to all new personnel and includes the skills that relate to perimeter guard duties such as weapons familiarization, artillery fire and adjustment, enemy sapper techniques and starlight scope operations.

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(2) Company A, Direct Support Maintenance Section conducts OJT for ARVN mechanics. There is an average of ten ARVN mechanics for each class of twelve weeks. The classes are run on a rotation basis with each mechanic getting a chance to become familiar with both engineer and ordnance equipment. The program is working well but the TM's are still not available in Vietnamese. This continues to slow down the learning process due to the obvious language barrier.

(3) The 43d Engineer Company (DT) has employed VN drivers to supplement their effort in obtaining maximum utilization of the GMC dump trucks that were received under the MCA/LOC buy program.

5. Logistics:

a. Equipment Status: The following list reflects Mission Essential TOE/MTOE equipment shortages for this battalion, which impact upon mission accomplishment.

<u>NOMENCLATURE</u>	<u>AUTH</u>	<u>O/H</u>	<u>SHORT</u>
Contact Trk, Shop Maint	6	5	1
Semi-Trailers, LB 25 Ton	24	16	21
Truck, Utility, 1/4 Ton	24	22	2
Welding Shop, 300 Amp (Including 544th)	8	6	2

Note: On the semi-trailers, 13 of the 16 on hand are unserviceable, (Code H), but are being used pending receipt of replacement trailers.

b. MCA/LOC Program: During this reporting period the battalion, the 544th Engineer Co. (CS), and the 43d Engineer Co. (DT) had on hand the following items of MCA/LOC equipment:

<u>ITEM</u>	<u>ON HAND</u>
Bucket, Concrete	1
Compactor, Segmented	2
Compressor, 600 CFM	2
Curbing Machine, Extruder	1
Distributor, Bituminous 2500 Gallon	1

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Distributor, Water 5000 Gallon	2
Drill, Rock	2
Excavator, Hydraulic	2
Grader, Sloper Attachment	2
Loader, Scoop 6 Cubic Yard	3
Paving Machine	2
Roller, Vibratory	2
Roller, Self-Prop 8-13 Ton	2
Spreader, Jersey	1
Sweeper, Rotary	2
Tamper, Hand	3
Tractor, FT D9G	2
Tractor, Utility Pettibone	2
Truck, Dump 20 Ton	71
Welder, 400 AMP	2
Welder, 600 AMP	1

c. Maintenance Float Items: The battalion has the following items of float equipment on hand:

<u>ITEM</u>	<u>ON HAND</u>
Tractor, D7E	5
Tractor, 830M	6
Scoop Loader, 2 1/2 Yard	3
Trk, Cargo 2 1/2 Ton	4
Trk, Dump 5 Ton	9
Trk, Tractors, 5 Ton	1

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Grader, Mtd.	1
Scraper, 18 Cubic Yd.	1
Generator, 10 KW	2
Generator, 5 KW	6
Generator, 3 KW	2
Generator, 1.5 KW	2
Generator, 100 KW	1

d. Amunition: During this reporting period some demolition supplies were in short supply. Particularly critical was the shortage of detonating cord and military dynamite. These items are used in our quarry operations and this affects our blasting schedule.

e. Maintenance:

(1) The battalion deadline rate for USARV critical equipment has averaged 8.5% for the past quarter. This has complied with the 20th Engineer Brigade goal of 8.5% and has show measurable improvement over the rate of 9.0% for the previous quarter. Of significant consideration is the fact that while the number of maintenance personnel has remained at original TOE strength, the quantity of equipment supported has increased greatly due to the addition of two attached earthmoving platoons plus the Quarry and Asphalt Plant of the 544th Engineer Company (CS).

(2) An unfavorable aspect of maintenance has been the rise in the deadline rate for MCA/LOC equipment over the quarter to an average of 16.2%. This is a result of an increase in the number of 12 cubic yard dump trucks deadlined each week. This deadline will expectedly be diminished by acquisition of much maintenance equipment necessary to repair these trucks.

f. Construction Materials:

(1) No project was stopped during this reporting period for lack of construction materials.

(2) Large sizes of culvert remained in short supply, i.e. 60" and 72". These shortages were partially solved by use of Multi-Plate Pipe Arch (MPPA) where possible.

g. Mineral Products: OICC contracts for RMC-BRJ have provided base rock and blast rock for use on QL-20. The base rock was carried directly to the road and placed on the road or stockpiled close to the road project site. The blast rock was carried to Banana Quarry, crushed and taken to the road. Some of the blast rock was also used to stabilize very soft areas on QL-20. In all, 36,275 cubic yards of base rock was obtained from RMC-BRJ.

