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AGAM-P (M) (20 Aug 68) FOR OT RD 682114 23 August 1968

SUBJECT: Operational Report - Lessons Learned, Headquarters, 168th Engineer Combat Battalion, Period Ending 30 April 1968

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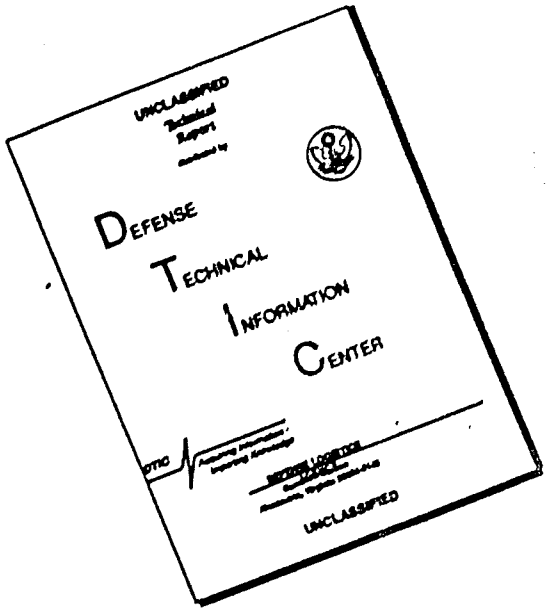

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 168TH ENGINEER COMBAT BATTALION
APO US FORCES 96289

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THRU: Commanding Officer
79th Engineer Group
APO US Forces 96491

Commanding General
20th Engineer Brigade
ATTN: AVBI-OPN

Commanding General
United States Army Engineer Troops, Vietnam (P)
ATTN: AVHEN-P&O
APO US Forces 96375

Commanding General
United States Army, Vietnam
ATTN: AVHGC-DH
APO US Forces 96307

Commander-in-Chief
United States Army, Pacific
ATTN: GPOP-OT
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1. Section 1, Operations: Significant Activities.

a. General. During the period 1 February 1968 through 30 April 1968, the 168th Engineer Combat Battalion retained its dual (general support) mission of combat support and cantonment construction. The battalion continued its normal disposition with its Headquarters, Headquarters Company, Company A, Company D, the 557th Engineer Company (LE), the 168th Land Clearing Task Force and the 38th Well Drilling Detachment located at Di An; Company B and one equipment platoon from the 557th Engineer Company (LE) at Lai Khe and Company C and one equipment platoon from the 557th Engineer Company (LE) located at Quan Loi. From this disposition combat support missions were conducted for the 1st Infantry Division, 25th Infantry Division, 101st Airborne Division, 199th Light Infantry Brigade, 11th Armored Cavalry Regiment, 5th Special Forces Group, and II Field Force Artillery. The battalion continued to perform diversified and challenging combat support missions. The area of combat operations extended over 800 square miles and encompassed 17 different locations. Construction effort was directed toward 1st Infantry Division base camps at Di An, Lai Khe and Quan Loi, RVN. The battalion became more specialized in March 1968, when Company D was converted into an air mobile company.

b. Command. Lieutenant Colonel John R. Manning continued in command of the battalion through the quarter. Major Robert C. Riese continued as Executive Officer. CW3 Donald F. Lane, 1st LT Gordon Nelson and Major Peter J. Offringa continued in their assignments as S-1, S-2 and S-3 respectively. Major Richard Chandler departed from his S-4 position for rotation to CONUS and was succeeded by 1LT Albert M. Archibald on 1 April 1968. First Lieutenant William B. Howell retained his position as Engineer Equipment Officer for the entire quarter. Captain Larry L. Payne departed for assignment in CONUS and Captain Wayne W. Marsh, Signal Corps, assumed command of Headquarters Company on 3 April 1968. Captain Charles L. Mills relinquished command of Company B to 1LT James E. Baumgardner on 27 March 1968. Captain Lucien E. Bernard assumed command of Company C after the departure of Captain Joseph P. Kish on 19 March 1968. 1LT Floyd G. Willoughby replaced Captain Raymond E. Knell on 21 March 1968 as commanding officer of Company D. Captain Douglas E. Holen retained command of Company A throughout the quarter. Captain Eldon R. Johanson was replaced in his command of the 557th Engineer Company (LE) by Captain William F. Allison Jr. on 28 April 1968. Command of the 168th Land Clearing Task Force changed from 1LT William G. Gang to 1LT Rodger V. Warren on 29 April 1968. A current organizational chart of the battalion is attached as Inclosure 1.

c. Personnel, Administration, Morale and Discipline.

(1) The battalion's strength remained relatively stable throughout the quarter, despite an unusually heavy turnover of both officers and

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enlisted personnel. This turnover of personnel came at a time when the battalion was in a lightly committed period, and therefore adequate training time permitted the qualification and orientation of these new personnel. There was no adverse effect on any mission. The problem of shortages in the middle NCO grades is a continuing one. Although advancement to grade E-5 remains rapid in the present promotion policy, the lack of experience in grades E-5 and E-6 is detrimental to the management of major construction projects.

(2) The 168th Engineer Combat Battalion Sundry Fund was redesignated an open mess under the title of the 168th Engineer Combat Battalion Open Mess and was chartered by Headquarters USARV. Control number RV 2450 was assigned to the 168th Engineer Combat Battalion Open Mess, which operates one main club and two annexes at Di An, one annex at Lai Khe, and one annex at Quan Loi.

(3) Attached is a list of significant personnel actions accomplished in the battalion during the past quarter:

(a) Summary Courts Martial: 3

(b) Special Courts Martial: 3

(c) Foreign Service Tour Extensions: 89

(d) Individual Decorations: 60

1. Silver Star: 1

2. Bronze Star (Valor): 1

3. Bronze Star: 11

4. Army Commendation Medal (Valor): 1

5. Army Commendation Medal: 12

6. Purple Heart: 34

d. Intelligence: The S-2 Section conducted reconnaissance in the area of responsibility of the 168th Engineer Combat Battalion. Reconnaissance of forward airfields became increasingly important when the battalion assumed responsibility for all such airfields within the 79th Engineer Group area of responsibility. The scope of each airfield reconnaissance was increased to include work estimates of required repairs. In early March a

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comprehensive reconnaissance was conducted of the lines of communications within the battalion's area of responsibility. The information obtained was used to determine equipment and man-hours required to prepare these roads for the Monsoon Season. Reconnaissance was also conducted at the Dong Xoai Bridge and the Dong Nai bridge site. The Dong Nai bridge site was later used by Company A to construct a 915' floating bridge. The S-2 section continued to refine and improve the battalion defensive perimeter by installing tactical wire, perimeter lighting, claymore mines and trip flares. The section's tunnel destruction team participated in three combat support missions during the reporting period.

c. Plans, Operations, Training.

(1) Plans: The battalion S-3 was responsible for planning all major operations. In addition, planning and design of all assigned base construction projects was conducted. Facilities designed included two twelve-point refueling systems, two ammunition supply points, two 40' x 210' post exchanges, grease racks and wash racks. In addition, plans for the improvement of the airstrips at Chi Linh, Bunard and Bu Dang were developed. Drainage systems were designed for the Quan Loi and Lai Khe base camps and the bypass at Chon Thanh.

(2) Operations:

(a) Combat Support: The Tet Offensive curtailed the battalion's major combat support operations near the Cambodian border and necessitated withdrawal to base camps. Significant local road clearing effort was expended until the end of March. The resumption of offensive operations in early April resulted in further combat support committments. Major combat support operations included:

1. Artillery Fire Support Base - Loc Ninh (28 December 1967 - 23 February 1968). Company A initiated construction of a fire support base for 175mm artillery at Loc Ninh on 28 December 1967. Phase I of construction consisted of four gun pads, four corner bunkers for "quad-fifty" machineguns, and a communications bunker. Phase I was completed on 14 January 1968. Phase II, consisting of 17 living bunkers, a command bunker, roads and drainage, was nearly completed when on 9 February , II Field Forces ordered the base dismantled. On 17 February, most men and equipment were returned to Di An by tactical convoy. A small contingent remained to complete the leveling of the berms and clearing of fields of fire for the Loc Ninh Special Forces Camp. On 24 March 1968, final extraction of men and equipment was completed. (See Inclosure 2, After Action Report - FSB Judy)

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2. Signal Facility - Nui Ba Ra (16 December 1968 - 9 February 1968). Company C constructed signal equipment sites and a helicopter landing pad on Nui Ba Ra mountain in support of the 1st Signal Brigade, II Field Force. The mountain rises 723 meters above the surrounding jungle. The slopes are extremely steep and are covered with thick vegetation. There was a small cleared area of approximately 100-meter diameter on the top of the mountain. Personnel, equipment, and supplies had to be airlifted to the site. Working space was extremely restricted. A D6B tractor was airlifted to the mountain top with only the blade and one track removed. After reassembly on top of the mountain, a 75' by 75' helipad was cut into the side of the slope. A 30' x 100' area was leveled and a timber platform constructed for placement of the signal vans. The site was operational by 2 February 1968. Fields of fire were cleared by use of bangalore torpedos because the surrounding jungle contained unrecorded booby-traps. Men and equipment were airlifted from the mountain top on 9 February 1968. (See Inclosure 3, After Action Report - Nui Ba Ra).

