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AUTHORITY
ago, d/a ltr, 29 apr 1980

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SUBJECT: Operational Report - Lessons Learned, Headquarters, 46th Engineer Battalion, Period Ending 31 October 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.

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VERNE L. BOWERS
Major General, USA
The Adjutant General

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ASSISTANT CHIEF OF STAFF FOR FORCE DEVELOPMENT (ARMY) ATTN: FOR OT UT, WASHINGTON, D.C. 20310

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 46TH ENGINEER BATTALION
APO San Francisco 96491

14 November 1970

SUBJECT: Operational Report - Lessons Learned, 46th Engineer Battalion,
Period ending 31 October 1970, RGOS CFOR-55 (R2).

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: LTC Joseph L Spruell commanded the 46th Engineer Battalion
during the last reporting period.

   a. The 46th Engineer Battalion organized under MTOE 05-115-GF04 per GO #609

   b. Mission: to construct and rehabilitate roads, airfields, heliports,
      pipeline systems, structures and utilities for the Army and the Air Force in
      the communications zone and rear areas of the combat zone; and to assist in
      emergency recovery operations.

   c. ACR: At the beginning of this reporting period the unit area of
      responsibility was encompassed by a line starting at the South China Sea
      (YT 3163) and proceeding northerly along the western border of the Binh Tuy
      Province. It proceeds westerly along the southern border of Long Khanh
      Province to Highway 470-2, northerly along 470-2 to 7S439956, and westerly
      along a secondary road to 7S315537 on the western border of Long Khanh
      Province to the southern border of Duc Tu District, westerly along the
      southern border of Duc Tu District to 41-15, and northwesterly to the Dong
Nai River. It proceeds northerly and easterly along the Dong Nai River to the eastern border of Bien Hoa Province, southerly along the eastern border of Bien Hoa Province to the Suot Gia Duc River, and easterly along the Suot Gia Duc River to QL-20. From QL-20 it runs easterly parallel to QL-1 and approximately 1,600 meters north and then east of QL-1 until it reaches the railroad tracks east of Xuan Loc. It follows the railroad track easterly to the eastern border of Binh Tuy Province, then south along this border to the South China Sea coast, then west along the South China Sea coast to the western border of Binh Tuy Province. However, on 10 September 1970 the concept of unit AOR's was discontinued eliminating the use of a defined unit area of responsibility other than those areas most adjacent to assigned unit projects.

d. Assignment: The 46th Engineer Battalion is assigned to the 159th Engineer Group. It was assigned to the 159th Engineer Group Command on 25 September 1965 and became operational in Vietnam on 4 October 1965.

e. Movements, Attachments, and Detachments:

(1) On 30 September 1970, U Company (minus), 46th Engineer Battalion, completed its move from Kao Ang (AT778309) to Phu Loi (AT337144) to complete the QL-22 Loc project partially completed by the 79th Engineer Group.

(2) On 1 November 1970, the 103rd Engineer Company (CS) (minus) completed its move from Kao Ang (AT771427) to Nui Le quarry (AT657066) to open the Nui Le Industrial Complex now under construction and in partial operation.

f. Visitors and Awards:

(1) Visitors:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Date</th>
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<tbody>
<tr>
<td>LTG Mc Gaffrey</td>
<td>Deputy CG US Army</td>
<td>16 Oct 70</td>
</tr>
<tr>
<td>MG Noble</td>
<td>CG US Marine</td>
<td>24 Aug 70</td>
</tr>
<tr>
<td>BG O'Donnell</td>
<td>CG 2nd Eng Bde</td>
<td>15 Aug 70</td>
</tr>
<tr>
<td>BG Cooper</td>
<td>CG 20th Eng Bde</td>
<td>3 Sep 70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18 Sep 70</td>
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<td></td>
<td></td>
<td>2 Oct 70</td>
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<td>13 Oct 70</td>
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<td></td>
<td>21 Oct 70</td>
</tr>
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<td></td>
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<td>25 Oct 70</td>
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14 November 1970


<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Date</th>
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<tbody>
<tr>
<td>LG Watkin</td>
<td>Deputy G3 USAREC (P)</td>
<td>23 Oct 70</td>
</tr>
<tr>
<td>COL Winy</td>
<td>Dir of Const USAREC (P)</td>
<td>29 Sep 70</td>
</tr>
<tr>
<td>LTC Stidham</td>
<td>Chief of Ops</td>
<td>5 Aug 70</td>
</tr>
<tr>
<td>COL Brown</td>
<td>C.O. 159th Engr Gp.</td>
<td>12 Aug 70</td>
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<td>15 Aug 70</td>
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<td>24 Sep 70</td>
</tr>
<tr>
<td>LTC Enfers</td>
<td>Chief LOC Branch USAREC(P)</td>
<td>29 Sep 70</td>
</tr>
<tr>
<td>LTC By</td>
<td>ARVN GCE</td>
<td>20 Oct 70</td>
</tr>
<tr>
<td>Maj Whitehead</td>
<td>DA-OPF</td>
<td>26 Sep 70</td>
</tr>
</tbody>
</table>

(2) The following awards have been presented during the reporting period:

(a) Bronze Star 36
(b) AACOM 106

2. Personnel, morale, and discipline:

(a) Personnel:

(1) The consolidated strength figures for the reporting period are as follows:

(a) As of 31 August 1970:

<table>
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<td>30</td>
<td>984</td>
</tr>
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<td></td>
<td>1024</td>
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(b) As of 30 September 1970:

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<tr>
<td></td>
<td>30</td>
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<tr>
<td></td>
<td>1057</td>
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(c) As of 31 October 1970:

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<td>29</td>
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14 November 1970

SUBJECT: Operational report Lessons Learned, 46th Engineer Battalion, Period Ending 31 Oct 1970, HQO CMH-65 (n2)

(2) Critical shortage of personnel was experienced throughout the reporting period. The following is a list of MOS's most critical in the accomplishment of the battalion's mission at the end of the reporting period.

<table>
<thead>
<tr>
<th>MOS</th>
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<td>51020</td>
<td>Mason</td>
<td>12</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>51H40</td>
<td>Construction Foreman</td>
<td>32</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>51H50</td>
<td>Construction Foreman</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>51K20</td>
<td>Plumber</td>
<td>37</td>
<td>23</td>
<td>14</td>
</tr>
<tr>
<td>52G20</td>
<td>Electrician</td>
<td>37</td>
<td>8</td>
<td>29</td>
</tr>
<tr>
<td>52G20</td>
<td>High Voltage Lineman</td>
<td>9</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>62A00</td>
<td>Construction Machine Foremen</td>
<td>23</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>64A20</td>
<td>Heavy Truck Driver</td>
<td>83</td>
<td>67</td>
<td>21</td>
</tr>
<tr>
<td>51C30</td>
<td>Structure Specialist</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>

(3) Due to the existing shortages of critical MOS's, this headquarters has taken the following steps to alleviate the problem:

(a) Proper requisitions have been submitted to higher headquarters.

(b) Records of newly assigned personnel are thoroughly screened, and where possible secondary MOS's are utilized to fill critical shortages.