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h. Contract Resources: No civilian trucks have been provided to the Battalion this quarter. The haul requirement was met with TOB and MCA/LOC equipment.

i. RVNAF Improvement: During the reporting period the 169th Engineer Battalion continued its participation in the RVNAF improvement and modernization program by transferring one truck wrecker, medium, 5 ton, M543A2 to the Republic of Vietnam.

6. Force Development: The 169th Engineer Battalion and subordinate Company AOR's remained unchanged over this reporting period. The 544th Engineer Company (CS) continued to operate the industrial site at Gia Kiem, consisting of a quarry, crushers and asphalt plant.

7. Command Management: Continued emphasis has been placed upon the accuracy in preparation of the project data reports. The increased emphasis has resulted in improved management of the construction projects.

8. Inspector General Activities: The battalion acting Inspector General investigated 10 complaints during this reporting period. All complaints were local and were resolved at the unit level.

9. PIO: During the past reporting period the battalion submitted 21 feature stories and 260 hometown news releases. Three of the feature stories were published in journals circulating throughout the Republic of Vietnam.

10. Civic Action:

(a) Social Welfare:

(1) The 169th Engineer Battalion spent a total of about 30 man days on Civic Action projects during the past quarter, such as building access roads and providing drainage structures. Many other things were done to assist the people while the regular road was being constructed. Fill material was provided for the people to help them improve their area.

(2) Assistance was given to one orphanage, one church, one MACV subsector and the villages around the company base camps.

(b) Specific Projects:

(1) A load of food and clothing was taken to the Dominican Sisters Orphanage in Honai.

(2) A large plot of ground was cleared near the C Co base camp (vic. XT 4333) so that local people could farm the area.

(3) Clearing was accomplished at Kiem Tan Subsector in preparation for expansion of District Headquarters.

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(4) Numerous homes and churches were given fill to assist in building driveways and floors to buildings.

SECTION 2: Significant Lesson Learned:

1. Personnel: None

2. Intelligence: None

3. Operations:

a. Axle loads and design criteria

(1) Observation: Civilian traffic axle loads and design criteria do not appear in agreement. Recent spot tests indicated axle loads of 13.8 tons, 14.7 tons and 22.8 tons. These were cut lumber and timber loads southbound on QL-20. Almost all northbound traffic is consistently heavily laden. At this time about 27 KI have a double-lift of asphaltic concrete of 5". An additional 25 KI are of single lift configuration of 2½".

(2) Evaluation: Such loads will cause a rapid buildup of design load repetitions, quickly decreasing the life of the road causing early deformations and subsequent failures. More tests will be conducted in the future.

(3) Recommendation: In the future either pavement design should include such axle loads in design analysis or a system of weight limits be initiated similar to the U. S. highway system. Traffic must return from temporary bypasses to the newly paved roadway as soon as wet weather arrives. The roadway either must be designed to accommodate these real-lift loads on first lift asphalt or production and haul resources must be sufficient to very rapidly overlay behind initial binder course.

b. Lining of ditches in populated areas.

(1) Observation: In Nguyen Hue on QL-20 a serious erosion situation existed. The ditch eroded downward and into the FY 69 roadway posing a distinct and difficult problem.

(2) Evaluation: Traffic, the existing village structures, and other commitments precluded major earthwork to remedy the problem. A lined ditch appeared to be the solution with diversion ditches cutting off a portion of the normal ditch flow. The ditch was lined with half sections of 60" CMP, anchored and secured together with proper overlap. The villagers participated in the operation on request.

(14)

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(3) Recommendation: The half-culvert lined is an excellent solution to built up area drainage and with proper planning and execution can be developed into a relatively permanent structure.

c. Asphaltic concrete for scouring pads on culverts

(1) Observation: Concrete scouring pads are time consuming to place and form.

(2) Evaluation: For small culvert installations, an asphaltic concrete scouring pad is effective and easy to install. It serves the purpose with much less expenditure in terms of time money.

(3) Recommendation: For all culvert installations of 48" culvert and smaller, asphaltic concrete should be used for the scouring pads, both upstream and downstream. For culverts greater than 48", concrete scouring pads should be used.

d. Movable jaw "floating" on pitman arm.

(1) Observation: In the 410 MPH crusher, it was observed that the movable jaw was "floating" on the pitman arm while the crusher was operating.

(2) Evaluation: The bolts were all tightened in an effort to stop the floating on the pitman arm. This was not effective in preventing a condition that could cause severe damage to the crusher.

(3) Recommendation: The pitman arm keepers were worn from 1/2" to 3/4". These were built up and the problem was eliminated.

e. Vibrating grizzly

(1) Observation: In a quarry with a great deal of overburden, it becomes extremely difficult to separate the mud from the rock. When the rock goes into the primary crusher, the mud tends to clog the screens and prevent flow through the system.