3. Operation Buena Vista (8 December 1967 - 11 February 1968). The First Platoon of Company D provided mine clearing support to the 199th Light Infantry Brigade and the 101st Airborne Division during search and destroy operations in AO Strike, a heavily jungled area northeast of Tan Uyen. During the initial road clearing operation into Fire Support Base Nashua (XT 991326) one 3/4-ton truck and one 25-ton lowbed became combat losses when they hit mines. Three men were wounded. The Engineer platoon remained at the fire support base until 16 December when the majority of the personnel were airlifted back to Di An. The platoon's heavy equipment, four dump trucks, a five-ton tractor and a D7E dozer remained at the fire support base until 11 February 1968 because the road back to Long Binh was closed. During this time haul support was provided to the tactical units at FSB Nashua. One hundred twenty-two acres of jungle were cleared to provide fields of fire. (See Inclosure 4, After Action Report - Operation Buena Vista)

4. Brigade Staging Area - Song Be (23 December 1967 - 19 March 1968). Company D provided combat support to the 1st Logistical Command and the 101st Airborne Division by constructing a Brigade Staging area at Song Be. Initial effort was expended on the construction of logistic facilities for II Field Forces. An 18-point refueling pad, a takeoff and approach runway of T-17 membrane and a heliport containing 28 aircraft revetments were constructed. Dust control was a major problem, particularly in the aircraft areas. More than 235,000 gallons of petroleum were applied to reduce the dust hazard. A 300' by 300' helipad for CH-47 aircraft was constructdd adjacent to the ammunition supply point. More than 2,200 meters of berm were constructed in the Class V area. Concurrently, continuous maintenance of the C-130 airstrip at Song Be was performed. Approximately 90 cubic yards of rock in 55-gallon drums and 120 barrels of MC cutback were flown

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by C-130 and CH-47 type aircraft for runway repair. Combat support was provided to the 101st Airborne Division. Perimeter fields of fire were cleared, bunkers dug and slots dug for vehicle protection. On 10 February, major tactical elements of the 101st Airborne Division began to withdraw from Song Be. Company D was tasked with the mission of disassembling the aircraft revetments and leveling the Class I, III, IV and V areas. All fortifications in the area were to be destroyed and all foxholes and sumps covered. One platoon with four D7E tractors remained at Song Be to accomplish this task. On 19 March 1968, all work was completed. The D7E's were extracted by C-130 aircraft on 6 April 1968. (See Inclosure 5, After Action Report - Song Be)

5. Land Clearing - Operation Saratoga (3 January 1968 - 20 April 1968). The 168th Land Clearing Task Force supported the 25th Infantry Division in land clearing operations in their tactical area of operations. The operation initiated on 3 January 1968 in the Ho Bo Woods and Filhole Plantation. The task force cleared those areas to which access was restricted during Operation Kunia because of extremely poor soil trafficability. Mortar attacks and harassment from the Ho Bo Woods area were still prevelent. The operation was initially under the control of the 1st Brigade, 25th Infantry Division. The 4th Battalion, 23 Infantry (Mech) provided security for the cutting elements. The enemy was extremely active during the operation and cutting was frequently halted because of enemy action. On 5 February 1968, the team moved to Cu Chi because tactical security was withdrawn to reinforce 25th Division elements near Saigon. On 13 February, after a brief standdown, the task force convoyed to Prek Klok to begin clearing 200 meters on either side of Route TL4. Security was provided by the 2nd Battalion, 34th Armor. The jungle in the area was extremely heavy with trees ranging from two feet to five feet in diameter and 60 to 100 feet in height. The heavy jungle slowed progress. Maintenance support was hampered because the team was split and operated from two locations, Prek Klok and Katum. This operation was terminated on 24 February 1968 when the armored security was withdrawn to Cu Chi. The Land Clearing Task Force moved to Tay Ninh and later to Cu Chi for a standdown. Ten tractors were sent to clear jungle in the Tan Hoa area southeast of Cu Chi on 1 March. On 11 March the team moved to Tan Phu Trung, 5 kilometers west of Cu Chi to clear light jungle until 23 March. After a five-day standdown at Cu Chi the task force returned to the Ho Bo Woods. The final fringe areas were cleared by 9 April 1968. The task force then moved to an area northeast of Duc Hoa and cleared hedgerows under the direction of ARVN security elements. On 20 April 1968 the Land Clearing Task Force returned to Di An for a 10-day standdown. During the entire operation 17,818 acres of jungle were cleared. Fifty-five personnel were WIA. (See Inclosure 6, After Action Report - Operation Saratoga)

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6. Forward Airfield Repair - Chi Linh (1 March 1968 - 7 April 1968). The 1st Platoon, Company A, reinforced by equipment from the 557th Engineer Company (LE) upgraded the airfield supporting Chi Linh Special Forces Camp. The task force was airlifted from Bien Hoa and Di An by C-130 and Ch-47 aircraft. A new drainage system for the airfield was designed and constructed. The runway, turnaround, and parking apron were regraded and peneprimed. The task force was extracted on 7 April 1968. (See Inclosure 7, After Action Report - Chi Linh)

7. Forward Airfield Repair - Bunard (26 March 1968 - in progress at end of reporting period). The 2nd Platoon, Company D, upgraded the airfield supporting Bunard Special Forces Camp. Personnel and heavy equipment were airlifted from Chi Linh Special Forces Camp on 26 March. The airfield was graded and compacted. The parking apron was partially resurfaced utilizing 1,720 cubic yards of laterite. On 8 April, equipment for penepriming the airstrip arrived by air from Chi Linh. During the period 12 to 23 April 1968, equipment support was provided to the 11th Armored Cavalry Regiment in the establishment of a fire support base adjacent to the Special Forces Camp. At the end of the reporting period, penepriming of the turnaround and parking apron had been completed. Personnel and equipment are awaiting extraction.

8. Forward Airfield Repair - Bu Dang (10 April 1968 - in progress at end of reporting period). The Third Platoon, Company D began upgrading the airfield supporting Bu Dang Special Forces Camp on 10 April 1968. Airfield drainage has been improved and construction of a 225' x 300' parking apron begun. At the end of the reporting period, more than 1,200 cubic yards of laterite have been placed and compacted. The project is 32% complete and will be finished in mid May.

9. Bridge Construction - Dong Nai River (22 April 1968 - 26 April 1968). Company A, supported by the 100th Engineer Company (FB) and the 573rd Engineer Company (FB) constructed a 915' floating bridge across the Dong Nai River (YT 312261) 38 kilometers northeast of Bien Hoa. Personnel and equipment moved by tactical convoy to the bridge site closing at 1230 hours, 22 April. The bridge was closed on the afternoon of 24 April. Elements of the 11th Armored Cavalry Regiment, moving south along Route 322 from Dong Xoai, turned off the road seven kilometers from the bridge site and travelled overland through dense jungle toward the bridge. The last 1500 meters were cleared by D7E tractors under the control of Company A. At 0720 hours, 25 April the first elements of the Cavalry crossed the bridge to the south shore of the Dong Nai River. One hundred and sixty-two armored vehicles crossed the river in less than 5 hours, including a disabled tank with only one track which was towed across the bridge by a 5-ton tractor. Dissassembly of the bridge was begun at noon. At 2350

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hours, with 75% of the bridge removed and loaded, the task force was attacked by Viet Cong Infantry Battalion and a Anti-tank Company using mortars, automatic weapons recoilless rifles and small arms. Thirteen engineer personnel were wounded before the attack was terminated. By 1300 hours, 26 April, all the bridge had been removed from the water and loaded. The convoy closed at Di An at 1800 hours. (See Inclosure 8, After Action Report - Dong Nai Bridge)

10. LOC Maintenance.

a. Company B performed major road upgrading on the bypass around the Chon Thanh Airfield. The construction of this airfield on an existing stretch of Route 13, necessitated the installation of a bypass to insure that heavy convoy traffic would not damage the airfield. The existing bypass had been inundated on several occasions during the past monsoon season. Company B, assisted by nine 290M tractors with scrapers from the 557th Engineer Company (LE), placed, shaped and compacted 37,370 cubic yards of laterite in 16 days of work. Drainage was established by the construction of a pan ditch parallel to the roadway.

b. During the reporting period, major effort was expended in preparing Route 13, the main supply route of the 1st Infantry Division, for the coming rainy season. The battalion, in conjunction with the 34th Engineer Battalion and the 1st Engineer Battalion, developed a coordinated repair and upgrading program. Total closures of the road from Phu Cuong to Quan Loi were obtained every fifth day, allowing maximum engineer effort by the three Engineer Battalions to be concentrated on the road with no interference from convoy traffic. Eight closures were obtained between 19 March and 23 April 1968. Working on the road between Phu Cuong and Lai Khe and the road between Lai Khe and Chon Thanh simultaneously, Company B, supported by earth moving equipment from the 557th Engineer Company (LE), hauled 14,400 cubic yards of laterite, placed 580 feet of culvert, constructed 1,650 meters of bypasses around particularly vulnerable culverts, while upgrading 24 kilometers of road.

c. Repair of potholes and drainage work were performed by Company B on a daily basis on Route 13 north of Lai Khe. Two dump trucks and a squad of men were utilized to place cold patches on worn areas of the asphalt surface.

d. Company A and Company D maintained the stretch of road between Di An and Lai Thieu and five kilometers of route 313 north of Di An. One hundred twenty yards of laterite were placed in potholes during the reporting period.