(c) On-the-job training is being employed by commanders to fill shortages.

b. Morale:

(1) The morale has remained very high throughout the battalion during the reporting period.

(2) Minor improvements of facilities and living conditions continued throughout the battalion.

(3) 55 men voluntarily extended their tours of duty for six months or longer during the reporting period and received a 30 day special leave. 48 men extended their tours less than 6 months.

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SUBJECT: Operational Report Lessons Learned, 46th Engineer Battalion,
Period ending 31 Oct 1970, RGSO/DUO-65 (hk.)

(4) The reenlistment rate improved during the reporting period with
12 first term and 2 career men reenlisting.

(5) A total of 149 men received out of country ROK trips to Bangkok,
Hong Kong, Hawaii, Sydney, and Taipei.

(6) Many recreational facilities and activities are provided for
members of the battalion including swimming pool, movies, service clubs,
athletic programs, and commercial entertainment at EM/RO clubs.

c. Discipline:

(1) Discipline problems remained at approximately the same level as
the previous period. Emphasis continues to be placed on punishment under
article 15, UCMJ instead of trial by Court-Martial.

(2) Following is a summary of punishment imposed within the reporting
period:

(a) One-hundred and twenty-two (122) Article 15, UCMJ
(b) No (0) Summary Court-Martial
(c) Nine (9) Special Court-Martial
(d) Casualties: During the current reporting period, the 46th
engineer Battalion suffered the following casualties:

(1) Killed in Action 0
(2) Wounded in Action 0
(3) Non-hostile Deaths 0

3. Intelligence:

a. The battalion intelligence section has maintained a map board showing
all significant enemy activity which has occurred recently near operations
sites. The board is updated using the INFMU report, and information from
it is presented to the companies at a daily operations meeting.

b. During this period minor enemy activity occurred at battalion work sites.
No direct contacts resulted.

4. Operations, Plans and Training:

a. Completed Projects:

(1) Combat/Operational Support:
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S 1007: Operational report - Lessons Learned, 46th Engineer Battalion,
Period ending 31 Oct 1970, 660 CeSOF-65 (R2)

(a) 117-5632-0-20, Upgrade road Fao Henderson & Company,
46th Engineer Battalion: Upgrade 1 km of pioneer road between II and entrance to Fao Henderson (FR 181108) by providing compacted laterite fill. Project started on 31 Aug 70 and was completed 29 Sep 70.

(b) 143-5622-0-20, Dena and Gunpids, Fao Riveria, C Company,
46th Engineer Battalion: Provided dozer to extend barn and level gun emplacements. Project started 27 Jul 70 and was completed 4 Aug 70.

(c) 146-5639-0-20, Lowbed support, 46th Engineer Battalion:
Provided 3 lowbeds with 10-ton tractors to the 62nd Engineer Battalion (LC). Project started 18 Sep 70 and was completed 20 Sep 70.

(d) 149-5631-0-20, Improvements Fao Flowers, D Company, 46th
engineer battalion: Improved fields of fire by clearing and upgraded defensive ems. Project started 18 Aug 70 and was completed 27 Aug 70.

(e) 149-5638-0-20, Lowbed support, 46th Engineer Battalion:
Provided 7 lowbeds with 10-ton tractors to the 62nd Engineer Battalion (LC). Project started 1 Sep 70 and was completed 22 Sep 70.

(f) 149-5628-0-20, Lowbed support, 46th Engineer Battalion:
Provided 4 lowbeds with 10-ton tractors to the 62nd Engineer Battalion (LC). Project started 15 Aug 70 and was completed 19 Aug 70.

(g) 107-6015-0-20, Precut bunkers, III CTZ advisor, Xuan Loc,
Carpenter Shop, 46th Engineer Battalion: Precut and issued 1 nose bunker, 5 Columbina bunkers, and 2 ammo storage bunkers. Project was started 22 Dec 69 and was completed 28 Sep 70.

(h) 107-6433-0-20, Tool Containers, 20th Engineer Brigade,
Carpenter Shop, 46th Engineer Battalion: Precut and constructed 18 tool containers to specification for 20th Engineer Brigade aviation section. Project started 13 Aug 70 and was completed 26 Sep 70.

(i) 107-6489-0-20, Issue of Construction Material, 20th
engineer brigade, Carpenter Shop, 46th Engineer Battalion: Issued 500 BF (16' lengths) of 2x4, 72 sheets (21' x 10') of corrugated metal for self-help construction of C SPC. Project was started on 24 Aug 70 and was completed 30 Sep 70.
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SUBJ: Operational Report - Lessons Learned, 46th Engineer Battalion, Period ending 31 Oct 1970, NCOR 66-65 (R2)

(j) 207-6497-0-20, Fetching, Bien Hoa Army Base, B Company, 46th Engineer Battalion: Fetched 100 meters of asphalt roadway at main entrance to Bien Hoa Army Base. Project was started 24 Sep 70 and completed 30 Sep 70.

(k) 207-6502-0-20, GP Large Tent Erection, 103rd Engineer Company (GS): Furnished, erected and dismantled one GP large tent for change of command ceremony, 20th Engineer Brigade Hq. Project was started on 27 Sep 70 and completed on 30 Sep 70.

(1) 212-6305-0-20, Precut Bunkers, 2/12 artillery, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued 6 rose bunkers. Project was started on 2 Jun 70 and completed 19 Sep 70.

(u) 212-6377-0-20, Kearns Pac improvements, Du Chi, D Company, 46th Engineer Battalion: This project was transferred to the 92nd Engineer Battalion with no work accomplished or materials expended. Project was transferred on 28 Aug 70.

(n) 212-6407-0-20, Precut bunkers, 12 buttons, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued 25 Columbia bunkers to 79th Engineer Group. Project was started 26 Jul 70 and completed 10 Oct 70.

(o) 212-6438-0-20, Material issue, 79th Engineer Group, 103rd Engineer Company (GS): Issued 70 CY of asphalt to Du Chi Quarry to the 79th Engineer Group. Project was turned on 14 Aug 70 and was completed 16 Aug 70.

(p) 217-6321-1-23, Inventory Support, 92nd Engineer Battalion, D Company, 46th Engineer Battalion: This project was cancelled with no work accomplished or materials expended. Project was cancelled on 20 Sep 70.

(q) 217-6361-1-23, Aviation Facilities: Binh Dan, D Company, 46th Engineer Battalion: This project was cancelled with no work accomplished or materials expended. Project was cancelled on 20 Sep 70.

(r) 217-6529-0-20, Repair of Hbk 25, D Company, 46th Engineer Battalion: Repaired road surfaces and shoulders on Hbk 25 between Di An and HN Tan. Project started 20 Oct 70 and was completed 30 Oct 70.

(s) 213-33-0-20, Precut Latrines, 7th Transportation Battalion, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued four 4-hole latrines. Project started 20 Oct 70 and was completed 23 Oct 70.
Sübje: This project was cancelled with no work accomplished or material expended. Project was cancelled on 29 Aug 70.

(u) 243-6125-u-20, Passive Defense Bunkers, LPS, Carpenter Shop, 46th Engineer Battalion: This project was cancelled with no work accomplished or material expended at request of customer. Project was cancelled on 22 Aug 70.

