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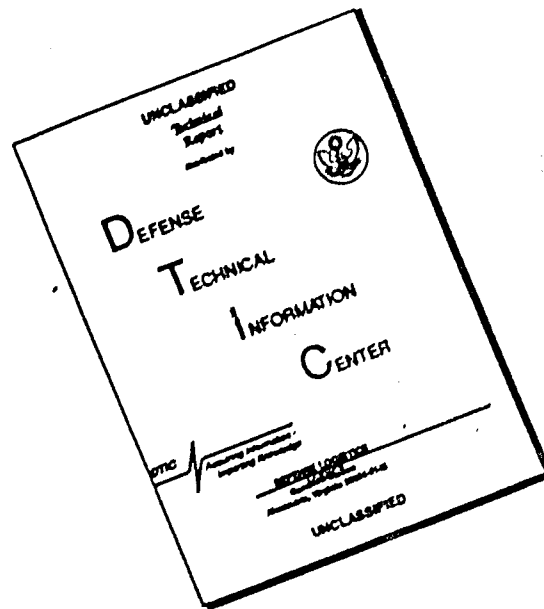
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HEADQUARTERS
19TH ENGINEER BATTALION (COMBAT) (ARMY)
APO SAN FRANCISCO, 96238

EOC-19E-CO

13 August 1966

SUBJECT: Operational Report on Lessons Learned (RCS CSGPO-23
(R1)) for the Period 1 May thru 31 July 1966

THRU: Commanding Officer
937th Engineer Group (Combat)
APO San Francisco 96238

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

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1. SIGNIFICANT ORGANIZATIONAL ACTIVITIES

a. During this reporting period this organization though organized and equipped as a combat battalion has been engaged in projects normally associated with better equipped construction battalions. The requirements of the command and the lack of major tactical activity in the immediate area have contributed to this situation. Primary projects have been the construction and erection of a pipeline and POL Tank Farm Facility; the earth moving, concrete work, and vertical erection of a major COSPAR installation; the earth work, concrete, and erection activities associated with a twenty quonset PX complex; and numerous lesser projects to include route maintenance, bridge repair, hauling fill as required, and road and heliport construction to include grading, finishing, and penncriming for dust control.

This extensive construction effort has been made more effective through central control of the limited heavy equipment. All of the TO&E equipment of the battalion has been centralized under the control of the Heavy Equipment Platoon Leader. In addition, the battalion has one platoon of the 630th Light Equipment Company in direct support. These two platoons and the battalion maintenance section form what is, in effect, a support company under the supervision of the battalion maintenance officer and controlled for project support by the operations officer.

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SUBJECT: Operational Report on Lessons Learned (RCS CSGPO-23 (R1)), for the Period 1 May thru 31 July 1966

Another major mission of this battalion during the reporting period has been engineer reconnaissance. The reconnaissance section has conducted deliberate reconnaissance of fifty miles of road to include fifty-three bridges, two additional reconnaissances for proposed air field construction, and recurring reconnaissance of seventy-seven miles of secured highway in the Qui Nhon area.

This unit has also been instrumental in improving troop living conditions under the self-help program. Equipment assistance technical guidance and supervision are provided to three other battalion size units that are constructing troop billeting and other cantonment facilities. These units have put forth a significant effort in their own behalf and the program is working very effectively. This battalion is also making some progress in construction of its own cantonment area.

b. This unit was engaged in construction operations for 84 days of the reporting period and trained for 8 days.

c. The strength of the battalion has shown a marked increase over the last report. Present status of enlisted is as follows:

<u>UNITS</u>	<u>AUTH</u>	<u>ASGD</u>	<u>PERCENT</u>	<u>INTNS/N</u>	<u>IN COUNTRY</u> <u>STRENGTH & %</u>
19th Engr Bn	586	591	101	7	584 99
509th Engr Co	124	122	98	0	122 92
553d Engr Co (2d/3d Platoons)	54	51	99	0	51 94

Although present strength levels are good, projected losses of critical skills will severely hamper future operations if replacements are not programmed into the unit. As of 1 September 1966 the battalion will have a shortage of three Unit Supply Sergeants (76 K 40), four Platoon Sergeants (12 B 40, E-7), and eighteen Squad Leaders (12 B 40, E-6). As of 16 August the 2nd and 3rd platoons of the 553rd Engineer Company attached to the 509th Engineer Company will have no qualified Bridge NCO's.

d. Logistics have continued to hamper operations. Nails of all sizes are not available through supply channels. These items may be purchased on the economy but they are of inferior quality and overpriced. Requisitions for engineer construction items are still processed at the Engineer Depot on a "fill or kill" basis. This process requires continuous resubmission of requests; moreover, no demand data is created. Many projects have been delayed for lack of materials during the reporting period.