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11. Rome Plow Support (15 February 1968 - 13 April 1968). Four Rome Plows from the 557th Engineer Company (LE), mounted on D7E tractors from the 168th, 34th and 554th Engineer Battalions supported the 1st Infantry Division in clearing operations around the 1st Infantry Division headquarters at Lai Khe. These plows cleared more than 1,100 acres of jungle in the Lai Khe "Rocket Belt". The plows reverted to battalion control on 13 April 1968.

12. Local Security. The battalion has responsibility for the two kilometers of defensive berm at the Di An base camp. In addition, the companies at Lai Khe and Quan Loi serve as part of the ready reaction force for those base camps. The reaction force at Lai Khe responded to two ammunition fires and provided engineer assistance to free trapped personnel when the Lai Khe Officer's Club was destroyed in early February. Security measures were intensified at all base camps following the Tet Offensive. The battalion frequently provided its own job site security since tactical elements were often committed to higher priority missions.

13. Other Combat Support. The battalion provided equipment support, technical assistance, and on-call combat support to tactical units within its area of operations. Company B and Company C provided mine sweep teams, expedient road repair crews and equipment support as required to all 1st Infantry Division operations in the vicinity of Lai Khe and Quan Loi. At Lai Khe, subgrade failures in the MX-19 matting of the C-130 airfield were repaired. Two total closures lasting 72 hours each were required to complete the mission. During these closures, intensive engineer effort during two shift operations was required to obtain maximum utilization of closure time and insure the airfield could be opened in time to resume critical air traffic. Company C provided technical assistance to Company A, 5th Special Forces Group in the construction of a B team headquarters at Hon Quan. At Quan Loi drainage was improved at the fire support base belonging to the 6th Battalion, 27th Artillery. Revetments for the gunpads at this installation were under construction at the end of the reporting period. Ten concrete gunpads for 4.2" mortars were constructed for the 8th Battalion, 6th Artillery at Quan Loi. Company D provided support to the 11th Armored Cavalry Regiment in bypassing an underclass bridge northeast of Dong Xoai. Two D5 tractors were airlifted to Dong Xoai the day before the operation. At first light the next day, the tractors, a squad of men and CIDG security forces moved two kilometers from the Special Forces Camp to the construction site. In two hours the site was prepared, and culvert layed and backfilled as access routes were prepared. Thirty minutes after the bypass was completed, 300 armored vehicles crossed the site convoying into War Zone D.

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(b) Cantonment Construction. During the reporting period construction continued at Di An, Lai Khe and Quan Loi base camps. The reduction in combat support commitments in the aftermath of the Tet Offensive resulted in an increased emphasis on cantonment construction. The release of a base construction directive for Quan Loi inaugurated a major construction effort by Company C for the 1st Brigade, 1st Infantry Division.

1. Di An. Companies A and D continued construction of the main base camp for the 1st Infantry Division Support Command and the adjacent base camp for the 2nd Brigade, 1st Infantry Division. On the main base production included one water tower and fill stand, 37,000 square yards of hardstand, one 10-point refueling system, four helicopter rearming points, 1,600 meters of road, 420 linear feet of culverts and four grease r cks. The main base is now 90% complete, up 3% from the last three months. In the 2nd Brigade area, construction completed during the reporting period included one water well and fillstand and one ammunition supply point consisting of six storage bays. The 2nd Brigade area is now 94% complete. In general, the Di An construction program is nearly complete; all essential facilities have been constructed. The estimated completion date for the entire project is 1 July 1968.

2. Lai Khe. Company B, supported by a platoon of the 557th Engineer Company (LE), had primary responsibility for the cantonment construction program for the 3rd Brigade, 1st Infantry Division. The company also provided minimum essential requirements (MER) for the incoming Division Headquarters. During the period 1 February 1968 to 30 April 1968, the following construction was completed: 960 square feet of maintenance buildings, 10,560 square feet of troop billets (selfhelp), 8,400 square feet of post exchange, 2,250 linear feet of culvert and 47,670 square yards of laterite hardstand. A 54 foot high aircraft tower was constructed and fitted with a specialized control pod. Twenty-six revetted helicopter pads were constructed to complete the Lai Khe heliport. A 17-bay ammunition supply point complete with roads and drainage was constructed. On 25 April 1968, the 34th Engineer Battalion (Construction) assumed responsibility for all MCA construction at Lai Khe enabling Company B to assume a larger share of the battalion's combat support missions. All MER for the incoming Division Headquarters were completed during the reporting period. Six company sized and four battalion sized MER's were completed by Company B.

3. Quan Loi. Company C continued construction on the minimum essential requirements for the 1st Brigade, 1st Infantry Division. With most vertical construction completed, work consisted of the construction of 16 kilometers of permanent road, completion of a 225' x 750' parking apron for C-130 aircraft, installation of 1250 linear feet of culvert, and construction of a

twelve point helicopter refueling system. The MER was completed on 29 April 1968. In early March 1968, the construction directive for the Quan Loi Base Camp was released. Facilities consisted primarily of community buildings, mess halls and maintenance buildings. Construction to date included a 40' x 210' post exchange, two 40' x 56' post exchange warehouses, a theater/chapel, a 32 dog-kennel facility for tracker dogs, and 19 concrete pads for scullery tents. The base construction program is now 12% complete. All facilities should be constructed by 1 October 1968.

(3) Training:

(a) The reorganization of Company D into an air mobile company infused a large quantity of new equipment into the battalion. A complete operator retraining program was required on twelve new pieces of equipment. The training cycle was conducted in four phases. The operator was familiarized with the equipment during the deprocessing phase. Personnel then were instructed in operation, maintenance and capabilities of the equipment. In phase III, the equipment was used on local projects under close supervision. Finally, air mobility training was conducted. Simultaneously, company and battalion maintenance personnel were familiarized with the upkeep and repair of the equipment. The training was completed and the equipment committed to combat support projects on 16 April 1968.

(b) Training in assembly and disassembly of the M4T6 floating bridge was conducted by Company A during the week preceding the construction of the Dong Nai Bridge. Training was conducted by platoons under the technical supervision of qualified personnel from the 100th Engineer Company (FB).

(c) Training in weapons, construction techniques, drainage and other engineering subjects was conducted on Sundays at the company level. Familiarization firing was conducted by companies on Mondays on a rotating basis. A training program on the M16 Rifle was held for those members of the Land Clearing Task Force who were issued these weapons under a special authorization.

f. Logistics. During the reporting period, the 168th Engineer Combat Battalion felt a general shift from predominately base construction missions to predominately combat support missions. This shift brought about an ease in construction material procurement and a general increase in combat losses for the battalion as a whole. Logistical support from the 226th Supply and Service Battalion, as well as from 506th Field Depot and MACV's Engineer Construction Materials Yard (ECMY), continued to improve. The stock control branches of 506th Field Depot and ECMY moved from their Saigon Offices into more spacious and easily accessible offices in Long Binh. Both

offices gave faster service and kept more accurate records of materials on hand. The 506th Field Depot completed installation of an automatic data processing system. Despite these advances, fill on certain items of supplies and equipment worsened. Electrical fixtures and butt hinges were somewhat more readily available, but culverts (particularly large diameter), peneprime, and heavy timbers became more scarce as the monsoon season approached. Timber of 3" thickness suitable for diagonal bracing, decking of bridging, and bunker construction is simply non-existant in the Saigon Area depots. The shortage of engineer equipment eased slightly during the reporting period. Such items as 10-ton tractors, 5-ton dump trucks, ¼-ton trucks, and pioneer electric tool sets continued to be non-available. The most critical shortage, however, was D7E tractors. Lack of replacement tractors hampered operations of the 168th Land Clearing Task Force. A large shipment of Bone Plow Blades entered the country late this quarter and eased the previous shortage. Saigon Support Command arranged for 43 major items and numerous small items of air mobile equipment to be picked up direct from Newport Docks. Twenty of the major items have already been picked up. This arrangement eliminated considerable paper work, time consuming delays, and possibilities for damage. It also allowed the equipment to be operational within one week after it arrived in country. The S-4 directed movement of approximately 4125 tons of construction and combat support materials during this period. More than 182 tons of these were airlifted to forward locations by fixed-wing aircraft. The following figures indicate the magnitude of supplies moved during the period.

LOCATION	TOTALS
Saigon to Di An	70 tons
Saigon to Di An (by 1st Log Cmd)	456 tons
Long Binh to Di An	1605 tons
Di An Local Area	471 tons
Di An to Quan Loi	1123 tons
Di An to Lai Khe	571 tons
Di An to Bien Hoa (for airlift)	182 tons

All project resupply missions were by armed convoy or by aircraft. On several occasions it was necessary to put several men on temporary duty at Bien Hoa Air Base to coordinate packaging and loading of air shipments. Water supply personnel not engaged in tactical operations were usually used for these details since the TO&E does not provide sufficient supply personnel. The 168th Land Clearing Task Force engaged in four major land clearing operations during the quarter. Although combat losses decreased slightly for the Land Clearing Task Force, the D7E tractors suffered a high mortality rate from engine failure. A total of 15 engines failed during a 25-day period. Maintenance of the battalion equipment as a whole

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has improved significantly during this period. The deadline rate dropped from 18% in early February to 10.7% at the present time as the percent fill of the battalion PLL increased from 50% to 63% over the same period.

