

UNCLASSIFIED

AD NUMBER

AD851117

LIMITATION CHANGES

TO:

Approved for public release; distribution is unlimited.

FROM:

Distribution authorized to U.S. Gov't. agencies and their contractors;
Administrative/Operational Use; 31 JAN 1969.
Other requests shall be referred to Office of the Adjutant General (Army), Washington, DC 20310.

AUTHORITY

AGO ltr 29 Apr 1980

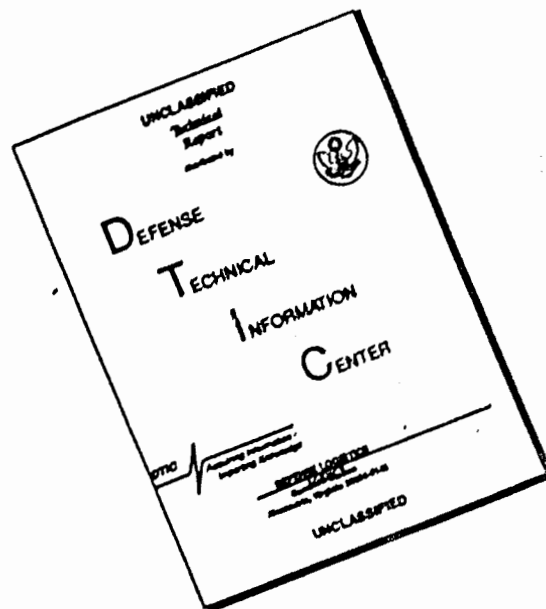
THIS PAGE IS UNCLASSIFIED

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.

AD 851117



FOR OFFICIAL USE ONLY
DEPARTMENT OF THE ARMY
OFFICE OF THE ADJUTANT GENERAL
WASHINGTON, D.C. 20310

IN REPLY REFER TO

AGAM-P (M) (15 Apr 69) - FOR OT UT 691136

17 April 1969

SUBJECT: Operational Report - Lessons Learned, Headquarters, 19th Engineer Battalion (Combat) (Army), Period Ending 31 January 1969

SEE DISTRIBUTION

1. Subject report is forwarded for review and evaluation in accordance with paragraph 5b, AR 525-15. Evaluations and corrective actions should be reported to ACSFOR OT UT, Operational Reports Branch, within 90 days of receipt of covering letter.

2. Information contained in this report is provided to insure appropriate benefits in the future from lessons learned during current operations and may be adapted for use in developing training material.

BY ORDER OF THE SECRETARY OF THE ARMY:

C. A. STANFIEL
Colonel, AGC
Acting 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 Armor School
- US Army Aviation School
- US Army Engineer School
- US Army Field Artillery School
- US Army Infantry School
- US Army Ordnance School
- US Army Transportation School

Copies furnished:

- Office, Chief of Staff, US Army
- Deputy Chiefs of Staff

RECEIVED
APR 30 1969

STATEMENT #2 UNCLASSIFIED

This document is subject to special export controls and each transmittal to foreign governments or foreign nationals may be made only with prior approval of Dept of the Army, Ofc of the Asst. Chief of Staff for Force Development, ATTN: FOR-OT-RD, Wash, D.C. 20310

Protective marking cancelled when separated from inclosure.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

DEPARTMENT OF THE ARMY
HEADQUARTERS 19TH ENGINEER BATTALION (COMBAT) (ARMY)
APO 96492

EGCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65), for Quarterly Period Ending 31 January 1969.

THRU: Commanding Officer, 937th Engineer Group (Combat), APO 96318

Commanding Officer, 18th Engineer Brigad ATTN: AVBC-C,
APO 96377

Commanding General, USARV, ATTN: AVHGC-DST, APO 96375

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

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

SECTION 1, OPERATIONS: SIGNIFICANT ACTIVITIES

a. Battalion Narrative

During this reporting period (1 November 1968 through 31 January 1969), the 19th Engineer Battalion (Combat) (Army) has continued its primary missions of maintaining National Highway QL-1 from Phu Cat to Mo Duc, upgrading QL-1 to MACV standards from Bong Son to Mo Duc and the rehabilitation of Landing Zone English Airfield. The battalion has provided engineer support to Operation Cochise of the 173rd Airborne Brigade and to elements of the Americal Division within the battalion area of responsibility. Operational support was also provided to the U.S. Navy detachment at Sa Huynh, the 6/84th Artillery Battalion and MACV advisory teams in the neighborhood of battalion elements.

The 19th Engineer Battalion (Combat) (Army), organized under TOE 5-36G, consists of HHC and four (4) line companies. Attached are the 137th Engineer Company (Light Equipment) and the 73rd Engineer Company (Construction Support). The 70th Engineer Company (Dump Truck) was attached for this entire report period but was reduced to zero strength at the close of the report period. Attached as Inclosure 1 is listed the organizational structure of the battalion.

FOROTUT
691136
Inclosure

1
FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

EOCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65). for Quarterly Period Ending 31 January 1969.

The Battalion Headquarters, B Company, and the 137th Engineer Company (LE) are operating from LZ North English (BS883056). C Company, the 73rd Engineer Company (CS) and the 70th Engineer Company (DT) (until reduced to zero strength) are operating from LZ Lowboy (BS913147). D Company operates from LZ Thunder (BS868318). A Company is operating from LZ Max (BS763472). On 20 November, 1968, A Company and B Company exchanged locations, A Company moving from LZ North English to LZ Max and B Company moving from LZ Max to LZ North English.