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SUBJECT: Operational Report-Lessons Learned (Cont.)

Repair parts and components for Engineer and Ordnance equipment continue to come in very slowly. Reaction time on follow up procedures is a problem; as many items required are not on hand and the requests are passed on to Saigon. AFI cards are initiated by the using unit and mailed to Consolidated Supply at Saigon, and in some cases no reply is received.

2. COMMANDER'S RECOMMENDATIONS AND OBSERVATIONS AND LESSONS LEARNED:

a. Part I, Observations (Lessons Learned)

(1) Personnel

Intransit Personnel

(a) Item: Intransit Personnel

(b) Discussion: Difficulty is continually being experienced in determining the status of intransit personnel.

(c) Observation:

1. Average elapsed time between an individual's initial entry on the morning report and the reporting date is 21 days.

2. Personnel are often diverted by higher headquarters without notification or replacement.

Finance Records

(a) Item: Incomplete Finance Records

(b) Discussion: Finance records for incoming personnel are in almost all cases incomplete. Primarily the following documents are missing:

1. DA Form 1341 - Start and stop of allotments.

2. Suspense documents from losing F&AO.

3. Partial pay vouchers, including those paid by finance officer enroute when individual has pay records in his possession.

4. Individuals who are qualified for Pro-Pay are reporting to the unit without qualified recommendations from their last unit commander.

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SUBJECT: Operational Report-Lessons Learned (Cont)

(c) Observations: Individuals are being sent to Vietnam from other commands without proper finance documents.

Office Equipment

(a) Item: Needed Office Equipment

(b) Discussion:

1. A large number of official battalion documents must be reproduced in many copies.

2. Battalion TA's should allow for a reproducing machine to be included in the personnel section.

(c) Observation: Every battalion sized unit should have a reproducing machine in its Personnel Section for use in the production of large volumes of paper documents.

(2) Operations

Steel Pre-Fab Buildings

(a) Item: Construction of Japanese Pre-Fab buildings.

(b) Discussion:

1. During construction of a Japanese Pre-Fab steel frame building it was found that tie beams were not of specified length.

2. In several instances it has been necessary to weld additional metal onto beams in order to complete construction.

(c) Observation: Design deminisions should be checked against construction members before constructing Japanese Pre-Fab buildings.

Indigenous Labor

(a) Item: Use of indigenous labor in skilled job applications.

(b) Discussion: Vietnamese laborers can be utilized very profitably if efforts are made to train crews to do one specific job, and then those crews are used continuously on that job. This utilization frees many U.S. personnel for more important work.

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SUBJECT: Operational Report-Lessons Learned (Cont)

(c) Observation: Vietnamese laborers will become more skilled and require less supervision if time is taken to train them initially in specific tasks and employ them for those tasks. It appears feasible to train indigenous personnel as carpenters, masons, mechanics, etc.

16S Concrete Mixer

(a) Item: Charging the 16S Concrete Mixer

(b) Discussion:

1. Speed of charging the mixer is a significant factor in determining speed of placing concrete.

2. Normally cubic foot boxes are used to measure sand and gravel for the mix.

3. By welding a divider in the skip at the proper location, sand and gravel may be shoveled in directly from trucks or stockpiles.

(c) Observation: By employing this method for charging the mixer, output is increased per man hour expended.

Bolted POL Storage Tanks

(a) Item: Erection of bolted POL storage tanks (10,000 and 3,000 bbl)

(b) Discussion:

1. Erection of the second and third rings of tank staves with the ginpole provided in the tank erection set is slow and awkward. An experienced crane operator can lift and position the tank staves faster and two or three staves can be bolted on the ground and lifted into place simultaneously. Men normally used in ginpole erection can be utilized on other tasks when a crane is used.