6. Force Development. The battalion continued to devise new organizational and operational techniques to meet the requirements of its unique mission. During the reporting period the battalion evolved the new concept of the Air Mobile Company and continued to develope the concept of the Land Clearing Task Force.

(1) The concept of the Air Mobile Company was developed to accomodate the issue of lightweight, air transportable equipment to Company D. The company was authorized the following major items of equipment as part of an air mobile package:

Backhoe	2
TD340 Tractor	2
MRS100 Scraper	2
D5 Tractor	3
Sectionalized Front Loader	2
Pneumatic Roller	1
Vibratory Compactor	1
Hayrake	2
Grasscutter	2
16-Ton Tilt Bed Trailer	8
3-Ton Crane	1
3/4-Ton Wrecker	1
3/4-Ton Dump Truck	12

This equipment was integrated into a company equipment section and three line platoons as illustrated in Inclosure 9. Personnel were retrained to provide sufficient equipment operators. An equipment supervisor was obtained to supervise the large density of equipment in the equipment section.

(2) The battalion added new refinements to the Land Clearing Task Force and continued to further develop those innovations already introduced. Closer supervision through the use of armored personnel carriers for team leaders resulted in increased acreage cut. Loss of productivity because of minor mechanical problems were reduced by the use of maintenance contact teams mounted in M548 tracked carriers. Minor repairs could be accomplished on the spot. Mounting air compressors in the M548's reduced damage to these vulnerable pieces of equipment. As helicopter guidance techniques were refined, air direction became the primary means of controlling the plows. Airlift of spare parts significantly reduced deadline time. When the team moved to Katum in late February, new cutting techniques were developed to cope with the large diameter trees found in this area. The Land Clearing

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Task Force continued to be a unique and flexible response to the challenge of massive land clearing operations.

h. Command Management. The magnitude and scope of the battalion's mission demanded the application of sound management techniques. The Battalion Executive Officer monitored the battalion's command management program. Significant areas are listed below:

(1) Daily operations meetings were conducted at battalion and company level to organize projects and insure efficient allocation of the battalion's resources.

(2) Maintenance management was improved by use of the consolidated battalion PLL. Companies submitted requisitions to the DSU through the Battalion Maintenance Section. This technique contributed significantly to a substantial improvement in the battalion's PLL stockage level.

(3) Logistics control was improved by the introduction of better inventory and stock rotation procedures. Waste in the battalion storage yard was reduced by the use of improved storage techniques for lumber.

(4) The battalion's command management team conducted periodic inspections of subordinate units. Frequent staff visits to outlying companies were encouraged.

i. Inspector General: Major Robert C. Riese was Battalion Inspector General. During the quarter two (2) IG complaints were received.

j. Information: The battalion information program provided coverage for major accomplishments of the battalion. Individual performance was recognized through the submission of home town news releases. During the reporting period, 42 such news releases were submitted to the 79th Engineer Group. The battalion received news coverage in military publications including the Stars and Stripes, The Army Times, The Reporter, and The Castle Courier. An article on D7E Airlift Procedures was published in the March-April edition of the Military Engineer.

k. Civic Affairs: During the reporting period, the battalion continued to assist and support the Go Vap II Orphanage, the Xuan Truong Orphanage, and the Saint Therese School. Assistance rendered consisted of distribution of excess foodstuffs from unit mess halls, MEDCAPS by the battalion surgeon, and English classes by the battalion Chaplain. Total amount of foodstuffs collected was in excess of 3,000 pounds. In addition, approximately 30,000 pounds of edible garbage was distributed for livestock use. In support of the Tet Aggression Relief Program (TARP), the battalion voluntarily contributed 64,000 $ VN. The money contributed was collected at battalion

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level, and was personally presented to needy Vietnamese employees of the battalion by LTC Manning. The program, conducted completely within the battalion, emphasized the personal participation of each United States soldier. This fact is believed to have greatly enhanced United States - Vietnamese relations in the battalion's area of operation. Money contributed and collected during January to aid in the construction of a student dormitory at the Saint Therese School was presented to the school officials by LTC Manning. Total amount presented was 60,000 $ VN. The Di ...n High School addition was completed by Company D on 20 April 1968. Construction of the three classrooms began in mid January, but had to be discontinued during the Tet Offensive. Actual construction time for the project was seven weeks, with approximately 225 United States man-days being expended. Expenditures from the Engineer Civic Action Fund totaled 77,000 $ VN. In addition to the actual completion of the structure, a vast amount of technical training was given to Vietnamese masons, carpenters, and laborers employed for the project.

2. Section 2. Lessons Learned: Commander's Observations, Evaluations, and Recommendations.

a. Personnel: MOS Structure

(1) OBSERVATION: In MOS 12B20, the highest authorized grade is E4. Progression to the rank of Specialist 5 requires that an individual be reclassified as a demolitions specialist.

(2) EVALUATION: In the operation of a Combat Engineer Battalion, there is a dual function. One is the type requiring destruction of enemy facilities, removal of enemy mine fields, roadblocks etc. The other mission is one of building. At the present time the standards of grades authorized in AR611-201 reveal that combat engineer construction specialists can only advance to E4. To become E5 they must become demolitions specialists or enter the NCO ranks. Standard practice is to promote highly motivated and qualified construction specialists to grade of E5 without their being specialists in demolitions procedures.

(3) RECOMMENDATION: It is recommended that the MOS structure in MOS 12B be revised to provide for construction specialists in the grade of E5 and a demolitions specialist in the grade of E5 as two distinct channels of progression in MOS 12B.

b. Operations:

(1) Erection of the 500-barrel prefabricated steel POL tank.

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(a) OBSERVATION: The 500 barrel prefabricated steel POL tank will leak profusely if not tightened and sealed properly.

(b) EVALUATION: Significant leaks develop in the tank if the bolts are not torqued properly. The sealing compound for the tanks is in limited supply and does not set well. Leaks on the bottom of the tank are difficult to detect.

(c) RECOMMENDATION: In errection of the 500-barrel prefabricated steel POL tank, place T-17 membrane on the pad supporting the tank. This will reveal any leaks in the bottom by preventing seepage into the ground. Apply the sealing compound at night. The heat during the day prevents the sealer from setting properly. If sealing compound is not available, permatex, available at organizational maintenance levels, is a good caulking substitute.

(2) Application of Dust Pallative.

(a) OBSERVATION: Good penetration of peneprime during the dry season is difficult to achieve.

(b) EVALUATION: Because a dust layer forms on all laterite surfaces during the dry season, peneprime applied to forward airfields would not penetrate more than one inch. Heavy traffic on the airfield would soon destroy the dust free surface.

(c) RECOMMENDATION: To achieve better penetration with dust pallative, windrow the final laterite cap. Apply RC-3, cutback 25% with diesel, between the windrows. Application rate should be 0.3 to 0.5 gallons per square yard. The windrows and dust pallative, mixed and spread with a grader, and rolled with a 13-wheel roller gives better and more even penetration than surface application.

(3) Use of JP4 as a Peneprime Cutback.

(a) OBSERVATION: JP4 can be used as a peneprime cutback if diesel is unavailable.

(b) EVALUATION: During operations at Song Be, D Company, 168th Engineer Combat Battalion was required to place peneprime when no diesel was available as cutback. A substantial amount of contaminated JP4 was on hand.

(c) RECOMMENDATION: Under rigid safety supervision, JP4 is effective as a peneprime cutback. The ratio of cutback to peneprime should be doubled over that normally used for diesel.

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(4) Tightening T-17 Membrane.

(a) OBSERVATION: Tightening T-17 membrane can be accomplished more easily by use of a 3/4-ton truck and two 4" x 4" posts than by hand.

(b) EVALUATION: Tightening T-17 membrane by hand is difficult even with a full platoon. A method employed by Company D utilized a 3/4-ton truck and two 4" x 4" posts, twelve feet long. The edge of the membrane was wrapped around one 4" x 4" post and another 4" x 4" was nailed to the first to hold the membrane between them. A chain attached the 4" x 4" 's to a 3/4-ton truck. The pull of the truck was spread evenly over the length of the 4" x 4" 's stretching the membrane. The small holes caused by the nails were always located in the ditch or under the flap of the next piece of membrane.

(c) RECOMMENDATION: The 3/4-ton truck should be used to stretch T-17 membrane whenever possible.

(5) Bracing of Bunkers

(a) OBSERVATION: Bunkers incorporated into defensive berms require additional lateral bracing.

(b) EVALUATION: While constructing bunkers in a berm at the Loc Ninh Fire Support Base, it was found the bunkers sometimes become distorted when fill was pushed over them. Temporary knee braces were incorporated into the bunker design. After the fill was pushed up with the braces in place, they were removed. No bunker distortion resulted.

(c) RECOMMENDATIONS: Bunkers incorporated into defensive berms should be fitted with temporary knee braces when being backfilled.

(6) POL Tank Revetments.