(v) 243-6173-0-20, Expansion of Precast Reinforced Concrete Revetment Facility, LBN, D Company, 46th Engineer Battalion: Extended existing casting slab 400 and constructed new 100 x 120 casting slab. Project was started 17 Jun 70 and completed 27 Aug 70.

(w) 243-6271-1-23, Revetments at Sanford Army Airfield, D Company, 46th Engineer Battalion: This project was transferred to the 92nd Engineer Battalion with no work accomplished or materials expended. Project was transferred on 28 Aug 70.

(x) 243-6303-0-20, Precast concrete revetments, D Company, 46th Engineer Battalion: This project was transferred to the 92nd Engineer Battalion with no work accomplished or materials expended. Project was transferred on 28 Aug 70.

(y) 243-6400-0-20, Concrete Forms, Bien Hoa, 46th Engineer Battalion: Provided 400 LF of steel concrete forms to the 79th Engineer Group. Project started 19 Jul 70 and was completed 31 Oct 70.

(z) 243-6431-0-20, MAC-LUC Tamper Boxer, Carpenter Shop, 46th Engineer Battalion: Constructed and issued 27 Tamper boxes to various units of the 46th Engineer Brigade. Project was started 9 Aug 70 and completed 28 Sep 70.

(aa) 243-6446-1-23, Precast Concrete Revetments, D Company 46th Engineer Battalion: Precast and issued 22 4.8' revetments and 84 boaters. Project was started 19 Aug 70 and cancelled on 7 Sep 70.

(bb) 243-6450-u-20, Precast Bunkers, 79th Maintenance Company, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued 10 Daisy bunkers. Project was started 28 Aug 70 and completed 12 Sep 70.

(cc) 243-6528-u-20, Precast Bunkers, 79th Engineer Group, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued 4 columbine bunkers. Project was started 17 Oct 70 and completed 22 Oct 70.

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Subject: Operational report - Lessons Learned, 46th Engineer Battalion, Period ending 31 Oct 1970, 520 G-5088-65 (Rz)

(iii) 246-6466-1-20, Precast hounters for Bear Cat, D Company, 46th Engineer Battalion: Precast 40 5.5' revetments and 80 footers. Project was started 13 Sep 70 and completed 20 Sep 70.

(ee) 251-6540-0-20, Lowbed Support, 46th Engineer Battalion: Provided 2 lowbeds with 70-ton tractors to the 34th Engineer Battalion. Project was started 23 Oct 70 and completed 30 Oct 70.

(ff) 253-6281-0-20, Precut Bunkers, 6/27 Artillery, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued 4 rose bunkers. Project was started 16 May 70 and completed 13 Sep 70.

(eg) 253-6285-0-20, Precut Bunkers, Fox Thunder III, Carpenter Shop, 46th Engineer Battalion: This project was cancelled with no work accomplished or material expended. Project was cancelled 1 Aug 70.

(hh) 253-6328-0-20, Rear Point terrain, B Company 46th Engineer Battalion: Constructed 2 rear points for Al-12 cannon gunships. Each rear point consists of 2 9' 10" walls, one 26' long and the other 36' long, constructed with h&i netting and earth fill. Project was started 26 Jul 70 and completed on 3 Aug 70.

(ii) 259-6382-0-20, Operational Support, 199th LBP, C Company and D Company, 46th Engineer Battalion: Constructed 1200 meters of earth berm, 19 Columbine bunkers, and tactical wire at Fox Eagle. Constructed, one 100' x 100' class I area, four 30' x 100' class III areas, four 50' x 50' Fox race. Installed a 100' M4T6 bridge, 265 feet of culvert and 80 feet of timber bridging on routes 333, 334 and 335. Repaired a class 18 Biffel Bridge, a partially destroyed concrete slab bridge, and filled low spots with laterite and blast rock on the same MSR. Project was started 2 Aug 70 and was transferred on 12 Sep 70. Project was transferred to the 31st Engineer Battalion for maintenance of the MSR.

(jj) 289-6412-0-20, Airfield Upgrade, C Company 46th Engineer Battalion: Upgraded 1/0 lat airfield to C130 Standards by filling, recompacting and paving. Project was started 10 Aug 70 and was completed 24 Aug 70.

(kk) 289-6413-0-20, M4T6 Bridge, C Company 46th Engineer Battalion: Installed 75 feet of M4T6 bridging with reinforced trestles on route 333 at GC YT 67198. Project was started 27 Aug 70 and completed on 29 Aug 70.

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SUBJECT: Operational Report - Lessons Learned, 46th Engineer Battalion, Period ending 31 October 1970, 40-CSP004-65 (K2)

(11) 289-6440-0-20, Dry Span, C Company, 46th Engineer Battalion:
- Installed a 30' foot section dry span using five stiffeners and no trestles.
- Project was started 15 Aug 70 and completed 16 Aug 70.

(12) 289-6441-0-20, Dry Span, D Company, 46th Engineer Battalion:
- Installed three 15' dry spans on route 33. Project was started 20 Aug 70 and completed 15 Sep 70.

(13) 289-6445-0-20, Drainage for 4th Marine, 46th Engineer Battalion:
- Issued five each 6" x 12' pipe and five each 6" valves for drainage of 4th Marine, 1st Aviation Brigade. Project was started 20 Aug 70 and completed 13 Sep 70.

(14) 289-6457-0-20, Earth moving support, C Company, 46th Engineer Battalion:
- Provided four 830 pans and two graders to the 31st Engineer Battalion. Project was started 8 Sep 70 and completed 25 Sep 70.

(15) 289-6467-0-20, Closing of 19th LIP Rest D Company, 46th Engineer Battalion:
- This project was transferred to the 7th Engineer Group with no work accomplished or material expended. Project was transferred 10 Sep 70.

(16) 289-6470-0-20, Engineer equipment support, C Company, 46th Engineer Battalion:
- Provided one 13 wheel roller and one asphalt distributor to 31st Engineer Battalion. Project was started 5 Sep 70 and completed 26 Sep 70.

(17) 291-0698--20, Base Camp Security Hour reporting, 46th Engineer Battalion:
- This project was a means for reporting construction time lost due to security, measuring the impact of security requirements on the construction program. Project was started 13 Apr 70 and was completed 24 Sep 70.

(18) 291-6621-0-20, Dry Span, C Company, 46th Engineer Battalion:
- Installed one 30' dry span on route 33. Project started 20 Aug 70 and was completed 20 Aug 70.

(2) HACU Advisor Facilities: None

(3) Minimum Essential Requirements:

(a) 343-5533-0-20, NGA for 7th Engineer Group, Carpenter Shop 46th Engineer Battalion: Prefabricated and issued four 4-hole 1-trines. Project started Oct 70 and was completed 24 Oct 70.
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(b) 391-5311-6-20, MER for 25th Infantry Division, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued ten 4-hole latrines and six 6-head showers. Project started 18 Mar 70 and was completed on 28 Sep 70.

c) 391-5313-3-20, MER for 79th Engineer Group, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued one 4-hole latrine. Project started 25 Apr 70 and was completed 16 Aug 70.

d) 391-5313-4-20, MER for 58th Engineer Battalion, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued three 4-hole latrines, three 6-head showers and two 8th water towers. Project started 15 Jul 70 and was completed 5 Aug 70.