Changes in the command and staff elements of the 19th Engineer Battalion (Combat) (Army) during this reporting period included the Battalion Executive Officer, Battalion Adjutant, Battalion S-2, Battalion S-3, Assistant S-3, Battalion S-4, Property Book Officer, Battalion Maintenance Officer, Maintenance Technician, and Commanders of Headquarters Company, A Company, B Company, C Company, and D Company. The Adjutant position was vacated by 1LT Sanford Greenfarb, who transferred to the 20th Engineer Battalion on 20 November 1968. 1LT Armond Hagerman II moved from S-4 to fill the Adjutant position while Cpt Leonard Good was moved from Headquarters Company to the Battalion S-4 position. 1LT Alvin Bradley then became Commanding Officer of Headquarters Company. On 2 December 1968, 1LT Timothy Mullins became Property Book Officer. The position had been vacant since October. Maj Fred L. Farnsworth took over the Battalion Executive Officer position on 6 December 1968 when Maj Don E. Meeker was reassigned to the USARV Engineer Section. Maj Will M. Remington then filled the S-3 position vacated by Maj Farnsworth. Cpt Frederick Smith assumed the duties of Commanding Officer of C Company on 20 December when 1LT John C. Welin rotated. On 23 December 1LT Robert L. Portney assumed the duties of S-2 Officer. On 1 January 1969 Cpt Daniel H. Hornbarger, then E Company Commander, and Cpt Karl S. Snyder, then Assistant S-3, exchanged jobs. Maj Fred L. Farnsworth was assigned to 937th Engineer Group (Combat) for duty as S-4 Officer on 8 January 1969, leaving the Battalion Executive Officer slot unfilled. Cpt Guy Donaldson became Commanding Officer of D Company on 12 January 1969. The previous company commander, Cpt McNeil Rigby was on leave at the time and rotated shortly after returning. Cpt George Whitfield, the Battalion Maintenance Officer, took over A Company on 22 January after Cpt William Tolbert was evacuated for a wound received on an ambush patrol. On the same date CW3 Bernard Komosinski, then Battalion Maintenance Technician, transferred to the 18th Engineer Brigade CMAI team. WO1 Detwiler became the Battalion Maintenance Technician. On 27 January Cpt Herbert Loesch filled the position vacated by Cpt Whitfield.

As of the end of the reporting period, total assigned strength is 1077 of 1275 authorized. During the period 247 new personnel were assigned to the battalion and 331 rotated. Morale continues to be high in the battalion as indicated by a high extension rate (72 extensions during the period), the attitude, appearance and accomplishments of the men assigned to the 19th Engineer Battalion.

Inclsure

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

EOCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOI-65), for Quarterly Period Ending 31 January 1969.

Other pertinent personnel actions occurring within this reporting period are 10 reenlistments, 9 special courts martial conducted, and 19 Field Grade Article 15's administered.

During this reporting period, the reconnaissance section of S-2 completed a bridge and culvert reclassification between the Bong Son River (BM872958) and Mo Duc (BS740525). This included completion of DA Form 1249 (Bridge Recon) on 50 bridges and 70 culverts depicting the substructure, the superstructure and the by-pass. The road was reconnoitered every time enemy activity restricted vehicular movement on QL-1. Pictures were taken of the VIP program in action as well as work being done at various worksites, especially bridges QL-1-414 and QL-1-421 and the airfield at LZ English. Also taken were aerial photographs of QL-1 north of LZ North English (B 33056). Total mileage of reconnaissance was 45.6 miles.

The intelligence collection and dissemination efforts of the S-2 were augmented by receipt of daily intelligence summaries from the 173rd Airborne Brigade and from the 11th Infantry Brigade. Intelligence agent reports which affected elements of the battalion were gathered from MACV Advisors in Mo Duc, Duc Pho, Tam Quan, and Hoai Nhon along with agent reports from the 172nd and 52nd Military Intelligence Detachments and the 40th ARVN Regiment. This gave a comprehensive study of enemy activity throughout the battalion area of operations. The S-2 Section through the use of its interpreters has been able to extract information from the local populace concerning enemy activity in the battalion AO.

There were a total of 202 enemy incidents recorded during this reporting period. Elements of this battalion were fired on by the enemy with small arms, automatic weapons, grenades and M-79's in 79 of the incidents. Equipment, vehicles and personnel detonated a total of 18 mines and booby traps ranging from grenades to mines with an approximate charge of 35 pounds. The company mine sweep teams detected 28 mines and booby traps along QL-1 within the battalion's AOR. The enemy destroyed 12 culverts by placing explosives inside or directly above the culverts. Casualties resulting to the battalion from these incidents were 5 KHA and 31 WHA. The enemy constructed 79 obstacles on QL-1 for the purpose of harassment. The obstacles consisted of hand dug trenches and barricades of bamboo, wire and pieces of metal.

The Battalion's VIP program continued throughout this period with amazing success. Funds were obtained from the 52nd Military Intelligence Detachment and the 172nd Military Intelligence Detachment. The local Vietnamese have turned in since 1 November 1968, a total of 891 rounds of 40mm or greater and a total of 19 mines. The local Vietnamese were paid a total of over 170,645 piasters for their effort.

FOR OFFICIAL USE ONLY

EGCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65), for Quarterly Period Ending 31 January 1969.

Propaganda was found by the battalion including dead Vietnamese soldiers with propaganda pinned on them. Also there were several large banners and flags found. There were 25 incidents of propaganda during this period, especially heavy during Christmas time.

During the reporting period, elements of the battalion spent 87 days on LOC upgrading and maintenance, LZ English Airfield upgrading, operational support, cantonment rehabilitation and other construction projects. Five days were spent on training and maintenance standdown.

The majority of the battalion effort on QL-1 during the report period was expended in the repair of flood damage caused by tropical storm Hester. At the close of the previous reporting period the entire battalion AOR was battered by rainstorms and devastating flooding. As this report period began, 95 percent of the repair effort remained behind, and as of this date final repairs have not yet been completed. As this report period began, QL-1 was passable within the battalion AOR to QL-1-20 where a 200 meter gap of 5 feet deep water existed. It was impassable at this point and barely passable from LZ Max north to Mo Duc.

The magnitude of the repair effort during the months of November, December, and January is indicated by the engineer materials expended: 11250 cubic yards of blast rock, 3760 cubic yards of laterite, 1460 cubic yards of base course rock, 1011 cubic yards of headwall rock, 55 bags of cement, 505 cubic yards of sand, 90 feet of double single Bailey Bridge, 25 feet of 18 inch culvert, 572 feet of 60 inch culvert, 130 feet of 30 inch culvert, and 72 feet of 36 inch culvert. 15,540 man hours and 32,000 equipment hours were expended.