(a) OBSERVATION: POL tank revetments constructed from M8A1 matting are superior to earth berms.

(b) EVALUATION: Earth revetments for POL tanks require a significant amount of haul effort to construct. Earth revetments are also difficult to maintain at a height that will give complete lateral protection to the POL tanks. The problems inherent in earth revetments were eliminated by constructing square revetments out of M8A1 matting. The M8A1 revetment is easy to construct, gives complete lateral protection, affords more usable working area adjacent to the tanks, and requires minimal maintenance.

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(c) RECOMMENDATION: Revetments of M8A1 matting should be constructed around POL tanks whenever possible.

(7) Clearing Roadblocks.

(a) OBSERVATION: Detonation of three pounds of C-4 at the base of a roadblock will detonate anti-personnel mines hidden in the roadblock.

(b) EVALUATION: Roadblocks encountered in the Di An Area have had large quantities of metal objects and anti-handling devices placed in them. Mine sweeping and probing each roadblock is time consuming and dangerous. If a roadblock is encountered that is possibly mined, three or four one-pound blocks of C-4 are placed at the base of the roadblock and detonated. This method will generally detonate any mines hidden in the roadblock.

(c) RECOMMENDATION: Detonation of C-4 be used to clear anti-handling devices from roadblocks.

(8) Clearing Roadblocks

(a) OBSERVATION: When roadblocks have been cleared by indigenous civilian personnel, they do not usually reappear.

(b) EVALUATION: While clearing lines of communications during the Tet Offensive, a large number of roadblocks were found in civilian villages. It was assumed they had been installed by civilian personnel from the villages. The area was swept for mines. Then in coordination with the security element and personnel from the 1st Division G-5, civilian personnel were required to clear the roadblocks. An interpreter explained to the people why they were clearing the roadblocks. After several days, this type roadblock disappeared from the roads. In areas where only US personnel cleared the roadblocks, they consistently reappeared.

(c) RECOMMENDATION: Indigenous civilian personnel should be used to clear roadblocks in villages whenever possible.

(9) Use of Demolitions on Rubber Trees.

(a) OBSERVATION: Rubber trees require more demolitions than other trees of the same diameter.

(b) EVALUATION: Test shots on rubber trees using the $P=D^2/40$ formula indicated that "P" would have to be doubled to effectively cut the trees. The fiber composition of rubber trees requires this additional explosive. Another method for small trees is to cut a ½ inch "V" groove the length of a standard block of C-4, place the grooved side against the tree and detonate the charge from both ends.

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(c) RECOMMENDATION: Use twice the usual amount of explosives when cutting rubber trees.

(10) Clearing Work Sites.

(a) OBSERVATION: Mines may be exploded by symphatic detonation at small work sites.

(b) EVALUATION: When replacing culverts, filling craters or clearing roadblocks, the work site may be cleared of non-metalic mines by sweeping a path around the work site, setting up a ring main in the swept path with two-pound blocks of C-4 placed at five foot intervals. When detonated the shock wave set off secondary detonations on several occasions. At a larger work site standard 40-pound cratering charges, buried one foot below ground level, were set at 10 foot intervals. The shock wave created by detonation also produced secondary explosions.

(c) RECOMMENDATION: Demolitions are an effective means to clear work sites.

(11) Land Clearing.

(a) OBSERVATION: Dividing the Land Clearing Task Force promotes inefficient clearing.

(b) EVALUATION: During Operation Saratoga the Land Clearing Task Force was split on several occasions. Having two or more elements working from different base camps makes command and control of the various elements difficult. The main maintenance effort can be located in only one base camp. There is a time lag in getting parts to the other teams.

(c) RECOMMENDATION: The Land Clearing Task Force should always be allowed unit integrity for maximum production.

(12) Land Clearing

(a) OBSERVATION: Foot troops can be used on certain occasions as Rome Plow security.

(b) EVALUATION: Foot troops were successfully used to secure route clearing and hedgerow areas surrounded by open terrain. The best method for utilization of foot troops is the cordoning off of the area to be cut. The troops should have eye to eye contact with each other. When securing strip cutting, they should be in the woodline 50 to 100 meters past the outer edge of the cut. When securing hedgerow cutting, the troops should

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be in the open area about 200 to 300 meters from the cut. In both cases a mobile reaction force should be available.

(c) RECOMMENDATION: Foot troops should be used to secure Rome Plows only during route clearance and while cutting hedgerows.

(13) Bridge Crossings

(a) OBSERVATION: Inoperative M48 tanks may be towed across M4T6 floating bridges with 5-ton tractors.

(b) EVALUATION: During bridging operations, an M48 tank with one track missing arrived at the site. The vehicle had to be towed using a tow bar. Winching was impossible because the vehicle could not be steered In order to get this crippled vehicle, a Class 52, across the river, a five-ton tractor Class II was used. The tractor was connected to the disabled tank with a tow bar. The tank and tractor were pushed with a D7E tractor to get them moving. The disabled tank was the last vehicle towed across the bridge.

(c) RECOMMENDATION: A 5-ton tractor may be used to tow disabled M48 tanks across M4T6 bridges.

(14) Utilization of D5 Dozers in Bridging Operations.

(a) OBSERVATION: The D5 dozer is ideal for initial preparation of the far shore for M4T6 bridging.

(b) EVALUATION: The far shore of the Dong Nai bridge site was heavily jungled, with steep banks. A D5 dozer was floated across on a five-float raft and was able to negotiate terrain which would have proved impossible for a D7E. The D5 prepared the site sufficiently so a D7E could be off loaded from a raft to complete the work.

(c) RECOMMENDATION: A D5 dozer should be brought to all bridge sites to assist in clearing the far shore.

(15) Hand Tools on Bridge Sites.

(a) OBSERVATION: Extra three-pound hammers and hand lamps should be taken to bridge sites.

(b) EVALUATION: In M4T6 bridging the most important hand tool is the three-pound hammer. A large percentage of loss and damage to those tools was experienced. Adequate hand lamps and additional batteries are essential for night bridge erection.

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(c) RECOMMENDATION: In planning for a M4T6 bridge operation all available three-pound hammers and hand held electric lanterns should be brought to the bridge site.

(16) Additional End Ramps for M4T6 Bridges.

(a) OBSERVATION: Bridges in RVN are extremely vulnerable to damage by enemy action.

(b) EVALUATION: Terrain adjacent to most bridge sites in RVN is condusive to attacks against the bridge. Some back up bridging should be available.

(c) RECOMMENDATION: A minimum of 10% additional bridging should be available on a site and a 50% back up available in rear echelon. Enough end ramps should be brought to the site so that the bridge can be broken into 5-float rafts if necessary.

(17) Truss Design.

(a) OBSERVATION: Current truss design requires splicing of main members.

(b) EVALUATION: Truss designs over 30' call for lumber longer than that currently available in RVN. Buildings should be designed to allow for splices and additional bracing on the rafters.

(c) RECOMMENDATION: Available materials should be considered in truss design.

(18) Culvert Headwalls

(a) OBSERVATION: Culvert headwalls erode easily in areas where there is significant vertical drop.

(b) EVALUATION: By placing tin sheets on the face of the headwalls and on the wingwalls, erosion will be considerably reduced.

(c) RECOMMENDATION: Tin sheets on culvert headwalls should be used in areas of high water velocity.

(19) Field Operation of the 600 GPH Air Mobile Water Purification Set.

(a) OBSERVATION: The 600 GPH Air Mobile Water Purification Set requires equipment and personnel augmentation for efficient operation.

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(b) EVALUATION: Field operation of the 600 GPH Air Mobile Water Purification Set indicates some improvements in the system are necessary for efficient operation. These problem areas are listed in the Memorandum for Record attached as Inclosure 10.

(c) RECOMMENDATION: The following modifications are recommended:

1. Four extra lengths of hose should be added to the set.

2. The capacity of the storage tank should be 1200 gallons.

3. Three operators should be assigned to each set.

4. The set be transported by 3/4-ton cargo trailer.

c. Training. Bridge Training.

(1) OBSERVATION: More bridge training is required for combat engineer battalions in the III Corps Tactical Zone.

(2) EVALUATION: The battalion conducted the first major bridging operation in the III Corps Tactical Zone in 18 months. Because this type mission had not been conducted recently, training in all areas was lacking. The combat engineers, bridge company, and particularly boat operators required additional training.

(3) RECOMMENDATION: Periodic bridge training should be conducted to insure proficiency in this type operation.

d. Intelligence: Measurement of River Gaps.

(1) OBSERVATION: River widths must be physically measured prior to bridging operations.

(2) EVALUATION: Triangulations proved to be inaccurate in measurement of river widths. Heavy jungle along river banks prohibited accurate measurements. Completely accurate width determinations can be made only by physical measurement. A good technique is to tie communications wire to the near shore, carry it to the far shore by bridge boat and measure the wire expended.

(3) RECOMMENDATION: A physical measurement of the river width should be made prior to requesting bridging materials.

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e. Logistics.

(1) Interchangeability of Roofing Tin and Culvert.

(a) OBSERVATION: Roofing tin and culvert made by different manufacturers is not interchangeable.