(2) Evaluation: A vibrating grizzly can be used to strip the mud from the blast rock before it goes into the crushers.

(3) Recommendation: When there is a great deal of mud mixed with the blast rock, a vibrating grizzly can be used to greatly facilitate the production of rock due to the fewer number of stoppages for mud in the screen.

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f. Amount of vibration in vibrating grizzly

(1) Observation: Using the heavy duty 25 horsepower motor on the vibrating grizzly, there were not enough RPM's to vibrate the grizzly so that the mud would separate from the rock.

(2) Evaluation: The heavy duty, 25 horsepower motor operated at 1200 RPM whereas the standard speed, 25 horsepower motor operates at 1745 RPM's.

(3) Recommendation: The standard speed motor should be used to provide the added RPM's for the grizzly. In addition the rear of the grizzly was elevated to increase the slope. This was completed and the new motor installed. This eliminated the problem.

g. Wet weather culvert backfill expedient

(1) Observation: Heavy rains (48" in 6 weeks) halted progress on a double 48" culvert installation with temporary bypass in use and excavation initiated. However no forward progress could be made. Up to 500 vehicles required daily passage in both north and southbound directions.

(2) Evaluation: The same heavy rains also precluded soil backfill due to excessively high moisture contents. No other normally employed material was usable. A treatment of lime or cement under extremely wet conditions and the time frame available was infeasible. In the meantime the bypass continually deteriorated necessitating 2 dozers in full time recovery status. It was necessary to backfill the excavation without culvert placed on two previous occasions just to pass traffic through the area. By the third attempt the culvert had been placed so asphaltic concrete was used to establish a sound backfill over the culverts and provide a travelled way of about 15'.

(3) Recommendation: As a last ditch effort under extremely wet conditions a limited amount of asphaltic concrete will establish a satisfactory backfill and travelled way.

h. Culvert Forecasting and Placement on Bypasses

(1) Observation: Culvert construction on bypass roads is often ignored or assumed too costly.

(2) Evaluation: Normally bypass roads will require at least a reflection of the LOC's drainage if work will require use of the bypass during the monsoon. To ignore this situation will result in numerous deficiencies. To fail to plan for it could result in CIP forecasts falling perhaps 20% short of requirements. Although some of this CIP is recoverable in removal.

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(3) Recommendation: In planning bypass construction and in general CMP forecasting, culverts on bypasses should be included as a major task and a major item of construction materials.

i. Surge pile at crusher sites:

(1) Observation: A surge pile was used at Banana Quarry between the two primary jaws and the secondary crusher.

(2) Evaluation: The cost of a surge pile is a 108" with culvert bulkhead used as a reclaim tunnel, a frame-mounted syntron feeder (vibrator), storage area to handle the defined pile size and two conveyors. It is a high one-time cost, and a disadvantage. The advantages however, are overwhelmingly significant. Without a surge pile between units, if one unit must stop production for any reason, all units in that series are in effect stopped. With units separated by surge piles, each functions completely independently. Down time for the entire industrial site without surge piles is the addition down times for each unit in the series. With surge piles between the units, the down time is out significantly and becomes almost an average time of the crushing units.

(3) Recommendation: Surge piles be given increased emphasis in future industrial site layouts.

4. Training: None

5. Logistics: None

6. Communications: None

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- 25 - CO, 169th Engr Bn, ATTN: LCBE-OP

Connelly Sanders Jr
CONNELLY SANDERS JR
LTC, CE
Commanding

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ECB-CC (11 Aug 70) 1st Ind

SUBJECT: Operational Report - Lessons Learned, 169th Engineer Battalion,
Period Ending 31 July 1970, LOG 96491-65 (20)

DA, HQ, 159th Engineer Group, APO 96491 19 August 1970

TO: Commanding General, 20th Engineer Brigade, AFM: NWLI-CC, APO 96491

1. This headquarters has reviewed the Operational Report - Lessons Learned for the Quarterly Period ending 31 July 1970, from Headquarters, 169th Engineer Battalion.

2. Comments follow:

a. Section II, Paragraph 3a (Operations): Detailed tests on axle loads and traffic counts are now being conducted on L-20. A report will be developed based on the findings; this report will be completed and forwarded to higher headquarters within a month.

b. Section II, Paragraph 3c (Operations): The only asphalt that is used for securing pads is bad asphalt that does not meet design specifications, asphalt that has gotten too cool, and asphalt that cannot be placed on the road due to heavy rains.