As of this date, two platoon months of work remain to accomplish repair of bridge approaches from Phu Cat to LZ Lowboy and the reconstruction of the Bong Son Causeway. Rehabilitation of the subbase must be accomplished in several sections between LZ Lowboy and Mo Duc.

Upgrading of QL-1 from Bong Son to Mo Duc to MACV standards continued nevertheless throughout the period. Only a few days work remain to put the finishing touches on bridge QL-1-414, a 102 foot steel stringer bridge with timber decking. All of the work on the superstructure of the bridge was accomplished during this report period except for the small amount that remains.

Road widening was accomplished in the A Company sector from BS765474 to BS743520. This consisted of laying down a sand blanket on both sides of the existing French built road. Laterite was spread and compacted until grade achieved on either side. The old pavement was ripped and windrowed to the side. The center then was built up to put a crown in the road, and the ripped pavement and base material was spread back over the entire road. Only a small section of road from BS743520 to Mo Duc remains to be widened within the present battalion AOR.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

EGCA-OP

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65) For Quarterly
Period Ending 31 January 1969.

31 January 1969

Upgrading of QL-1 in the D Company and A Company sectors has been hampered by a lack of haul capability for those units. The majority of the battalion's organic and attached hauling assets has been committed during this report period to LZ English Airfield rehabilitation and surfacing of QL-1 between LZ Lowboy and Bong Son.

Paving of QL-1 began once again. At the beginning of the report period asphaltic-concrete pavement existed from LZ Lowboy to BS887051, 300 meters south of the access road to LZ North English. C Company, 73rd Engineer Company (CS), 137th Engineer Company (LE), and 70th Engineer Company (LT) have combined efforts to prepare a base with 2½" (- rock produced at Tan Quan Quarry, prime it with asphalt cutback and extend the pavement in one 2½ inch lift from the above-mentioned location 2½ miles to the vicinity of LZ English, for a total of 35,200 square yards paved. At the close of this reporting period the paving operation continued to receive major emphasis, and it is anticipated that by April 1969 QL-1 will be paved from Bong Son to Sa Huynh (BS923223).

In November, upon arrival at LZ North English from LZ Max, B Company began reconstruction of drainage facilities in Bong Son, a vital project to the overall mission of upgrading QL-1. Because the layout of the town permits little drainage directly away from the road, lateral drainage was required to carry water to where it could be taken away. Reinforced concrete U-shaped ditches are being constructed with B Company and local Vietnamese Nationals combining efforts in a unique joint Vietnamese-American project.

LZ English Airfield continued to receive top priority with the occasional exception of emergency operational requirements and effort to keep QL-1 trafficable. At the beginning of this report period most of the southern half of the airfield had been upgraded through the base, and 800 feet of runway 60 feet wide had been paved with an asphaltic concrete surface. During this reporting period 17,095 cubic yards of basecourse material have been placed on the southern portion of the runway, the south taxiway and the parking apron. 2642 tons of hot mix asphalt have been put down in two 1½" lifts on these three areas opening them to traffic. All of the M&A1 matting has now been removed from the northern half of the runway and most of the north taxiway. Matting must yet be removed from the northern 1/3 of the parking apron. Excavation of the unsuitable subgrade material has been completed on the northern half by the 137th Engineer Company (LE), having removed 30,330 cubic yards of saturated laterite. Cutting has taken place to four (4) feet below the original grade line and in two very soft areas material was cut out to a depth of fifteen feet. To date 3800 cubic yards of 4" rock and small blast material have been placed in the excavated portion of the runway. Rain continued to be a nuisance during this reporting period, stopping airfield construction for 11,505 man hours. The estimated date of completion for the airfield, now 60% complete, is 30 April 1969.

FOR OFFICIAL USE ONLY

EGSA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65), for Quarterly Period Ending 31 January 1969

All companies continued to rehabilitate their cantonment areas by new construction, repair of existing structures and improvement of tactical security facilities.

The Tam Quan Quarry operated by the 73rd Engineer Company (CS) at LZ Low-boy continued to provide outstanding construction support. Installing a new 225 TPH system; a total of 34,429 cubic yards of crushed rock of all sizes were produced.

Because of a lack of infantry support due to the fact that local US units were heavily committed elsewhere, the line companies of the battalion conducted night reconnaissance and combat operations to reduce mining and ambushes along QL-1. Having received training in infantry operations from the 11th Light Infantry Brigade of the Americal and the 173d Airborne Brigade during the previous reporting period, platoon size operations were conducted at night in the vicinity of the respective company base camps. Contact was light and enemy casualties unknown. Battalion elements suffered two casualties, both wounded. Using night vision devices, battalion elements at LZ North English were able to detect a company size enemy force moving near the perimeter and cause an unknown number of casualties with supporting artillery and attached 40mm cannon fire.

As non-divisional engineers the battalion provided direct support to elements of the 173d Airborne Brigade in Operation Cochise and to other units within the battalion AOR. Support effort included the following:

The 19th Engineer Battalion continued to operate two water points at LZ English and one at QL-1-399 (BS 921211) in support of friendly units in the area. Approximately 2,500,000 gallons of water were purified and dispersed.

Daily repair of the operational portion of LZ English Airfield was performed by welding M8A1 matting.

Minesweep continued to be conducted daily over 42 miles before QL-1 opened for military traffic.

A helipad for 173d Airborne Brigade aviation units was completed. The majority of the effort was accomplished during the previous reporting period.

Four firing pads were constructed at LZ Pony (BR 798833) to provide recoil absorption for 8 inch and 175 mm self propelled artillery. Deadmen consisted of 16"x16" timbers anchored by 8" posts buried in drums filled with concrete and by cable encircling the entire pad.

Effort was applied to restore to trafficable condition highway 3A leading from QL-1 to LZ Pony.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

EGCALOP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65) for Quarterly
Period Ending 31 January 1969

Technical advice was provided to 2/503d Infantry at LZ English in construction of a retaining wall.