(e) 391-5313-5-20, MER for 1st Cavalry Division, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued ten 4-hole latrines and six 6-head showers with water towers and tanks. Project was started 29 Jul 70 and was completed 5 Aug 70.

(f) 391-5313-6-20, MER for 1st Cavalry Division, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued seven 4-hole latrines and nine 6-head showers with water towers and tanks. Project was started 15 Aug 70 and was completed 26 Aug 70.

g) 391-5314-3-20, MER for 25th Infantry Division, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued fifteen 4-hole latrines and thirteen showers with water towers. Project was started 24 May 70 and was completed 15 Oct 70.

(h) 391-5314-6-20, MER for 90th Replacement Battalion, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued two 4-hole latrines. Project started 15 Jul 70 and was completed 22 Aug 70.

(i) 391-5315-1-20, MER for 11th Air Cavalry Regiment, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued eight 4-hole latrines and eleven 6-head showers with water towers. Project started 14 Jul 70 and was completed 17 Aug 70.

(j) 391-5315-6-20, MER for 510th Engineer Company, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued three 4-hole latrines and two 6-head showers. Project started 23 Jul 70 and was completed 2 Aug 70.

(k) 391-5315-7-20, MER for 02 Long Binh Post, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued two 4-hole latrines. Project started 9 Aug 70 and was completed 24 Aug 70.

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(1) 391-5315-9-20, MFR for 4th Psyns Battalion, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued one 4-head shower. Project started 1 Aug 70 and was completed 25 Aug 70.

(2) 391-5316-2-20, MFR for 34th Ordinance Company, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued two 4-hole latrines. Project started 16 Aug 70 and was completed 24 Aug 70.

(3) 391-5316-3-20, MFR for 39th Signal Battalion, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued two 4-hole latrines. Project started 13 Aug 70 and was completed 24 Aug 70.

(4) 391-5316-5-20, MFR for 23rd Artillery, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued two 4-hole latrines. Project started 25 Aug 70 and was completed 26 Aug 70.

(5) 391-5316-8-20, MFR for 1st Cavalry Division, Field G, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued twenty-five 4-hole latrines and twelve 6-head showers with water towers. Project started 1 Oct 70 and was completed 13 Oct 70.

(6) 391-5316-9-20, MFR for 1/27th Artillery, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued three 4-hole latrines. Project started 25 Sep 70 and was completed 29 Sep 70.

(4) Lanes of Communications:

(a) 489-5305-0-01, Bridge Design and Construction 411, Xuan Loc Giahay, C Company, 46th Engineer Battalion: Constructed a steel stringer, concrete deck, 40' x 60' vehicular bridge. Project began 6 Jan 70 and was completed 26 Aug 70.

(5) Base Construction:

(a) 43-080-01-7-78(a), Outdoor Recreational Facilities, Long Binh, D Company, 46th Engineer Battalion: This project was terminated with no work accomplished or material expended. Project was terminated on 15 Sep 70.

(b) 512-0314-0-01, Dog Kennels, Cu Chi, 7th Engineer Group D Company, 46th Engineer Battalion: Issued 1600 block to the 538th Engineer Battalion. Project started 15 Aug 70 and was completed 30 Oct 70.
SUBJECT: Operational Report - Lessons Learned, 46th Engineer Battalion,
Period ending 31 October 1970, RGS CSGW-65 (R2)

(c) 54-0334-4-01, Component Faculties, 6th Transportation Battalion,
D Company, 46th Engineer Battalion: Constructed two 20' x 48' concrete pads
for 20' x 48' fascia buildings; provided building and technical assistance for
erection. Also prepared D Form 1354 (Transfer and acceptance of military real
property) and coordinated inspection for turn over to FA & E of Long Binh Post.
Project was started 25 Jul 69 and completed 9 Sep 70.

(d) 544-0315-4-01, Concrete block shop, USArmy, D Company, 46th
Engineer Battalion: This project was cancelled 4th work accomplished or
material expended. Project was cancelled on 13 Oct 70.

(e) 573-0311-1-43, Water Pier, D Company, 46th Engineer Battalion:
Preced four 20' x 11' x 6' concrete reinforced deck slabs with pumping bits
and curbs. Project started 6 Jul 70 and was completed 13 Aug 70.

(6) Revolutionary Development Support: None

(7) Materials Issued:

(a) 707-0304-4-20, Hot mix Issue, FA & E, Bien Hoa Army base, 103rd
Engineer Company (C), 46th Engineer Battalion: Issued 75 tons of hot mix to
FA & E. Project was started 10 Aug 70 and terminated 15 Aug 70.

(b) 707-5311-4-20, Aggregate Issue, 175th Radio Research Company, Bien
Ho, 103rd Engineer Company (C), 46th Engineer Battalion: Issued 28 CY of
3/4"- (-) aggregate to the 175th Radio Research Company. Project started 29 Aug 70
and was completed 15 Aug 70.

(c) 739-5302-0-20, Base Camp maintenance, Camp Pratt, C Company, 46th
Engineer Battalion: Performed U & O maintenance of base camp or necessary.
Project started 5 Aug 70 and was terminated 31 Oct 70.

(d) 791-0301-2-20, A/C Dependent Housing, 46th Engineer Battalion:
Issued 70% of materials required by project scope. Project was started 30 Oct 69
and terminated 30 Oct 70.

b. Projects which are active and upon which work will continue into next
reporting period:

(1) Combat/Operational Support:

(a) 143-5652-0-20, Lowbed Support, 46th Engineer Battalion: Provided
three lowbeds with ten-ton tractors to the 62nd Engineer Battalion (LC). Project
was started 31 Oct 70 and is 75% completed.

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SUNJECT: Operational Report - Lessons Learned, 46th Engineer Battalion, 
Period Ending 31 October 1970, RCS 0904-65 (p2)

(c) 211-6301-0-20, Carpenter Support, Dien Hai Army Base Post Engineer, 
Carpenter Shop, 46th Engineer Battalion: Provided four Vietnamese carpenters 
to the Post engineer, Dien Hai Army Base for perimeter maintenance project. 
Project started 21 Oct 70 and is 95% completed.

(c) 212-6304-0-20, Precut Bunkers, 2/12 Artillery, Carpenter Shop, 
46th Engineer Battalion: Prefabricated and issued three Rose Bunkers. 
Project started 1 June 70 and is 50% completed.

(d) 211-6361-0-20, Aviation Facility, Dien Ho Army, 46th Engineer 
Battalion: Continued earthwork on an aviation parking area formerly 
being constructed by another unit for the 11th ambo. Cavalry Regiment. 
Replaced undesirable fill, recomputed an. shaped areas as required. 
Project was transferred from the 34th Engineer Battalion on 15 Oct 70 and is now 90% completed.

(e) 243-5911-0-23, Precut Bunkers, 90th Replacement Battalion, Carpenter 
shop, 46th Engineer Battalion: Prefabricated and issued fifteen Columbine 
bunkers. Project started 10 Dec 69 and is 94% completed.