(b) EVALUATION: During base construction at Quan Loi it was found that the grooves in the roofing tin did not match. Upon closer examination it was determined that the tin was manufactured by two different firms and was not interchangeable. A similar situation exists with culvert of different manufacture.

(c) RECOMMENDATION: When shipping BOM for tin and culvert, insure that the material is all of the same manufacture.

(2) Engine Failure in D7E Tractors.

(a) OBSERVATION: Engine failures occurred frequently in land clearing operations during the dry season.

(b) EVALUATION: Engines failed with 40 to 1,632 hours of operation. The cause was attributed to overheating and dust. Special attention should be given to air cleaner maintenance. All preformed packing and o-rings should be present. The air filter element should not be cracked, bent or torn. Radiator vanes must be flushed frequently. The engine crank case should be cleaned frequently. Only HDO 30 oil should be used. Tractors should be serviced every 125 hours.

(c) RECOMMENDATION: Air filters and radiators should continue to receive the special attentions shown above. Tractors should be serviced every 125 hours. Additional observations and recommendations are included in Inclosure [illegible], a report from a seminar conducted by the battalion on this subject.

(3) Cleaning Radiator Vanes.

(a) OBSERVATION: Flushing radiator vanes requires a high pressure mixture of water and air.

(b) EVALUATION: A high pressure mixture of water and air may be obtained by drawing water from a navy cube with a sump pump to a Y-pipe. By forcing air from the compressor through the other arm of the Y a highly pressurized air-water stream is produced. This is very successful in cleaning radiators.

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(c) RECOMMENDATION: Radiators should be cleaned using the device described above at least three times a day.

f. Organization. Radios for the Land Clearing Task Force.

(1) OBSERVATION: The Land Clearing Task Force is not authorized sufficient radios to properly control its operations.

(2) EVALUATIONS: The Land Clearing Task Force presently has 3 AN/PRC 25 radios to control 30 D7E's. The task force must borrow radios from the infantry security battalion to properly perform its mission. Each team needs 4 radios, one for the team leaders, one for the lead D7E, one for the middle D7E, and one for the trail D7E. The Commanding Officer also requires an AN/PRC 25 to properly control the team from the air. A total of 13 AN/PRC 25 radios are required.

(3) RECOMMENDATION: The Land Clearing Task Force should be authorized 13 AN/PRC 25 radios.

g. Other. Exercising Bridge Boats in RVN.

(1) OBSERVATION: During bridging operations, a large percentage of bridge boats were found to be inoperative upon arrival at the site.

(2) EVALUATION: Of the ten boats sent to the Dong Nai Bridge site, three were inoperable upon arrival at the site. It was later determined that these three boats were last in the water nine months before the operation.

(3) RECOMMENDATION: Bridge boats should be exercised at least once every 30 days.

3. Section 2, Part II, Recommendations:

a. The direct combat support operations performed by the battalion during this reporting period have presented unique challenges resulting in the lessons learned and recommendations included in Part I of this section. There are several significant general recommendations that can be derived from the experiences of the past quarter.

b. During the reporting period, the battalion participated in 14 major operations and a multitude of smaller combat support missions. The battalion's huge area of operations and the variety of units supported made planning, control, and logistics, prime considerations in any tactical decision. The battalion was fortunate in receiving excellent aircraft

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support for command and control purposes. A UHID type aircraft was available 5½ days a week. The favorable location of the Di An base camp with respect to sources of supply enabled the battalion to react rapidly to changing logistical requirements. The detailed planning required for operations at separate, remote locations was possible only when sufficient lead time was provided by the supported unit. The battalion's ability to provide equipment, materials, personnel, and repair parts to critical job sites must remain unimpaired. Therefore, I recommend that future missions be conducted with the following points in mind.

(1) Aircraft support for command and control continue to be made available.

(2) The battalion should retain its close proximity to the logistics base at Long Binh and the aircraft loading facilities at Bien Hoa.

(3) Maximum lead time for planning be provided for missions at remote locations accessible only by air.

c. The 168th Land Clearing Task Force has continued to evolve refinements in the organizational and operational aspects of land clearing missions. The art of area clearance with Rome Plows has evidenced constant improvement resulting in higher acreage cut per tractor. Recent operations have again emphasized the importance of maintenance as the key to high productivity. The importance of maintaining a rigidly controlled and supervised maintenance program in spite of pressures to put every plow in the field every day, was illustrated by the increase deadline rate during Operation Saratoga. Of similar importance is the need to properly program Rome Plow assets prior to committing them. Constant shifting of Rome Plow effort from area to area is a wasteful means of employment. Committing the team piecemeal to clear small areas posing temporary tactical threats, is equally inefficient. The following recommendations provide for maximum effective Rome Plow employment.

(1) The Land Clearing Task Force must be employed as one unit from one base camp.

(2) The Land Clearing Task Force is not conducive to rapid redeployment. Operations should be planned to utilize the team in one geographical area for a significant length of time.

(3) Scheduled maintenance must be conducted as prescribed even if some otherwise operational plows must remain in base camp for required services. Pressures to achieve high daily acreages at the cost of long term maintenance are self defeating.

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(4) The Land Clearing Task Force has achieved maximum effectiveness when utilized as a tactical weapon. Clearing priorities for maximum tactical effectiveness are listed below.

(a) Clearing known base camps and logistics complexes.

(b) Clearing routes for tactical units into suspected enemy areas.

(c) Clearing suspected infiltration routes.

(d) Clearing along main supply routes and around fire support bases to allow economy of force in securing them.

(e) Clearing around base camps as a passive security measure.

d. The redesignation of Company D, 168th Engineer Combat Battalion as an air mobile company has provided the battalion with a cability to effectively conduct combat engineering missions in areas inaccessible to fixed wing aircraft. Missions of this type are plentiful enough throughout the battalion's area of responsibility to insure that Company D will be fully committed to air mobile engineering operations. Accordingly, the company has been reorganized to enhance its ability to perform air mobile operations. There has been a corresponding decrease in its capability for normal engineer missions, such as vertical construction. The organization listed in paragraph 7 was formulated to achieve proper control and supervision of the increased equipment density, a capability to move the full company by road and a capability for two shift operations. To provide personnel to meet these goals, each line squad has been reduced from two non-commissioned officers and eight enlisted men to two non-commissioned officers and six enlisted men. The specialized nature of this company requires specialized employment techniques. I recommend;

(1) An MTO&E be approved incorporating the organization shown in Inclosure 9.

(2) The air mobile company be utilized primarily for specialized missions in isolated locations.

(3) The company be committed to no more than two separate construction sites.

e. The battalion's maintenance operation continues to be hampered by a lack of spare parts. Although there was some improvement in the percent of fill in the battalion's prescribed load list, the battalion's primary source of repair parts is through channels other than those prescribed.

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Unless requisitioned parts are received in a reasonable length of time, there can be no improvement in this situation. The shortage of direct exchange parts in the DSU measureably increases deadline time. I recommend that action be taken to determine the cause of the shortage of repair parts and steps be taken to make available those repair parts required to accomplish our engineer mission.

John R. Manning

JOHN R. MANNING
LTC, CE
Commanding

11 Inclosure
1. Organization Chart of Bn
2. AAR FSB Judy
3. ~~AAR Nui Ba Ba~~
4. ~~AAR Operation Buena Vista~~
5. ~~AAR Song Be~~
6. ~~AAR Saratoga~~
7. ~~AAR Chu Linh~~
8. AAR Dong Nai Bridge
9. ~~D Company MTOE 5-37G~~
10. ~~Memo for Record 600 GPM Airmobile Purification Set~~
11. ~~Maintenance Seminar, D7E Dozers~~

Withdrawn, Hq, DA

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EGE-3 (3 May 68) 1st Ind
SUBJECT: Operational Report of the 168th Engineer Combat Battalion for Period Ending 30 April 1968, RCS CSFOR-65 (R1)

DA, HEADQUARTERS, 79TH ENGINEER GROUP, APO 96491, 20 May 1968

TO: Commanding General, 20th Engineer Brigade, ATTN: AVBI-OPN, APO 96491

The Operational Report of the 168th Engineer Battalion (C) for the period ending 30 April 1968 has been reviewed. It is considered to be an adequate summary of the battalion's operational experience during that period.

ROBERT E. CROWLEY
LTC, CE
Commanding

AVBI-OS (3 May 68) 2nd Ind
SUBJECT: Operational Report of the 168th Engineer Combat Battalion for Period Ending 30 April 1968, RCS CSFOR-65 (R1).

DA, HEADQUARTERS, 20TH ENGINEER BRIGADE, APO SF 96491

TO: Commanding General, USARV, ATTN: AVHEN-MO, APO 96375

1. Submitted in accordance with USARV Regulation 525-15, dated 13 April 1968.

2. Subject report for the 168th Engineer Battalion (Combat) has been reviewed and is considered adequate.

FOR THE COMMANDER:

RICHARD E. TAYLOR
1LT, AGC
Assistant Adjutant

AVHGC-DST (3 May 68) 3d Ind CPT Arnold/dls/LBN 4485
SUBJECT: Operational Report of the 168th Engineer Combat Battalion for Period Ending 30 April 1968, RCS CSFOR-65 (R1)

HEADQUARTERS, US ARMY VIETNAM, APO San Francisco 96375 **12 JUL 1968**

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

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 30 April 1968 from Headquarters, 168th Engineer Combat Battalion.