LZ Dog, adjacent to LZ English, was levelled by the battalion heavy equipment section in preparation for construction of dependent housing for ARVN forces.

Battalion demolition teams were provided for explosive ordnance disposal and tunnel destruction.

A timber pile tower was constructed at LZ North English on which to mount counter-mortar radar for the 173d Airborne Brigade.

Equipment Support was continuously provided to neighboring units utilizing D7E dozers, front loaders, 20 ton cranes, graders and the entranching machine. An extremely popular piece of equipment often requested was the 16S cement mixer.

The battalion will provide technical assistance and materials for the self-help rehabilitation of cantonment areas for the 61st Assault Helicopter Company at LZ English and MACV advisors at Phu My District and 41st ARVN Regimental Headquarters. Other pending operational support missions include construction of a control tower for LZ English Airfield, a fence around the airfield and construction of other airfield operational facilities.

At the close of this reporting period the immediate operational effort of the 19th Engineer Battalion is oriented to completion of LZ English Airfield and upgrading of QL-1 to the Bong Son River. Future planning calls for a relocation of assets in order to concentrate on upgrading QL-1 to an asphaltic concrete highway from LZ Lowboy to Mo Duc.

During this report period the battalion has consumed 384,229 board feet of lumber, 6,789 bags of cement, 11,153 pounds of nails and spikes, 1,883 pieces of culvert ranging from 18" to 72" and 3,620 barrels of asphalt.

Shortage of several types of critical equipment has seriously hampered operational capability. The following list gives the status of critical items of equipment:

<u>NOMENCLATURE</u>	<u>UNIT</u>	<u>AUTH</u>	<u>O/H</u>
Truck, utility, 1/4 ton	19th	29	11
Tank and Pump Unit, Liq Disp	137th	6	3
Distributor Bituminous	19th	1	0
	137th	3	1
	73rd	1	0

FOR OFFICIAL USE ONLY

EGCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 31 January 1969

<u>NOMENCLATURE</u>	<u>UNIT</u>	<u>AUTH</u>	<u>Q/E</u>
250 CFM Pneu & Tool & Compressor	19th	5	2
Outfit	137th	3	0
Radio Set AN/GRC 125	19th	52	35
	137th	6	0
Semi-trlr L/B 60 Ton	73rd	4	0
	137th	1	0
Shop Equip Contact Trk	137th	3	1
Launcher 40mm	137th	36	2
Forklift, RT, 10,000# cap.	19th	1	0

Another major problem continues to be the long haul distance from depot. Materials have to be transported 70 miles from Qui Hon to LZ North English and then hauled to the companies which means another 40 miles in the case of A Company. Lack of a forklift also hampers the ability to easily handle supplies in the S-4 yard.

b. Headquarters and Headquarters Company Narrative

During the reporting period Headquarters and Headquarters Company continued to support the battalion in all areas. Operations continued to function smoothly even with a large turn-over of key personnel.

Four major events occurred during this reporting period which directly involved the staff and other sections or had an effect upon them. The first of these was an Annual General Inspection from 4 to 11 November 1968. All organic and attached companies were inspected, and it was determined that the mission of the 19th Engineer Battalion was being accomplished in a satisfactory manner. It was noted that the overall appearance of areas, the condition of facilities and equipment and the positive attitude exhibited by personnel were indicative of a high degree of professionalism and dedication. The second was the fact that, as indicated in Section I, part a, a change of officers in each principal staff section occurred as well as a change in Battalion Executive Officers. Transitions were made smoothly in all sections. The third major event was the battalion's move from 35th Engineer Group (Const) to the 937th Engineer Group (Combat) at the beginning of the reporting period. This transition also occurred very smoothly. The last event is the reduction to zero strength of the 70th Engineer Company (DT) at the close of this reporting period. Personnel and equipment assets are being distributed among battalion elements with the hauling capability of the 70th Engineer Company (DT) being retained under C Company's control at LZ Lowboy for continued effort on LZ English Airfield and on QL-1.

The battalion heavy equipment section was committed throughout the AOR in support of battalion projects primarily providing D7E bulldozer, grader and 20 ton crane assistance. Operational support was provided to elements of the 173d Airborne Brigade, the 11th Light Infantry Brigade, 6/84th Artillery

EGCA-OP

FOR OFFICIAL USE ONLY

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65) for Quarterly
Period Ending 31 January 1969

Battalion, the US Navy Detachment at Sa Huynh and other neighboring units. The majority of heavy equipment effort was expended in work on the LOC. The heavy equipment section also had the mission of levelling LZ Dog adjacent to LZ English in preparation for the construction of ARVN dependent housing. 180,000 square yards of area were levelled with bulldozers, graders and 290M scraper units, the latter being provided by the 137th Engineer Company (LE).

During the reporting period the battalion maintenance section continued its mission of support to the companies of the battalion by providing contact maintenance assistance, centralized evacuation to direct support units and overall supervision and inspection of company maintenance programs. A concentrated program of repair parts supply management was undertaken which has resulted in a large increase in the stockage levels of company prescribed loads. A significant event of the period was the 18th Engineer Brigade CMMI of Headquarters Company, B Company and the 137th Engineer Company (LE). Headquarter Company received an overall satisfactory rating with outstanding scores in all categories and received the highest aggregate score yet attained by a unit of the 18th Engineer Brigade.

The battalion medical section continued its excellent support throughout the reporting period. Skin and respiratory diseases comprised the majority of cases treated while seven cases of malaria were recorded during the period. Fifty persons were treated for injuries suffered as a result of hostile action. During the quarterly period 1321 injections were given keeping battalion personnel current on their immunization status. Frequent health inspections were made of living, eating and working areas.