(f) 243-6277-0-20, Precut Bunkers, 266th SGS Battalion (US), Carpenter 
Shop, 46th Engineer Battalion: Prefabricated and issued six Columbine bunkers. 
Project started 22 Jun 70 and is 36% completed.

(g) 243-6297-0-20, Precut Bunkers, 2/35th Artillery, Carpenter Shop, 
46th Engineer Battalion: Prefabricated and issued three Rose Bunkers. Project started 
9 Jun 70 and is 75% completed.

(h) 243-6346-0-20, Precut Bunkers, W.G. Long Bien Post, Carpenter Shop, 
46th Engineer Battalion: Prefabricated and issued two Columbine bunkers. 
Project started 7 Sep 70 and is 30% completed.

(i) 243-6465-0-20, Precut Towers, 3rd Ordnance Battalion, Carpenter 
Shop, 46th Engineer Battalion: Prefabricated and issued two Tulip towers. 
Project was started 1 Oct 70 and is 6% completed.

(j) 243-6515-0-20, Peneprine Loading Dock, A Company, 46th Engineer 
Battalion: Started earthwork on new peneprine yard and loading dock for the 
46th Engineer Battalion. Project started 6 Oct 70 and is 20% completed.

(k) 243-6527-0-20, Precut Bunkers, 29th General Support Group, Carpenter 
Shop, 46th Engineer Battalion: Prefabricated and issued four Columbine bunkers. 
Project started 18 Oct 70 and is 34% completed.

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SUBJECT: Operational Report - Lessons Learned, 46th Engineer Battalion, Period Ending 31 October 1970, KC COBPU-65, (Hz)

(1) 243-6539-0-20, Perimeter def., Long Binh Post, headquarters Company, 46th Engineer Battalion: Begun replacing 3000 meters of concertina perimeter barrier wire between bunkers number 393 and 408, LDI perimeter. Project started on 30 Oct 70 and is 5% complete.

(n) 246-6642-0-20, Aircraft shelters, Long Thanh North, D Company, 46th Engineer Battalion: Drilled holes and placed support poles with anchors for six YO-3A aircraft shelters of a new design. Project started 1 Oct 70 and is 25% completed. Work has suspended on 15 Oct 70; the project is awaiting redesign of shelters.

(n) 287-6580-0-20, Precut bunkers, 2/35th Artillery, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued one R-40 bunker. Project started on 12 Sep 70 and is 50% completed.

(w) 286-6689-0-20, Precut bunkers, 1st Cavalry Division, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued twenty-two Columbine bunkers. Project started 29 Sep 70 and is 82% completed.

(p) 289-6505-0-20, Precut bunkers, Hui Le Industrial Complex, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued ten Columbine bunkers. Project started 30 Sep 70 and is 71% complete.

(q) 290-6537-0-20, Road repair, An Phu Loc, E Company, 46th Engineer Battalion: Filled pot holes and improved drainage along road between B Company, 46th Engineer Battalion compound and Huskey Compound. Project started 21 Oct 70 and is 20% complete.

(r) 291-6216-0-20, Precut Bunkers, II Field Artillery, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued ten R-40 bunkers. Project started 23 Apr 70 and is 71% complete.

(s) 291-6308-1-23, Base Camp Maintenance, Long Jin, 46th Engineer Battalion: Prefabricated and issued eight 2-hole latrines and repaired perimeter bunkers as required. Project started 4 Jun 70 and is continuous.

(t) 291-6308-5-23, Base Camp Maintenance for Resor, An Loc and Gia Ky, 103rd, H and C Companies, 46th Engineer Battalion: Maintained defensive structures as necessary. Project started 4 Jun 70 and is continuous.

(u) 291-6551-1-23, Construction Materials Operations, 46th Engineer Battalion: Retrieved, stocked and stored construction materials as required. Project started 27 Oct 70 and is continuous.

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(2) MACV Advisor Facilities: None

(3) Minimum Essential Requirements:

(a) 343-5320-0-20, MER for 1st Aviation Brigade, D Company, 46th Engineer Battalion: Earthwork underway for two 1000' rotary wing runways and four berms, near Sunford MIF, Long with post. Project started 16 Sep 70 and is 15% completed.

(b) 346-5490-0-20, MER for 29th Assault Helicopter Battalion, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued six 4-hole latrines and four 6-head showers. Project started 25 Oct 70 and is 91% completed.

(c) 391-5315-5-20, MER for 2/25th Infantry, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued six 4-hole latrines and eight 6-head showers. Project started 16 Jul 70 and is 74% completed.

(d) 391-5316-6-20, MER for 31st Engineer Battalion, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued four 4-hole latrines and two 6-head showers. Project started 26 Aug 70 and is 75% complete.

(e) 391-5317-1-20, MER for Mul Crusher Complex, Carpenter Shop, 46th Engineer Battalion: Prefabricated and issued four 4-hole latrines and one 6-head shower. Project started 2 Oct 70 and is 56% completed.

(4) Lines of Communication:

(a) 98-219 LOC, LOC Restoration WI-22, D Company, 46th Engineer Battalion: Project transferred from the 7th Engineer Group for the completion of shoulder work and asphalt repair for turnover. Placed 2.7 kilometers of base rock for DBST shoulder and 100 tons of asphalt for repair of road surface. Project was transferred 1 Oct 70 and shoulders are 34.2% completed.

(b) 449-0302-0-01, LOC Restoration WI-1, C Company, 46th Engineer Battalion: Subgrade base rock, and two lifts of pavement on 16.5 kilometers of WI-1 are complete. Placed 11.6 kilometers of shoulder base rock and 7.9 kilometers of DBST have been completed. Side road culverts have been placed and drainage improved over the first 18.5 kilometers of WI-1. Project was started 14 Nov 69 and is 99% completed.

(c) 449-0303-0-01, LOC Restoration WI-1, C Company, 46th Engineer Battalion: Completed subgrade, base rock, and two lifts of pavement on 19.8 kilometers of shoulder base rock. Minor drainage and shoulder work remain. Project started 1 Dec 69 and is 95% completed.

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(a) 44w-007-w-01, ARVN LOC Support, C Company, 46th Engineer Battalion: Issued 24,800 cubic yards of 3/4" (-) asphalt aggregate and 50,300 cubic yards of 2" (-) base rock under this directive to date. Project started 28 Apr 70 and is continuous.

(5) Base Construction:

(i) 43-250-01, 195th HC WQ and WQ Construction, Plantation, D Company, 46th Engineer Battalion: This project consists of providing technical assistance, equipment assistance and construction materials for the construction of WQ's. A total of ten buildings are complete with one more near completion. Project started 17 Feb 70 and is 75% completed.

(b) 43-252-01, 11th HC Cantonment Facilities, D Company, 46th Engineer Battalion: Ten sev. huts have been constructed for troop billeting. Project was started 1 Feb 70 and is 60% completed.