2. Comments follow:

a. Reference item concerning MOS structure, page 15, paragraph 2a: Concur. Establishment of the grade Specialist E5, Senior Construction Specialist, would provide promotion opportunity for highly qualified construction specialists who do not necessarily possess the leadership ability to enter the NCO ranks; provision for promotion of demolition specialist to grade E5 already exists.

b. Reference item concerning field operation of the 600 GPH air-mobile water purification set, page 21, paragraph 2b(19).

(1) Recommendation 1 - Nonconcur. Raw water can be prefiltered at the shoreline by forming a sand filter composed of a sand bag well filled with sand. This will remove a substantial quantity of impurities. Reference is made to TM 5-700, Field Water Supply. The 600 GPH water purification unit is designed so that each item has a place when packed and the entire unit will be self-contained. The addition of extra hose will create storage problems.

(2) Recommendation 2 - Nonconcur. Basic issue items for subject set includes 2-500 gallon collapsible synthetic rubber coated tanks. Reference is made to paragraph 3i, TM 5-4610-12.

(3) Recommendation 3 - Nonconcur. Equipment is self-sustaining once correctly placed into operation. Other than normal surveillance of guages and the occasional draining of the sludge concentrator tank, the only activity performed by the operators is the backwashing of the filter. The frequency of backwashing the filter is dependent upon the clarity of the raw water and formation of a good slurry blanket in the erdlator tank.

12 JUL 1968

AVHGC-DST (3 May 68) 3d Ind
SUBJECT: Operational Report of the 168th Engineer Combat Battalion for Period Ending 30 April 1968, RCS CSFOR-65 (R1)

(4) Recommendation 4 - Nonconcur. The 600 GPH water purification set is contained in a special purpose cargo body mounted on a 2½ ton, 2-wheeled trailer.

c. Reference item concerning radios for land clearing task force, page 24, paragraph 3f. The MTOE submission which is presently at DA includes six AN/PRC-25 Radio Sets. If additional radios are required, unit should submit MTOE action with full justification.

d. Reference item concerning recommendations, page 26, paragraph 3d: Nonconcur.

(1) MTOE's are currently in the process of being approved, which will standardize like engineer units in RVN; this program was directed by DA. Current guidelines from DA indicated that no MTOE's will be approved that are not applicable to all like units.

(2) Airmobile engineer equipment was issued to units for use on a mission type basis only. Airmobile equipment is not to be used as a supplement where conventional equipment can be utilized.

e. Reference item concerning recommendations, page 26, paragraph 3e: Nonconcur. A Combat Engineer Battalion is only authorized to perform organizational maintenance. Repair parts required at the organizational level are common stockage items and readily available in the supply system. The supply system is based on establishing a unit PLL. The unit must continuously follow-up its requisitions to insure they are valid.

FOR THE COMMANDER:

JOHN V. GETCHELL
Captain, AGC
Assistant Adjutant General

Copies furnished:
HQ, 168th Engr Cbt Bn
HQ, 20th Engr Bde

GPOP-DT (3 May 68) 4th Ind
SUBJECT: Operational Report of HQ, 168th Engr Cbt Bn for Period Ending 30 April 1968, RCS CSFOR-65 (R1)

HQ, US Army, Pacific, APO San Francisco 96558 9 AUG 1968

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

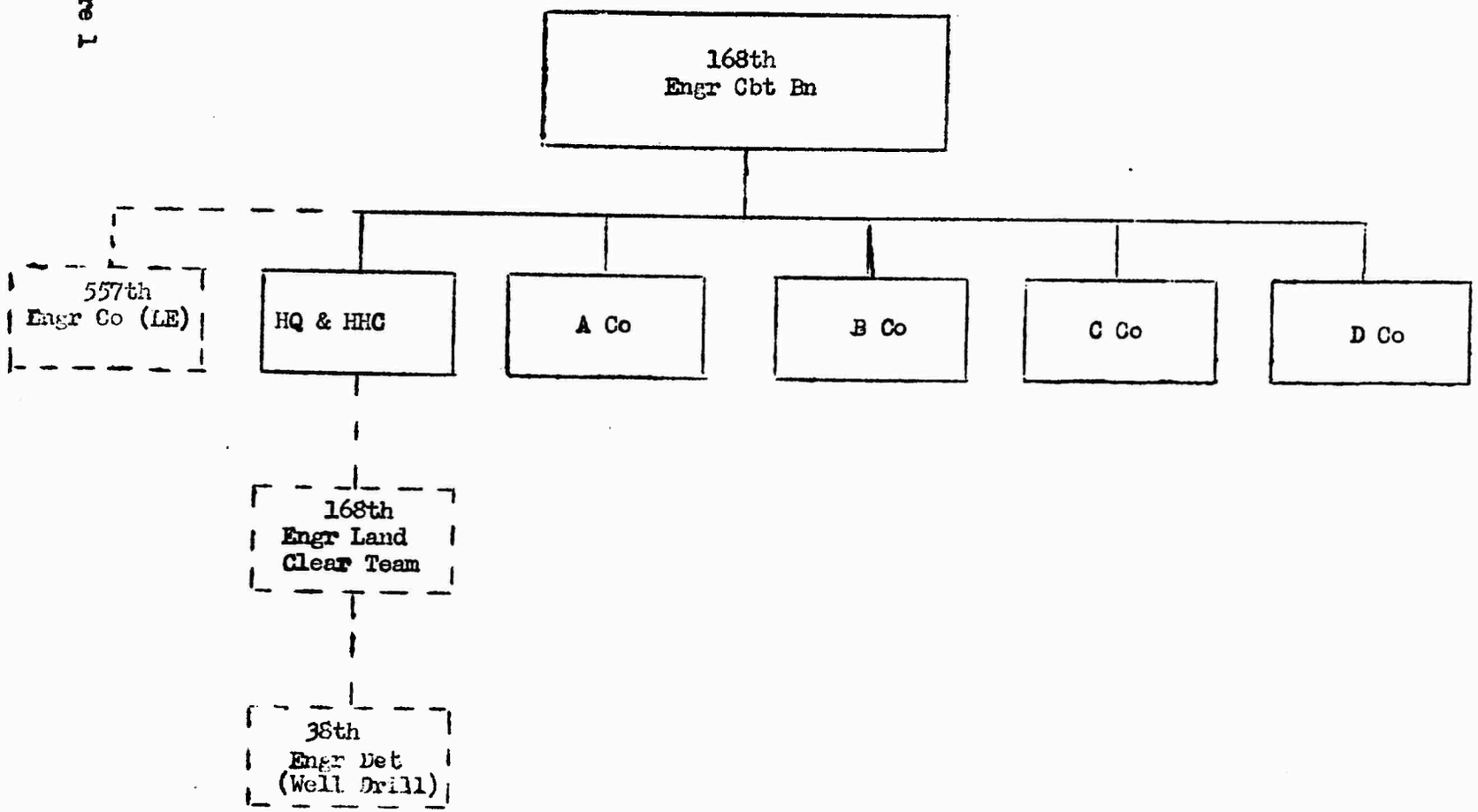
1. This headquarters has evaluated subject report and forwarding indorsements and concurs in the report as indorsed.

2. Reference 3d Indorsement, paragraph 2a: C6 to AR 611-201 indicates that while a construction specialist (12B20) can advance to grade E4, a demolition assistant (12B30), grade E4, can advance to demolition specialist (12B30), grade E5. The revision of the MOS structure in MOS 12B to provide for a senior construction specialist in the grade of E5 would allow comparable progression in the construction and demolition specialties.

FOR THE COMMANDER IN CHIEF:

K. F. OSBOURN
MAJ, AGC
Asst AG

Inclosure 1


168th
Engr Cbt Bn
557th
Engr Co (LE)
HQ & HHC
A Co
B Co
C Co
D Co
168th
Engr Land
Clear Team
38th
Engr Det
(Well Drill)

AFTER ACTION REPORT

FSB JUDY

Inclosure 2 to Operational Report - Lessons Learned for the Quarterly Period Ending 30 April 1968

COMPANY A
168TH ENGINEER COMBAT BATTALION
APO San Francisco 96289

EBA-COA 8 February 1968

SUBJECT: After Action Report (FSB Judy)

TO: Commanding Officer
168th Engineer Combat Battalion
ATTN: EBA-3
APO San Francisco 96289

1. Name of Operation: FSB Judy

2. Dates of Operation: 28 Dec 67 - 11 Feb 68

3. Location: Loc Ninh, RVI

4. Command Headquarters: 168th Engineer Battalion (Combat)

5. Task Organization:

a. Organic Units: Company A, 168th Engineer Combat Battalion

b. Attachments:

(1) Second Platoon, Company B, 168th Engineer Combat Battalion

(2) Equipment with operators from:

(a) 557th Engineer Company (LE) - Two (2) D7E Dozers & one (1) crane

(b) 554th Engineer Battalion - Two (2) Rome Plows

(c) 34th Engineer Battalion - One (1) 10 ton roller

c. Supporting Unit: 11th Armored Cavalry Regiment

EBA-COA 18 Febraury 1968
SUBJECT: After Action Report (FSB Judy)

6. Intelligence: The Loc Ninh, RVN Area has long been a primary infiltration route for both men and supplies from the Cambodian border area. Enemy forces in the area consisted of both local Viet Cong terrorist organizations and several NVA Regiments. Both were capable of either harrassing type activities or substained ground offensives.