The communications section worked daily against enemy and natural forces to maintain communications with higher elements. Reliable communications were established with the 937th Engineer Group utilizing VHF circuits. In December the battalion communications officer submitted a recommendation to the US Army Mobility Equipment Command that the fragile design of the handle assembly on the Model P-153 mine detector be changed to a sturdier configuration. A redesign has been completed and will appear in future production. The communications section also passed the 18th Engineer Brigade CMMI with one of the highest scores ever achieved.

c. A Company Narrative

During the first two weeks of the reporting period A Company was engaged in emergency repair of flood damage primarily south of Bong Son. On 15 November 1968 A Company began phasing into LZ Max establishing their command post at that location on 20 November 1968. They assumed responsibility for QL-1 upgrading and maintenance from 7-418 (BS 789417) to Mo Duc.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

EGCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 31 January 1969.

In their northern location, immediate attention was given to restoring the road at QL-1-420 (BS777444) where the floods had cut a 200 meter gap. B Company had opened it to traffic but effort remained to install two 50 foot tubes of 60 inch culvert and upgrade the road to its former width and height. Including B Company's efforts a total of 1700 cubic yards of blast rock, 1000 cubic yards of laterite, 200 feet of 60 inch culvert, 450 cubic yards of headwall rock and 25 bags of cement were used.

A Company installed a 100 foot double single Bailey bridge at QL-1-421 (BS771461) after the by-pass there had been destroyed by enemy activity.

When 290M scraper units became available from the LZ English Airfield project, road widening received major emphasis starting at LZ Max and going north to BS743520 at the close of this reporting period. Totals of 27385 cubic yards of laterite, 400 cubic yards of blast rock and 990 cubic yards of sand were used to widen the existing French road.

As B Company had before them, A Company continued to experience heavy enemy mine activity on QL-1. Nine pieces of equipment assigned or attached to A Company were destroyed by mines during this period. The company and attached elements suffered two killed, one a platoon leader, and nine wounded as a result of mines. Fifteen mines or booby trap were found, 11 mines were detonated, and six culverts were blown. To reduce enemy activity along QL-1, A Company conducted night combat patrols to the north of LZ Max. One contact was made resulting in the A Company commander being wounded. Enemy casualties are unknown.

A Company also conducted daytime training in infantry operations and patrolling to prepare for their nighttime missions.

One Chieu Hoi turned himself in to A Company in November.

d. B Company Narrative

While still at LZ Max, B Company devoted its efforts to making QL-1 trafficable within its AOR following the October floods. The majority of the effort was committed at QL-1-420 to fill the gap at that location. This section of QL-1 was open to traffic when B Company departed LZ Max. Effort was also applied to the by-pass at QL-1-422 (BS758489) and the main culvert itself. To restore trafficability at this location, the floods having damaged this section of road heavily.

Upon arrival at LZ North English (the command post changed location on 20 November 1968), B Company commenced work on a project at Vietnamese-American project to upgrade the drainage through Bong Son. During the period a total of 36 trees and stumps were removed and 141 cubic yards of reinforced, U-shaped concrete ditch were poured. The project is 15 percent complete.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

EGCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 31 January 1969.

Effort has also been expended in repair of flood damage on bridge approaches particularly from Phu Cat to Bong Son. When hot mix was produced for paving of QL-1 or English Airfield, pothole repair received major emphasis in the sections of the company AOR previously paved. New treadway was placed on Bridge QL-1-385 and repairs made on the treadway of the Bong Son railroad bridge (QL-1-385.1).

To restore QL-1 through Bong Son, B Company has excavated the saturated subgrade material and replaced this with 1575 cubic yards of base course material and blast rock.

B Company conducted two nighttime ambush patrols, one in conjunction with RF/PF forces resulting in three enemy captured and one friendly wounded. Daylight training was conducted in patrolling and infantry operations during January 1969.

While at LZ Max during the first several weeks of the report period, B Company minesweeps found four mines and booby traps including a Chinese Communist antitank mine and seven roadblocks consisting of hand-dug trenches to barbed wire fences across the road. One enemy mine was detonated resulting in one B Company man killed and a totally destroyed 5 ton dump truck.

After moving to LZ North English, B Company minesweep teams suffered two wounded, and one team was the target of a claymore mine which failed to detonate properly.

In December, B Company suffered one platoon leader killed by hostile fire.

c. C Company Narrative

During the early portion of this reporting period C Company at LZ English completed a diversion wall, vehicle retaining fence around the south half of the runway and a helipad for 173rd Airborne Brigade Aviation units.

In their AOR for LOC maintenance (LZ Lowboy to BS887288), C Company continued on repair of flood damage. Debris from rockslides was cleared from the highway and utilized in restoration of QL-1 farther north. The results of scouring around numerous culverts and bridge approaches were repaired with blast rock and fill material.

A concrete pad was constructed for the 225 TPH rock crusher belonging to the 73rd Engineer Company (CS) at LZ Lowboy. At the close of this report period, C Company is beginning construction of a new crusher headwall.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

EGCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 31 January 1969.

C Company provided support to Operation Cochise of the 173rd Airborne Brigade by restoring Highway 3A to trafficable condition, the road having fallen into a state of complete disrepair. Grading and shaping were performed the entire length while 715 cubic yards of fill material was placed and compacted and 435 cubic yards of blast rock was used for stabilization.

C Company provided operational support to 7/13th Artillery at LZ Pony by constructing firing pads with revetments to withstand the recoil of heavy artillery.

C Company was also engaged in several vertical construction projects. A timber pile tower was constructed at LZ North English to support the counter-norter radar apparatus of the 173rd Airborne Brigade, providing that organization with one of the finest such installations in Vietnam. C Company also constructed a senior non-commissioned officer bunker in the battalion headquarters area.

At present preparations are underway to erect a control tower for LZ English Airfield as well as other operational facilities there presenting an enormous challenge to the organic capability of a combat engineer company.

During this period C Company was assigned overall responsibility for the paving of QL-1 from the end of the existing pavement near LZ North English to Bong Son. Two and one-half miles were paved in a 2 $\frac{1}{2}$ inch lift covering 35,200 square yards, this operation running concurrently with paving of the south taxiway and parking apron at LZ English Airfield.