(c) No CD assigned, Ud Le Industrial Complex and Cantonment, 103rd Engineer Company (Co), C and D Companies, 46th Engineer Battalion: Constructed a new cantonment area to include protective domes, RFP, living quarters, defensive bunkers, perimeter wire, lighting, 200 man messhall, 3200 sq. ft., maintenance slab, and MRE. Work accomplished on the new Crusher facility includes a 150' x 16' headwall to feed the two primary jaw crushers, four support slabs for crusher units, a support slab for syntron feeder unit, earthwork and drainage on major road net, a helipad, and initial work on primary power distribution and control system. Project was started 1 Sep 70 and is 70% complete. Do from 1391's have been submitted on this project; however, no construction directive number has been assigned to date.

(6) Revolutionary Development Support: None

(7) Materials Issue:

(a) 707-5306-U-20, Hot mix Issue, III CIV Engineer, 103rd Engineer Company, (Co), 46th Engineer Battalion: Issued 588 tons of asphaltic concrete this period for a total of 11,986 tons to date. Project started 8 Jul 70 and is 75% completed.

(b) 717-0302-U-01, Construction Material Issued to 103rd ROF-FV Engineer Company, 46th Engineer Battalion: Issued 1000 bags of cement, 32,000 bbl of limer, and various electrical supplies this period. Project started 19 Sep 70 and is 70% completed.
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14 November 1970

LGO-OP: Operational Report - Lessons Learned, 46th Engineer Battalion,
Period Ending 31 October 1970, #60 CoFOR-65 (2).

(c) 773-5304-0-20, Hot mix issue to Gia Dinh Public Works, 103rd
Engineering Company (CE), 46th Engineer Battalion: Issued 293 tons of asphaltic
concrete this period for a total of 1516 tons to date. Project started 10 Jan 70
and is 83% complete.

(d) 789-5309-0-20, Base Camp maintenance, Aunn Loc, F Company, 46th
engineer battalion: Maintained facilities as required. Project started 22 Aug 70
and is continuous.

e. Plans:

The crushing facilities at Nesor quarry have been relocated to Nui
Le (YT 6607) and plans have been formulated to move the crushing facility at
Gia my (YT 0309) to Nui Le also for support of the ARVN Restoration of QL.

f. Plant Operations:

1) 103rd Engineer Company (CE) conducted the following activities
during this period:

(a) Quarry Production: 2905 CYs of 2" (-) base rock, 30,029 CYs of
3/4" (-) asphalt aggregate, 211 CY of 3/4" L&St aggregate and 1325 CY of 3/8"
L&St aggregate.

(b) Asphalt Production: 33,005 tons of asphaltic concrete.

2) C Company, 46th Engineer Battalion:

(a) Quarry Production: 24,378 CYs of 2" (-) base course and
14,177 CYs of 3/4" (-) asphalt aggregate.

(b) Asphalt Production: N/A

g. Training: During this reporting period the 46th Engineer Battalion has
scheduled classes and training on a weekly basis. Subjects included in the
training were weapons qualification/familiarization, drug addiction, psychologic
warfare, supply economy, code of conduct, Geneva convention, and Vietnamese
relations. Individuals new in-country receive a four day training course by the
1st Air Cavalry Division and a briefing by the 46th Engineer Battalion staff on
unit history and current disposition. The following individuals received
specialized training:

<table>
<thead>
<tr>
<th>Number of Personnel</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dispatcher Training</td>
</tr>
<tr>
<td>1</td>
<td>Projectionist Training</td>
</tr>
</tbody>
</table>

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On 23 Oct 1970, Project Buddy, OJT Training of ARVN soldiers, graduated 12 OJT mechanics from Class seven. Class seven was the last scheduled project Buddy activity by this unit.

5. Logistics:
   a. Construction Materials On Hand

   (1) Lumber

<table>
<thead>
<tr>
<th>SIZE</th>
<th>QNTY O/H</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x4</td>
<td>6,400</td>
</tr>
<tr>
<td>1x6</td>
<td>46,980</td>
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<tr>
<td>1x8</td>
<td>5,276</td>
</tr>
<tr>
<td>2x4</td>
<td>28,253</td>
</tr>
<tr>
<td>2x6</td>
<td>56,307</td>
</tr>
<tr>
<td>2x8</td>
<td>10,000</td>
</tr>
<tr>
<td>2x10</td>
<td>700</td>
</tr>
<tr>
<td>2x12</td>
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</tr>
<tr>
<td>3x12</td>
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<tr>
<td>6x6</td>
<td>20,000</td>
</tr>
<tr>
<td>10x10</td>
<td>30,000</td>
</tr>
<tr>
<td>16x16</td>
<td>500</td>
</tr>
</tbody>
</table>

   (2) Cement, Portland 8,000 Bags

   (3) Rebar 40,000 LBS

   b. Equipment Status

   (1) Critical Items Received from Depot:

<table>
<thead>
<tr>
<th>Nomenclature</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scraper 18 cu yd</td>
<td>1</td>
</tr>
<tr>
<td>Semi-Trlr L/B, 25 Ton</td>
<td>1</td>
</tr>
<tr>
<td>Tractor, Shld, 83Omb</td>
<td>2</td>
</tr>
<tr>
<td>Fork Lift, 10,000LB</td>
<td>1</td>
</tr>
<tr>
<td>Truck, Cargo 3/4 Ton</td>
<td>2</td>
</tr>
<tr>
<td>Truck, Cargo 2½ Ton</td>
<td>1</td>
</tr>
<tr>
<td>Compressor, 600 CFM</td>
<td>1</td>
</tr>
</tbody>
</table>
Operational report - Lessons learned, 46th Engineer Battalion, Period Ending 31 Oct 1970, ACS OSFD-65 (R2)

14 November 1970

Amendments

<table>
<thead>
<tr>
<th>Ammunition</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributor Water Truck, 1,000 GL</td>
<td>1</td>
</tr>
<tr>
<td>Grader, Motorized</td>
<td>3</td>
</tr>
<tr>
<td>Loader Scoop, 2 1/2 cu yd</td>
<td>1</td>
</tr>
<tr>
<td>Mixer Concrete, 16 cu yd</td>
<td>1</td>
</tr>
<tr>
<td>Pneumatic Tool &amp; Cap Outfit, 250</td>
<td>3</td>
</tr>
<tr>
<td>Roller, MTZD, 5-8 Ton</td>
<td>1</td>
</tr>
<tr>
<td>Roller, Towed, 13 Wheel</td>
<td>1</td>
</tr>
<tr>
<td>Roller Sheepfoot</td>
<td>1</td>
</tr>
<tr>
<td>Shop Equipment Contact Paint</td>
<td>1</td>
</tr>
<tr>
<td>Telescopic Crane 3/4-1 cu yd</td>
<td>1</td>
</tr>
<tr>
<td>Truck, dump 5 Ton</td>
<td>25</td>
</tr>
</tbody>
</table>

(2) Equipment Shortages KIC-1 Lines

Total KIC-1 items authorized: 133
Number of lines at 100-90%: 104
Number of lines at 90-80%: 6
Number of lines at 80-70%: 4
Number of lines at 70-60%: 6
Number of lines at 0-50%: 13