2. Tightening bolts over wedge gaskets until they begin to spread slightly was found to be excessive in the initial stages of construction. If the gaskets do not immediately split, they will split under the effects of the tropical heat.

3. During installation of the tanks' deck sections, consecutively, in a counter-clockwise direction as prescribed in the erection manual, the unbalanced weight on one side of the tank causes the deck to distort into an elliptical shape making further erection difficult. The erection manual does not offer solutions to this problem.

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(c) Observation:

1. Using a crane to erect bolted storage tanks increases the ~~rate~~ rate of erection of tanks per man hour expended.

2. Wedge gasket splitting can be prevented if bolts are placed finger tight initially, then tightened during testing to meet specifications.

3. Construction of deck sections is simplified by installing at least four deck sections spaced around the tank, and then filling the void spaces. Assemble the four or more sections by attaching double rafters as prescribed in the manual for the first section, then jack the center column up and down to assist installing the remaining deck sections and center portions.

POL Pipeline

(a) Item: Bending of pipe

(b) Discussion:

1. A pipe bending shoe for use in conjunction with a dozer is unavailable in this command.

2. In pipeline construction there is a requirement for bending pipe whether or not proper equipment is available.

(c) Observation:

1. Pipe of six inch diameter or less can be bent by heating with large amounts of oxygen and acetylene and applying a bending force. The bending device can consist of another length of pipe and wire rope arranged in a bow and arrow configuration with ratchet chain hoists at either end for pulling the pipe that is to be bent.

2. Eight inch pipe cannot be bent using the above method. Eight inch pipe can be fabricated into bends by cutting out wedge shaped slices on one side, bending the other side by heating, and welding the resulting seam.

POL Pipeline

(a) Item: POL Pipeline leaks

(b) Discussion: Leaks have been discovered in pipelines at the points where gaskets cover the welded seams in steel grooved pipe. This is particularly true if the seams are irregular.

(c) Observation: Leaks can be prevented in steel grooved pipe if seams are checked and filed or ground down prior to fitting gaskets.

Fine Aggregate in Road Repair Mixes

(a) Item: Substitution for fine aggregate in road repair mixes.

(b) Discussion: In certain areas suitable fine aggregate for use in road mix is not available; however, a rock crusher site is operating in the area.

(c) Observation: In many cases rock crusher fines meet the criteria of less than five percent passing the No. 400 sieve. They are, therefore, suitable for use in road mix in lieu of fine aggregate.

Wearing Surfaces

(a) Item: Experimentation with penprime as a wearing surface.

(b) Discussion:

1. Approximately 3" of clay-based laterite was spread on the existing road after it had been sprayed with water.

2. After achieving a final grade the road was again sprayed with water, stopping just short of saturation.

3. Penprime heated to 150 degrees (in a distributor) was then sprayed on the road at the rate of approximately .8 gallons per square yard. Traffic was allowed to move over penprimed areas immediately after first application. A second application was made a day later.

(c) Observations:

1. Traffic passing over the penprime immediately after application is desirable to achieve good penetration of the penprime into the surface. The kneading

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action of the tires on the water saturated, clay laterite binds the laterite and penoprime tightly together resulting in an extremely hard, dust-free, and relatively waterproof wearing surface.

2. There has been no significant dust problem since the application. The surface has held up well for three weeks under heavy traffic. It has rained four times since the original treatment, without particularly deleterious effects.

3. A second application of penoprime one day after initial application significantly increases the life of the wearing surface, although it does result in a slightly rougher final surface.

4. It should be stressed that, although some limited success has been achieved in the use of penoprime for a wearing surface, the use of penoprime for such purposes is, at best, an inadequate method when compared to the results obtained using medium and rapid curing, low viscosity cutbacks.

5. Experimentation with different proportions of sand and penoprime, similar to the marshall mix method of asphalt design, produced no stable combination.

Spreading Fill on Roads

(a) Item: Spreading fill on roads.

(b) Discussion:

1. The need for rapid road construction requires that dumping and spreading fill be done rapidly.

2. Dump trucks were utilized efficiently by stopping a short distance before the dump site, putting the body in neutral and proceeding to the site.