Minesweep continued to occupy three platoon hours daily. C Company sweeps QL-1 north from LZ Lowboy until it meets D Company's south sweep team, usually in the vicinity of BS911264. During the report period the enemy continued to harass minesweep operations with ambushes, mines and booby traps, and roadblocks.

f. D Company Narrative

Much of D Company's efforts this period were devoted to flood damage repair and construction of the steel stringer bridge at QL-1-414 (BS813363). D Company has maintenance responsibility on QL-1 from BS887288 to QL-1-418 (BS789417).

In the northern section of their AOR, D Company utilized 4900 cubic yards of blast rock to restore badly washed out sections of QL-1, particularly north of Duc Pho (BS007378). Effort on this section of QL-1 continued for most of the reporting period.

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

EGCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS OSFOR-65) for Quarterly Period Ending 31 January 1969.

Much of the blast material utilized on QL-1 by D Company was taken from the vicinity of BS812348 where it was necessary to cut into a cliffside to achieve sufficient width for the highway.

Where the floods had washed out the culvert at QL-1-407 (BS883304), D Company emplaced 100 feet of 60 inch culvert utilizing 240 cubic yards of blast rock, 460 cubic yards of headwall rock and 20 bags of cement.

Total engineer materials expended in flood damage repair in the D Company AOR were 7600 cubic yards of blast rock, 1200 cubic yards of base course material, 140 cubic yards of laterite and appreciable quantities of sand, shaped rock for headwalls, and cement.

At the close of this reporting period only the finishing touches remain to complete bridge QL-1-414, a 102 foot, steel stringer, two way class 35, one way class 50 structure. Construction this period consisted of placing the stringers, lateral bracing, timber nailers, decking and some of the treadway. Repair effort was made on an 80 foot timber pile bridge at BS840330 consisting of replacing piles, caps, decking and treadway on the north span which was damaged by enemy activity.

At the close of this report period D Company is preparing the subgrade south of LZ Thunder for paving.

Minesweep operations consumed approximately six platoon hours daily. D Company sweeps north from LZ Thunder until meeting A Company's south sweep in the vicinity of Duc Pho. The south sweep meets the C Company north sweep where previously mentioned. Ambushes, roadblocks, mines, and sniper fire continued to harass minesweep elements from D Company.

D Company conducted nighttime operations in the vicinity of LZ Thunder consisting of reconnaissance and ambush patrols during January 1969. During December D Company assisted an infantry company with a demolition team rendering an enemy cave at BS913251 useless. During that month they also destroyed a tunnel complex at BS867308. A sweep conducted by D Company, MACV elements from Duc Pho and the Battalion S-2 section near LZ Thunder turned up 450 pounds of hidden rice, pressure devices for antivehicular mines and medical supplies. Intelligence had indicated such supplies might be found in this particular area.

g. 70th Engineer Company (DT) Narrative

At the close of this report period the 70th Engineer Company (DT) is being reduced to zero strength, after a distinguished record of service to US Army Engineers in Vietnam. 70th Engineer Company (DT) trucks were on the highway daily hauling blast rock, laterite, base course, and hot mix to all company

FOR OFFICIAL USE ONLY

EGCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65), for Quarterly Period Ending 31 January 1969.

AOR's from LZ English to Mo Duc. For most of the period the majority of their trucks were located at LZ Lowboy hauling asphalt and base course to LZ English Airfield and QL-1. They also participated in the voluminous blast rock hauls to northern areas. Total haul volume figures have already been mentioned for several projects, a large percentage of this haul being conducted by 70th Engineer Company dump trucks.

h. 73rd Engineer Company (CS) Narrative

The 73rd Engineer Company (CS) continued operation of one of the finest construction support facilities in Vietnam. Changing over from two 75 TPH primary and three 75 TPH secondary crushers to a 225 TPH system in late December, rock production for the period totaled 4410 cubic yards of 4" clean rock, 492 cubic yards of 2½"(-) clean, 20,239 cubic yards of 2½"(-) basecourse, 2262 cubic yards of 1½"(-) basecourse, 1859 cubic yards of 1" clean, 530 cubic yards of ¾"(-) and 4637 cubic yards of ½"(-). 6486 cubic yards of blast rock were issued and 6064 tons of hot mix asphalt produced. Two and one-half miles of QL-1 were paved with a 2½ inch lift and a 24 foot wide roadway. At LZ English Airfield, the south half of the runway, the south taxiway and 2/3 of the parking apron were paved with two 1½ inch lifts. The 73rd Engineer Company (CS) has also been nominated for the Itschner award for 1968.

i. 137th Engineer Company (LE) Narrative

The 137th Engineer Company provided outstanding equipment support to all elements for roads, bridges and airfield construction during the reporting period. Equipment support was also provided to elements of the 173rd Airborne Brigade and other neighboring units in the southern AOR. The primary responsibility of the 137th Engineer Company (LE) has been and remains to be the upgrading of LZ English Airfield. Excavation of subgrade material, laying and compacting of base course and select fill material, and preparation of the surface for paving were specific tasks accomplished by equipment of the unit.

Tractor-scraper units when not needed on the airfield provided the majority of the haul capability in the road widening operation from LZ Max to Mo Duc. Cut and fill operations at LZ Dog were also accomplished by scrapers of the 137th Engineer Company (LE).

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

EGCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFL-65), for Quarterly Period Ending 31 January 1969.

SECTION II, LESSONS LEARNED: COMMANDER'S OBSERVATION, EVALUATION, AND RECOMMENDATIONS

a. PERSONNEL: None

b. OPERATIONS:

(1) Modification of the 225 TPH crushing plant.

(a) OBSERVATION: Heavy rainfall greatly reduces the efficiency of the 225 TPH rock crushers.

(b) EVALUATION: Rain saturated fines clog the screens and chutes thus stopping or slowing production. Because of this an insufficient amount of asphalt rock is produced to satisfy the demands of large asphalt paving operations.

(c) RECOMMENDATION: Shut down the 54 secondary unit. With local materials manufacture a bin feeder unit. Place the bin feeder over conveyors running directly to rollers of the 300 unit. By using clean 1 inch to 2 inch rock, the normal recycling operation of the 300 and 22 units will produce more fines. With the use of 1 inch to 2 inch clean rock the unnecessary delay of asphalt rock during wet weather can be avoided.