(3) Critical Items Shortages

<table>
<thead>
<tr>
<th>Ammunition</th>
<th>Shortage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Trlr, Low Bed 25 Ton</td>
<td>8</td>
</tr>
<tr>
<td>Shop Equipment Org repair</td>
<td>1</td>
</tr>
<tr>
<td>Floodlight Set</td>
<td>19</td>
</tr>
<tr>
<td>Welding Shop, Trailer, 300 amp</td>
<td>3</td>
</tr>
<tr>
<td>Roller, air Mobility Vibrating</td>
<td>2</td>
</tr>
<tr>
<td>Radio Set Control Grp, AN/GRA-74</td>
<td>1</td>
</tr>
<tr>
<td>Compressor, 5 CFM</td>
<td>1</td>
</tr>
<tr>
<td>Transit, 1 Min, 10-20 pr</td>
<td>3</td>
</tr>
<tr>
<td>Truck, Earth Borer</td>
<td>2</td>
</tr>
<tr>
<td>Truck, Tractor 10 Ton</td>
<td>3</td>
</tr>
</tbody>
</table>

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c. MCA/LVC Equipment

- Loader Scoop, 6 cu yd
- Crusher 450 TPH
- Gradall Excavator
- Roller Self-propelled Vibrating
- Spreader Aggregate
- Compactor Hrn
- Roller Self-propelled Hyster
- Welder 400 amp
- Welder Attachment
- Welder 600 amp

<table>
<thead>
<tr>
<th>Item</th>
<th>Number Transferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sead-Trlrm, Low bed 25 Ton</td>
<td>2</td>
</tr>
<tr>
<td>Truck, Tractor 10 Ton</td>
<td>3</td>
</tr>
<tr>
<td>Tank Unit Liquid Dispensing</td>
<td>2</td>
</tr>
</tbody>
</table>

d. Republic of Vietnam Armed Forces Improvement:

During this reporting period, this battalion has transferred the following equipment to the armed forces of the Republic of Vietnam:

<table>
<thead>
<tr>
<th>Item</th>
<th>Number Transferred</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

e. Maintenance:

Timely classes for all supervisors and operators of each type of equipment are held to emphasize maintenance problems peculiar to the existing working conditions. Instructors and maintenance teams are utilized in the field to assist supervisors, operators, HLL Clerks, and TAER personnel in the practice of proper maintenance procedure and supply documentation. This system has proven successful as evidenced by the 103rd Engineer Co (Co) passing their FY 70 CMIT during this period.

f. Communications:

During this period, the battalion communications section completed its installation of Nestor equipment to provide secure transmission and reception for AN/PRC 77 radios. The necessary connecting cables were obtained to allow connection to PRC 46 radios and give the capability of long range secure transmissions through the relay atop Nui Chau Chan.
Subject: Operational Report - Lessons Learned, 46th Engineer Battalion, Period Ending 31 Oct 1970, NCS CoFm-65 (R2)

6. Force Development:

During the reporting period, Headquarters and Headquarters Company has been located on Long Binh Post.

A Company, located on Long Binh Post, had been reorganized into a LOC support company which controlled the battalions haul assets until 15 October 70 when the separate companies were reissued their dump trucks.

B Company is LOC east Xuan Loc with A Company's paving section attached and is engaged in upgrading of QL1.

C Company is at Gia May (Camp Pratt) with a quarry platoon of A Company attached and is engaged in the construction of Nui Le Industrial Complex and the upgrade of QL1.

D Company is LOC east at Phu Loi minus one platoon which remains in Long Binh upon which control of the Nui Le Industrial Complex and the upgrade of QL1.

The 714th Engineer Detachment (PL) is attached to HHC 46th Engineer Battalion and presently working on the Long Binh Jail project with the 92nd Engineer Battalion.

The 702nd Engineer Detachment (PL) is presently attached to C Company 46th Engineer Battalion for the electrical distribution at Nui Le Industrial Complex.

The 103rd Engineer Company (Co) is located at Nui Le Quarry and operates a quarry/crusher complex now partially completed.

7. Command Management:

The emphasis of projects has shifted back to LOC from combat and operational support. However, due to the widespread posture of the line companies, it is still necessary to maintain command emphasis on the concept of individual companies being able to move quickly and accomplish a task utilizing organic equipment as much as possible.

To initiate a quick response program, emphasis has been placed on making required communications available to ensure a steady flow of necessary information. Contact team maintenance has been improved to get required mechanics and parts to the deadline equipment quickly.

8. Inspector General activities:

During the present reporting period, this battalion has dealt with all IG complaints in a prompt and efficient manner.

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9. PIU:

The battalion Information Office has an active program. In addition to publishing its own paper, "The Spike" each month, it submits 3 features a week to brigade. Hometown news releases are forwarded on 90% of assignments to units, promotions, and awards in the battalion.

10. Civic Action:

a. Carpenter Shop, 46th Engineer Battalion issued scrap lumber to the Ho Hai Orphanage to aid in improvements being made.

b. C Company, 46th Engineer Battalion aided the new refugee camp at YT 595064 just east of AP Soui Cat, by issuing scrap lumber for use in erecting living quarters.

c. 103rd Engineer Company (C3) aided the refugee village at AP Soui Cat with empty AP 3 barrels to be used for water storage and protection.

Section 2, Lessons Learned: Commanders Observation, Evaluation, and Recommendation.

1. Personnel

a. Qualified Personnel:

(1) Observation: With the increased extraction of personnel from Vietnam and the associated drops it becomes exceedingly difficult to maintain quality workmanship and equipment operation at levels demanded by the mission.

(2) Evaluation: Individual drops and subsequent retraining (OJT) results in varying degrees of quality production.

(3) Recommendation: More attention should be placed on maintaining replacements on a hub required basis.

b. Impact of Personnel Transfers:

(1) Observation: During this reporting period a significant number of men were transferred or detached from this unit by higher headquarters with very little prior coordination or advance warning. They were selected by name on the basis of skills, DIHOS and reputation. No evaluation of impact was solicited from the unit commander.

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(2) Evaluation: The results of these methods were that line platoons were stripped of many of their best men in the KOS required leaving the platoons with little capability in these areas. In addition to losing their skills, some of the individuals selected were natural leaders who provided momentum and drive to the platoons activities for above that expected from individuals of their grade and position within the unit organization.

(3) Recommendation: It is recommended that future personnel levies not be made by name whenever possible. When it is necessary to levy by name, it should be done with minimal advance notice. Recommend that unit commanders be expected and allowed to demonstrate good faith in providing competent men for personnel levies.