Levi A. Brown

LEVI A. BROWN
Colonel, CE
Commanding

AVBI-OS (11 Aug 70) 2nd Ind

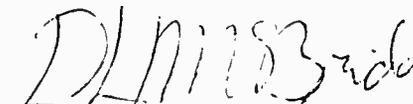
SUBJECT: Operational Report - Lessons Learned, 169th Engineer Battalion,
Period Ending 31 July 1970, RCS CSFOR-65 (R2)

DA, HEADQUARTERS, 20TH ENGINEER BRIGADE, APO 96491 27 AUG 1970

TO: Commanding General, United States Army Engineer Command Vietnam
(Provisional), ATTN: AVCC-AC, APO 96491

1. Submitted in accordance with letter, AVCC-MO, USAECV(P), dated 13 July 1970, subject: Operational Reports - Lessons Learned (ORLL's).
2. This headquarters has reviewed the Operational Report - Lessons Learned for the quarterly period ending 31 July 1970 from Headquarters, 169th Engineer Battalion and comments of indorsing headquarters.
3. Comments follow: Section II, paragraph 3a, page 14: Only the 22.8 ton axle load exceeds the pavement design loading of HS-20-44. A GVN regulation concerning maximum axle loads is highly desirable and is recommended.

FOR THE COMMANDER:



D. L. MC BRIDE
1LT, CE
Assistant Adjutant

Copies Furnished:
CO, 159th Engr Gp
CO, 169th Engr Bn

AVCC-MO (11 Aug 70) 3rd Ind

SEP 01 1970

SUBJECT: Operation-1 Reports - Lessons Learned for 169th Engr Bn

DA, HQ, US Army Engineer Command Vietnam, (Prov), APO 96491

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

Subject report is under review in this Headquarters. Comments for inclusion in the Headquarters USARV incorporation to CINCUSARPAC will be forwarded to your Headquarters by separate cover.

FOR THE COMMANDER:



ROBERT E. SHEA
CPT, AGC
Assistant Adjutant

AVHDO-DO (11 Aug 70) 4th Ind

SUBJECT: Operational Report of 169th Engineer Battalion, APO 96491, for
Period Ending 31 July 1970

Headquarters, United States Army Vietnam, APO San Francisco 96375 16 NOV 1970

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

1. This Headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 July 1970 from Headquarters, 169th Engineer Battalion and comments of indorsing headquarters.

2. Comments follow:

a. Reference item concerning "Demolition Supplies," page 12, paragraph 5d. Detonating cord has been and is still in a critical supply posture and is being allocated each month by Headquarters, USARV. The allocation is based on available assets (on-hand assets and projected receipts). Military dynamite was in short supply for a short period of time in the Long Binh Depot but not in any other depot area. This shortage was satisfied by the arrival of shipments of dynamite from Korean excesses and a redistribution among in-country depots. Requirements for military dynamite have been forecasted and will be satisfied by redistributing in-country assets or programmed receipts from out-of-country. This Headquarters has encouraged units operating quarries to use electrical firing methods. This would reduce requirements for detonating cord. Even with the criticality of detonating cord and temporary shortage of military dynamite, no blasting operations were held up or had to be rescheduled. Recommend USARPAC and DA insure the continuous shipment of detonating cord and other explosives to Vietnam.

b. Reference item concerning "Axle Loads and Design Criteria," page 14, paragraph 3a, 1st Indorsement, paragraph 2a, and 2d Indorsement, paragraph 3. This Headquarters will investigate the possibility of amending MACV Dir. 415-6 which sets the traffic factor of roads at either 0.2 or 0.8. No action by USARPAC or DA is recommended.

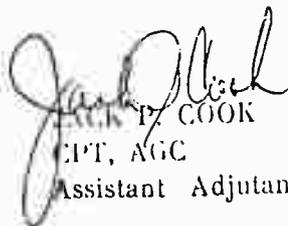
c. Reference item concerning "Lining of Ditches in Populated Areas," page 14, paragraph 3b. Lining drainage ditches with half sections of metal culvert pipe will assist in eliminating erosion problems. No action by USARPAC or DA is recommended.

AVHDO-DO (11 Aug 70) 4th Ind
SUBJECT: Operational Report of 169th Engineer Battalion, APO 96491, for
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d. Reference item concerning "Amount of Vibration in Vibrating Grizzly,"
page 16, paragraph 3f. Based on the conditions experienced, concur in
recommendation for application at this site only. No action by USARPAC
or DA is recommended.

FOR THE COMMANDER:

Cy furn:
USAECV(P)
169th Engr Bn


JACK P. COOK
CPT, AGC
Assistant Adjutant General

GPOP-DT (11 Aug 70) 5th Ind
SUBJECT: Operational Report of HQ, 169th Engineer Battalion for Period
Ending 31 July 1970, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558

24 DEC 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:

L.M. Ozaki, Lt
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L.M. OZAKI
CPT, AGC
Asst AG

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