(2) Deadmen for heavy artillery gun pads.

(a) OBSERVATION: Hastily constructed gunroads often fail under steady pounding of heavy artillery.

(b) EVALUATION: The amount of shock from the 175mm and 8 inch guns requires an extremely sturdy deadman.

(c) RECOMMENDATION: Satisfactory deadmen may be constructed as follows: The deadmen are 16 inch by 16 inch timbers supported by four evenly spaced 55 gallon drums filled with concrete. An 8 inch pile is imbedded upright in each barrel with the 16x16 resting against the piles. Two wraps of cable are wrapped around the entire pad encircling all the deadmen. The cable is pulled tight with the aid of two 5 ton trucks. The top of the 16x16 timber is even with the hub of the track of the gun. The entire deadman is buried and a 2 to 3 foot berm is built around the pad.

(3) Hasty airfield lighting.

(a) OBSERVATION: Sophisticated lighting systems are sometimes not installed nor available when an airfield needs to be open to traffic.

(b) EVALUATION: Burn out barrels may be used instead.

FOR OFFICIAL USE ONLY

BOCA-OF

SUBJECT: Operational Report Research Learned (ORS) CSF
Period Ending 31 January 1969.

31 January 1969
for Quarterly

(3) RECOMMENDATION: A 55 gallon drum is cut in half and set in place with the closed end down. The top is formed by splitting the sides of the drum in 10 equal segments, 10 inches from the open end, and folding over. Diesel is used in the barrel as a fuel.

(4) Spreading of base course.

(a) OBSERVATION: When spreading base course material, one of the critical factors is preventing the segregation of the large aggregate from the fine material.

(b) EVALUATION: Segregation may be avoided by following a simple procedure.

(c) RECOMMENDATION: The dump truck should dump the load of base course in a pile instead of spreading it. Using a grader, grade only in one direction until the base course is at the desired height. Then grade the material in the opposite direction. This will insure the fines and large aggregate are evenly distributed.

(5) Sump pumps in slurry water.

(a) OBSERVATION: At times sump pumps on the bottom of streams clog up with sand, mud, and other objects.

(b) EVALUATION: A method is needed to keep the pump from resting in the sand, mud, and weeds.

(c) RECOMMENDATION: A 55 gallon drum is cut in half. Two U-shaped pickets are welded parallel to each other 6 inches apart and 3 inches up from the bottom. Holes are cut in the side of the barrel. The barrel is placed in the water and the sump pump put on the U-shaped pickets. This keeps the pump out of the sand and mud and allows it to work freely.

(6) Speedy moisture test.

(a) OBSERVATION: False readings are sometimes obtained when using the speedy moisture test equipment for determining moisture contents.

(b) EVALUATION: Excessive sunlight will cause these false readings.

(c) RECOMMENDATION: The test container should not be exposed to direct sunlight for more than 45 to 60 seconds. More exposure causes the needle to continue to rise giving a false reading.

EGCA-OP

FOR OFFICIAL USE ONLY

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 31 January 1969

(7) Perimeter harassing fires.

(a) OBSERVATION: Effective H&I fire is needed around perimeters at static installations such as engineer troops occupy.

(b) EVALUATION: The proximity of villages to base camps often prevents H&I fires around perimeters. Engineers very often do not have such fire support available.

(c) RECOMMENDATION: An effective means of protecting a perimeter is by periodic detonation of claymore mines. This action in conjunction with M-79 grenade fire provides excellent harassment to any approaching enemy. It also serves to rotate claymore stocks.

c. TRAINING: None.

d. INTELLIGENCE:

Habits of Vietnamese during minesweep operations.

(a) OBSERVATION: Many times when ambushes have occurred during minesweep operations, the Vietnamese in the area have proven to be unknowing informers.

(b) EVALUATION: The Vietnamese are aware of the impending danger to their own lives so they leave the fields and seek safe refuge. An absence of local inhabitants could indicate an ambush or even an enemy mine in the area.

(c) RECOMMENDATION: Minesweep teams must be vigilant for all indications of unusual activity to include habits of local people.

e. LOGISTICS: None.

f. ORGANIZATION: None

g. MAINTENANCE:

(1) Worn out dozer blades on the Caterpillar D9G Tractor.

(a) OBSERVATION: The metal on the D9G dozer blade wears very thin by its constant use in the rock quarry. Several small holes occur in the back of the blade where sharp stones puncture the thin metal.

(b) EVALUATION: The D9G dozer is essential for efficient quarry operation and replacement blades are scarce. Therefore, the old blade must be reinforced to continue operation.

(c) RECOMMENDATION: The dozer blade should be reinforced by: (1) reinforcing the wear plates by welding old cutting edges on the blade; and (2) Reinforcing the back of the blade by welding 1/2" boiler plate to the blade.

FOR OFFICIAL USE ONLY

EGCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 31 January 1969

(2) Forty ampere generator on D7E Tractor and Caterpillar 12 Grader.

(a) OBSERVATION: Frequent breakdown of the generator assembly, FSN 2920-302-6499, will occur because of excessive dirt and debris being pushed into the armature assembly.

(b) EVALUATION: Excessive down time due to generator failure cannot be tolerated with heavy construction operation being conducted.

(c) RECOMMENDATION: The generator should be blown clean of debris each day, prior to operation. The assembly should be dismantled, cleaned and serviced thoroughly during quarterly maintenance.

(3) Shear pin on rear winch of 10 ton tractor.

(a) OBSERVATION: Shear pins on rear winches of 10 ton tractors often break when the winch is not being used.

(b) EVALUATION: Too much tension exists in the cable when the spool is wound up. When the truck hits a bump, the winch twists, straining the cable and breaking the shear pin.

(c) RECOMMENDATION: The cable should be left slightly loose on the spool.

(4) Heat treatment of metals.

(a) OBSERVATION: Although tempered metal pieces are often needed in maintenance operations, there is no standard facility available to heat the metal.