2. Operations:

a. Construction of FSB Eagle:

(1) On 18 July 1970, D Company 46th Engineer Battalion received a mission to provide Operational Support of the 199th LUI at FSB Eagle. Included in the scope of work was the upgrading and maintenance of routes TL 334 (between Vo Dat YT 734320 and YT 859328 Ko Au) and TL 335 (between Ko Au and Tanh Linh). The weather during August and September was typical monsoon weather. During our stay of 7 weeks not more than 6 days passed without rain. When it was not raining the sun was out and the temperature was in the high 80's. The earth moving platoon work on TL 334 consisted of filling, grading, and compacting of laterite that was obtained from 2 pits, while the work on TL 335 also consisted of grading and ditching. After 2 days of working, it was found that the water table level on most of TL 335 was no more than 2 or 3 inches below the road surface. This coupled with only 1 or 2 inches of laterite made the road very unstable. After the pass of 2 convoys on the road there were 3 holes in the road of 3 ft. in depth with a sandy loam bottom, and the water in them being constantly flushed by ground springs. Pumping out the water was tried but the ground springs and water table would fill the holes back in within 15 minutes. Corduroy road was proposed but the expense and time needed to accomplish this made it unwise. The final solution was to put rock into the holes to stabilize the road to pass convoy traffic. On 9 August 1970 there were 13 dump trucks sent up, each containing 4 CY of 14" minus rock. The trip out there and back completely ruined the road from YT 811340 to YT 920340. For the next 2 weeks there were about 175 trucks brought to FSB Eagle to repair the damage. The rock was finally put down and the road made passable to convoy traffic.
(2) Evaluation: It is the conclusion of those working on the road that more road was ruined than was repaired. This was due to the fact that the bearing capacity of the soil was not adequate to uphold the weight of the vehicular travel over it. This was true for the tactical convoys and rock conveyors as well as the engineer equipment used to work on the road, the conveyors were probably more destructive due to their repetitious use of the road.

(3) Recommendations: If any other engineer unit receives a similar assignment they should only do minimal fill work using light equipment. The type of material present was such that more road was destroyed by equipment than could be improved. Also one should stay off the road as much as possible. Travel to and from the work site was as destructive as conveyors, by working very day we effectively multiplied the amount of heavy traffic on the road by 3. The job could only be accomplished with any success in the dry season.

b. Use of aggregate spreader in Double Bituminous surface Treatment (DBST) of shoulders.

(1) Observation: As Double Bituminous surface Treatment of shoulders began in this unit, it became obvious that the aggregate spreaders would have to be modified from eight feet in width to four feet in width to conform to existing specifications of shoulders.

(2) Evaluation: Various types of steel barrier were fabricated approximately four feet in length, conforming to the shape of the interior of the spreader which effectively blocked one half of the length of spread.

(3) Recommendation: It is recommended that barriers be fabricated so that steel plating sits at a slight angle, approximately 12-15°, when installed in the aggregate spreader, to allow aggregate being poured from the modified dump truck bed to slide freely into the unblocked part of the spreader. This action will reduce spillage and eliminate overburdening the part of the spreader which is blocked.

c. Assembly of MPFA

(1) Observation: The assembly of MPFA is a time consuming process due to the number of bolts to be placed and tightened, since assembly requires capability it also ties up this equipment for quite awhile.

(2) Evaluation: The time consuming process of placing each bolt is detrimental to rapid MPFA assembly.

(3) Recommendation: MPFA installation goes very rapidly when the crane is used only for the placement of a few key bolts. Another crew can follow placing and tightening the remainder of the bolts releasing the equipment to lift on the next MPFA to be constructed.
v. Shoulders:

(1) **Observation:** During the construction of highway shoulders the subgrade has been found to be substandard in width and strength in a significant number of cases.

(2) **Evaluation:** During original construction the subgrade was built to the exact width required for both traveled way and shoulders; however, the finished shoulder surface was not constructed concurrently with the traveled way. The effects of weather and a high volume of heavy traffic took their toll of the bare shoulder leaving many places soft or washed out.

(3) **Recommendation:** Recommend that shoulders be constructed concurrently with the traveled way.

(4) **Organization:** None.

(5) **Training:** None.

(6) **Logistics:** None.

(7) **Communications:** None.

(8) **Materials:** None.

(9) **Other:** None.

JOSEPH L SCHULZ
LTC, C2
Commanding

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S U J E C T: Operational Report - Lessons Learned, 46th Engineer Battalion
Period Ending 31 October 1970, RO 56FC-65 (R2)

DA, NC, 159th Engineer Group, APO 96491 21 November 1970

TO: Commanding General, 20th Engineer Brigade, ATh.: AV81-CU, APO 96491

1. Submitted in accordance with USARV Regulation 525-1S, dated 13 April 1969.

2. Concurrence with report is submitted.

[Signature]

L W T A. BROWN
CU, CE
Commanding

NOT REPRODUCIBLE
AVBI-OS (14 Nov 70) 2nd Ind

SUBJECT: Operational Report - Lessons Learned, 46th Engineer Battalion, Period Ending 31 Oct 70, BCS GNFOR-65 (R2)

DA, HEADQUARTERS, 20TH ENGINEER BRIGADE, APO 96491

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


2. This headquarters has reviewed the submitted report and the comments of the indorsing headquarters.

3. Comments follow: Section II paragraph 1 item b. The practice of transferring individuals by name is not standard procedure and only in rare exceptional cases is it employed. This problem again emphasizes the need for cross-training of individuals especially in a critical MOS.

FOR THE COMMANDER:

[Signature]

D. L. MC BRIDE
1LT, 01
Assistant Adjutant

Copies furnished:
CO, 159th Engr Gp
CO, 46th Engr BN
AVCC-MU (14 Nov 70) 3rd Ind

SUBJECT: Operational Reports - Lessons Learned for the 46th Engineer Battalion, Period Ending 31 October 1970, ROG CSFOR-65 (R2)

HQ, US Army Engineer Command Vietnam (Provisional), APO 96491

TO: Commanding General, United States Army Vietnam, ATTN: AVHDO-DO, APO 96375

1. The significant activities and lessons learned have been reviewed and are an adequate reflection of the unit's operations during this period.

2. Reference item concerning "Critical Items Shortages", page 20, para 5b(3). Concur. Coordination is underway with ICCV to improve the availability of these items. Valid requisitions will be filled to authorized TOE level upon arrival of equipment in-country. No action by DA or USARPAC recommended.

FOR THE COMMANDER:

R. P. SPENCER JR.
LTL, AE
Assistant Adjutant

CG:
CG, 20th Engineer Brigade
CO, 46th Engineer Battalion

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AVHDO-XO (14 No. 70) 4th Ind

SUBJECT: Operational Report - Lessons Learned, 46th Engineer Battalion, Period Ending 31 October 1970, RCS CSFOR-65 (R2)

Headquarters, United States Army Vietnam, APO San Francisco 96375 12 JAN 1971

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

This Headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 October 1970 from Headquarters, 46th Engineer Battalion and concurs with comments of indorsing headquarters.

FOR THE COMMANDER:

Cy furs:
USAECV
46th Engr Bn

JACK P. COOK
CPT, AGC
Assistant Adjutant General

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GPOP-DT (14 Nov 70) 5th Ind
SUBJECT: Operational Report of HQ, 46th Engineer Battalion, for Period Ending 31 October 1970, RCS CSFOR-65 (R2)
HQ, US Army, Pacific, APO San Francisco 96558 29 JAN 1971
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:

[Signature]

L.M. UCHI
CPT, ASC
Asst AC
Operational Report - Lessons Learned, HQ, 46th Engineer Battalion

Experiences of unit engaged in counterinsurgency operations 1 Aug to 31 Oct 1970.

CO, 46th Engineer Battalion

14 November 1970

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N/A