3. The dump was raised by inertia when the truck moved at approximately 15 miles per hour and the load was spread evenly along the surface.

(c) Observations: This method saves time, eliminates piles of fill in the road, and makes grading easier. Rigid traffic control is necessary while the trucks are dumping.

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SUBJECT: Operational Report-Lessons Learned

(3) Communications

Use of FM Radio

(a) Item: Use of FM Radio

(b) Discussion: Through extensive use of FM Radio in this area, it has been found to be more dependable than the AM radio even though its capability is of lesser range.

(c) Observations:

1. Due to adverse climatic conditions and topography the AM radio receives extensive interference from other stations within the area operating on closely assigned frequencies.

2. Erection of a RC-292 antenna mounted on a 40 foot pole has greatly increased operating range of the FM radio and the increased power has helped negate close frequency interference.

(4) Logistics

Mattress Covers and Sheets

(a) Item: Shortages of mattress covers and sheets

(b) Discussion: Steel cots and mattresses have been issued to this unit; however, sheets and mattress covers are still due in:

1. 6080-001 Mattress Covers 7210-281-6751
619 each.

2. 6167-007 Sheet, Bed 7210-171-1099
2476 each.

(c) Observation: Issuing mattresses and steel cots without covers and sheets causes the mattresses to become prematurely worn and soiled, hence lessening their useful life.

b. Part II, Recommendations:

(1) Personnel

(a) Strength: Steps should be taken within appropriate command levels to insure that all units are brought up to and maintained at their full TO&E. Necessary inventory rosters

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and requisitions have been submitted by this organization in accordance with existing regulations.

(b) Intransit personnel: Current regulations (AR 330-12) regarding procedures for determining EDCSA's should continually be revised to insure that EDCSA's for assignment to Vietnam are the same as arrival date at the port of debarkation plus an additional 7 days to allow travel time to ultimate unit assignment.

(c) Incomplete Records: A directive should be published to units providing replacements to Vietnam, outlining the required financial and administrative documents which must accompany an individual upon arrival in Vietnam.

(2) Operations

(a) "E" series TO&E for Front Loaders should be implemented as soon as possible for Engineer units of this type. Work in this area requires extensive loading operations with limited loading equipment.

(b) Action should be taken to add pipeline bending kit for normal issue with tank erection kits since extensive pipe bending seems to be normal in tank farm construction.

(3) Logistics: It is recommended that requisitions submitted to the Engineer Depot be processed in accordance with existing regulations. When items are not available, a drop-out system should be established.

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Nolan C. Rhodes
NOLAN C. RHODES
Lt Col, CE
Commanding

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EGC-00 (13 Aug 66)

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SUBJECT: Operational Report on Lessons Learned for Period 1 May 1966 to 31 July 1966 (RCS-CSFOR-65) (U)

HEADQUARTERS, 937TH ENGINEER GROUP (COMBAT), APO 96238, 19 August 1966

THRU: Commanding General, 18th Engineer Brigade, ATTN: AVEB-3, APO 96307

TO: Headquarters, Department of the Army, ATTN: ACSFOR, Washington D.C.

1. (U) I concur in the recommendations of the Battalion Commanders.
2. (U) The following actions on referenced paragraphs in the basic report have been taken by this headquarters:
 - a. (Section 2, Part 2, Para (2)(a)) A request for implementation of the "E" series TO&E for all Combat Battalions has been submitted. Reorganization of the Combat Battalions under this series TO&E will triple the loading capability of each Combat Engineer Company.
 - b. (Section 2, Part 2, (3)) Action has been initiated by the class IV Depot Stock Control in coordination with this headquarters to automate the issue/requesting procedures. Automatic Data Processing of class IV requisition will provide faster handling and will make available demand data and management information.
3. (U) With respect to Section 2, Part 2, Para (1)(C), it is felt that a more thorough POR check of an individual by the losing installation immediately prior to departure of an individual for RVN should be adequate to ensure complete finance records.
4. (U) Lessons learned reports submitted by units of the Group are disseminated throughout the Group in order that all units may profit from past experience.



E. P. BRAUCHER
Colonel, CE
Commanding

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