(b) EVALUATION: A facility can easily be fabricated to accomplish heat treatment.

(c) RECOMMENDATION: An oven is fabricated of old end bits from a bulldozer, forming three sides and a top. The oven is then covered with mud. The object to be tempered is placed on bricks inside the oven and the oven heated with acetylene torches. The object is cooled in an oil bath leaving the metal part considerably harder than it was originally.

(5) Failure of the 5 ton dump truck bed.

(a) OBSERVATION: The breaking of the frame and pivot points on the M51A2 5 ton dump truck has resulted in a large number of vehicles being classified as non-serviceable at echelons lower than depot.

(b) EVALUATION: Most failures occur where the pivot point is welded to the frame by the factory.

(c) RECOMMENDATION: Direct support facilities should be authorized to make this repair.

FOR OFFICIAL USE ONLY

EGCA-OP

31 January 1969

SUBJECT: Operational Report Lessons Learned (RCS CSFOR-65) for Quarterly
Period Ending 31 January 1969

h. OTHER:

Hot bathing water.

(1) OBSERVATION: Rashes and skin discomforts occur when there is a lack of warm water for bathing.

(2) EVALUATION: Because the shower water is cold, personnel fail to bathe as often as they should. Morale and personal hygiene decline during these periods.

(3) RECOMMENDATION: Immersion heaters should be put in the water tanks and allowed to burn for most of the day. In the evening an air hose connected to a vehicle is used to circulate the warm water throughout the tank.

1 Incl
as

GILBERT L. BURNS
LTC, CE
Commanding

FOR OFFICIAL USE ONLY

EGC-CO (31 Jan 69) 1st Ind

**SUBJECT: Operational Report on Lessons Learned for the period 1 November
to 31 January 1969**

DA, HEADQUARTERS, 937TH ENGINEER GROUP (COMBAT), APO 96318, 20 February 1969

TO: Commanding General, 18th Engineer Brigade, ATTN: AVBC-C, APO 96377

**1. The subject report, submitted by the 19th Engineer Battalion (Combat),
has been reviewed and is considered a well compiled report of organizational
activities.**

**2. I concur with the observations and recommendations of the Battalion
Commander.**



JESSE L. FISHBACK

Colonel, CE.

Commanding

AVEC-BC (31 Jan 69) 2nd Ind

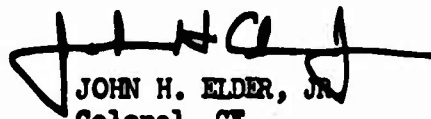
SUBJECT: Operational Report of the 19th Engineer Battalion (Combat)
for the Period Ending 31 January 1969, RCS CSFOR - 65 (R1)

DA, Headquarters, 18th Engineer Brigade, APO 96377 9 MAR 1969

TO: Commanding General, U.S. Army Vietnam, ATTN: AVHGC-DST, APO 96375

1. This headquarters has reviewed the Operational Report - Lessons Learned for the 19th Engineer Battalion (Combat) as indorsed by the 937th Engineer Group (Combat). The report is considered to be an excellent account of the Battalion's activities for the reporting period.

2. This headquarters concurs with the observations and recommendations of the Battalion and Group Commanders.


JOHN H. ELDER, JR.
Colonel, CE
Commanding

AVMOC-DGT (31 Jan 69) 3d Ind
SUBJECT: Operational Report of the 19th Engineer Battalion (Combat)
for the Period Ending 31 January 1969, RCS CSFOR - 65 (R1)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 85 100000

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

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 January 1969 from Headquarters, 19th Engineer Battalion.

2. Comments follow:

Reference item concerning Failure of the 5 ton dump truck bed, page 18, section II, paragraph g(5); concur. Technical Bulletin (TB) 9-2300-247-40, 22 June 1961, with change 3, December 1967, provides information and guidance to field maintenance personnel for accomplishing various types of frame repair on 5 ton trucks. The TB also authorizes frame repair at direct support and general support levels of maintenance. This information will be passed directly to the unit and will be included in the next maintenance newsletter published by this headquarters. No action by USARPAC or DA is required.

FOR THE COMMANDER:



W. C. ARNIZ
CPT, AGC
Assistant Adjutant General

Cy furns:
19th Engr Bn
18th Engr Bde

GPOF-DT (31 Jan 69) 4th Ind


**SUBJECT: Operational Report of HQ, 19th Engr Bn (Cbt) for Period
Ending 31 January 1969, RCS CSPOR-65 (R1)**

HQ, US Army, Pacific, APO San Francisco 96558 2 APR 1969

**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:


**G. E. HOLLYFIELD
MAJ, AGC
Asst AG**

FOR OFFICIAL USE ONLY

ORGANIC UNITS

Headquarters and Headquarters Company, 19th Engr Bn (C) (A)

Company A, 19th Engr Bn (C) (A)

Company B, 19th Engr Bn (C) (A)

Company C, 19th Engr Bn (C) (A)

Company D, 19th Engr Bn (C) (A)

ATTACHED UNITS

70th Engineer Company (DT), Administrative and Operational Control (Reduced to zero strength).

73rd Engineer Company (CS), Administrative and Operational Control.

137th Engineer Company (LE), Administrative and Operational Control.

UNCLASSIFIED

FOR OFFICIAL USE ONLY

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)		2a. REPORT SECURITY CLASSIFICATION	
HQ, OACSPOR, DA, Washington, D.C. 20310		For Official Use Only	
3. REPORT TITLE		2b. GROUP	
Operational Report - Lessons Learned, Hq, 19th Engineer Battalion (Combat)(Army)			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)			
Experiences of unit engaged in counterinsurgency operations, 1 Nov 68 to 31 Jan 69			
5. AUTHOR(S) (First name, middle initial, last name)			
CO, 19th Engineer Battalion (Combat)(Army)			
7. REPORT DATE		7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
31 January 1969		27	
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S)	
8. PROJECT NO.		691136	
c. N/A		8c. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY	
N/A		OACSPOR, DA, Washington, D.C. 20310	
13. ABSTRACT			