7. Mission: Construct a fire support base to facilitate a heavy Artillery battery (i.e. 8 inch/175 mm) to consist of four (4) gunpads, four (4) quad-fifty corner bunkers, four (4) ammunition storage bunkers, six (6) berm fighting bunkers, seventeen (17) living bunkers, FDC bunker, XO bunker, Commo bunker, and a defensive berm established around the base.

8. Concept of Operation: To construct fire support base in two (2) phase

a. Phase 1 consisted of the gun pads, the four quad-fifty bunkers, the six fighting bunkers, FDC bunker, Commo bunker, and XO bunker. This was the minimum essential requirements to allow the Artillery battery to conduct fire missions.

b. Phase II consisted of the living bunkers, the ammunition bunkers, the completion of the berm, stabilize an area for motor pool, road stabilization in Fire Support Base, and establish a drainage system.

c. In conjunction with the construction of the FSB, a minimum area of 200 meters depth around the FSB Pad to be cleared allowing good fields of fire from the berm. This consisted of cutting, piling and burning of rubber trees in the immediate area.

9. Execution: Phase I of construction began on 28 December 1967. The area had to be cleared of trees and old logs before construction could begin. Phase I was scheduled to be completed by 15 January 1968, and was completed 14 January 1968. Phase II was already under construction before the completion of Phase I. Phase II was completed except for the drainage system, stabilized motor pool and roads, on 1 February 1968. On 2 February 1968, Company A, minus the first platoon, began extraction to Di An in a two phase convoy, first to Quan Loi, on 2 February 1968, and then to Di An on 3 February 1968. Before the project had been completed, the directive was issued to destroy the fire support base. The remaining platoon completed the destruction 10 February 1968 and returned to Di An by convoy.

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SUBJECT: After Action Report (FSB Judy)

10. Results:

a. Enemy Personnel losses: None

b. Friendly Personnel losses: None

c. Enemy equipment captured: None

d. Friendly equipment losses: None

e. Enemy structures destroyed: None

f. Acres cleared: 25

11. Administration and Logistics:

a. Rations: Rations were obtained from the 11th Armored Cavalry Regiment FSA. Class A Rations were served for breakfast and supper. Class C Rations were served for dinner.

b. Arms and Amunitions: The basic load of amunition was taken by each platoon. This was sufficient for the entire operation.

c. Uniforms and Equipment: All uniforms and personal equipment were ordered through the unit supply on a personal need basis.

12. Commander's Analysis and Lessons Learned:

a. Observations: Utilization of soil cement for the gunpad sub-base

b. Discussion: Due to a lack of a proper laterite source in the immediate Loc Minh area, it was feasible to use a 5-10% soil cement mixture for the gunpad sub-base. This was constructed in two lifts of three inches each. The composition of backfill was local red clay in a dust form, mixed with local haul bleached laterite and forty bags of cement per three inch lift. The mixture was mixed in place using hoes and rakes and enough water was added to give the substance a tacky consistency. After allowing the subbase to set up for a 24 hour period, the sleepers and decking were installed. The pad experienced no creep or sub-surface failure during the period of utilization. All firing from the pad was conducted during the dry season.

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SUBJECT: After Action Report (FSB Judy)

c. Recommendation: Consideration be given to the use of soil cement as a substitute for laterite backfill in structural sub-base construction when good or insufficient laterite is available.

2a. Observation: Cutting large timber.

b. Discussion: The BOM for the FSB requires lumber sizes with minimum dimensions greater than two inches. When sawing large lumber in quantities required for a mission, the two-man reciprocating chain saw, organic to the 250 CFM Air Compressor tool set, was found to be both rapid in production and insured a truer cut due to the control of two men as opposed to a gas driven one-man chain saw.

c. Recommendation: When the mission includes the cutting of large lumber, the two-man saw described above should be used and additional saws and replacement chains be obtained in the primary planning stage of the mission.

3a. Observation: Living Bunkers

b. Discussion: The living bunkers for the FSB were constructed and then the defensive berm was pushed up against and around the sides of the bunker. The force of the moving earth against the back wall as it was being pushed up caused the top of the bunker to lean outward. Placing knee braces helped keep the ceiling sway to a minimum. After the berm was in place, minimum lateral forces acted on the walls. Only the moving of the backfill caused the wall to lean.

c. Recommendation: A structure as big as the 10'x40' living bunkers should be redesigned to include adequate interior sway bracing to counteract the lateral forces of the moving earth as it is being pushed up, when the structure is to be used in a defensive berm.

4a. Observation: Burning Rubber

b. Adequate fields of fire were cleared around Judy using D7E dozers. The cut rubber was piled at a distance of 200 meters from the defensive berm. The piled rubber sat and dried for 5-7 days and then was burned using diesel to ignite it. This eliminated the rubber tree pile and the remaining ash was spread out evenly.

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SUBJECT: After Action Report (FSB Judy)

c. Recommendation: When tactical considerations allow, rubber trees or other combustible materials removed to provide fields of fire should be left to dry out and be burned. This will econimically remove wastes and cut down on equipment requirements to push these wastes away.

5a. Observation: Communications

b. Discussion: The operation and maintenance reports required daily were usually lengthy and detailed. Numerous occasions of interferences and relay back up resulted in late and at times inaccurate reports. The reports are uniform within the Battalion and reporting times are at the same times.

c. Recommendations: Consideration be given to allowing certain times for each company to transmit reports to Battalion Headquarters and instruct both relays and end-stations to accept only from the unit in this time frame, except for emergency communications. This would give the companies a free time period and prevent them from having excuses for late reports.

6a. Commanders Comments on Overall Operation: Operation Judy was a very successful operation. The mission was accomplished because of adequate prior planning, rapid re-supply by convoy and air, good maintenance in the field and high morale.

The opening of Route 13 by 11th Armored Cavalry Regiment from An Loc to Loc Ninh and the constant outposting of the road enable the BOM convoys to systematically resupply the construction effort and keep Class "A" rations supplied to the Forward Support Area. There was no delay in construction because of this, and the rapid reaction of the Battalion S-4 in procurring and shipping materials.

The regular air supply of mail and spare parts contributed to both the morale of the personnel and the maintenance posture of the equipment. The only difficulty was minor radio-relay transmission at times prevented timely or accurate parts resupply.

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SUBJECT: After Action Report (FSB Judy)

By delaying the movement of the battery to Loc Ninh, a rapid construction schedule could be maintained and damage to structures were nominal. After the arrival of the battery, both concussion and vehicle accidents caused minor damage which caused maintenance time to be expended on repair. The Assistant Battery XO was at Loc Ninh during all of the construction and this helped alleviate many minor problems on site.

The only dark side of Operation "Judy" was the tactical requirement to destroy the FSB so soon after the completion of construction.

s/
DOUGLAS E. HOLEN
CPT, CE
Commanding

AFTER ACTION REPORT

DONG NAI BRIDGE

Inclosure 8 Operational Report - Lessons Learned for the Quarterly Period Ending 30 April 1968

COMPANY A
168TH ENGINEER COMBAT BATTALION
APO San Francisco 96289

EBA-COA

SUBJECT: After Action Report

29 April 1968

Commanding Officer
168th Engineer Combat Battalion
ATTN: EBA-3
APO San Francisco 96289

1. Name of Operation: Operation Allons

2. Dates of Operation: 22 April 1968 - 26 April 1968

3. Location: YT312262

4. Command Headquarters: 168th Engineer Combat Battalion

5. Task Organization:

a. Organic Units: Company A, 168th Engineer Combat Battalion with organic vehicles.

b. Attachments: 2nd Platoon, Company D, 168th Engineer Combat Battalion; one (1) D7 Dozer, one (1) D5 Dozer, one (1) Rough Terrain Crane plus operators from the 557th Engineer Company (LE); one (1) 250 CFM Air Compressor.

c. Supporting Units:

100th Engineer Company (FB); five (5) bridge erection boats, four (4) sets M4T6 Bridge organic vehicles

573rd Engineer Company (FB); three(3) sets M4T6 Bridge, organic vehicles, four (4) bridge erection boats with operators from the 15th Engineer Battalion, one (1) bridge erection boat with operators from the 1st Engineer Battalion.

EBA-COA

SUBJECT: After Action Report

6. Intelligence: The local Viet Cong have the capability of launching ground attacks and sustained mortar and rocket fire. The bridge site was located in War Zone "D" which has long been a VC stronghold. The 5th NVA Division posed the major tactical threat in the area.

7. Mission: Construct 930 feet of M4T6 float bridge to cross an estimated 200 vehicles of the 11th Armored Cavalry Regiment at 250600 April 1968, disassemble the bridge and extract completely from the area by 261500 April 1968.

8. Concept of Operation:

a. Phase I consisted of a convoy to the site. The 2nd Platoon, Company D, 168th Engineer Combat Battalion was airlifted into the area to sweep for mines before arrival of the convoy.

b. Phase II consisted of the preparation of two (2) construction sites and the near shore bridge site. A section of an old moat was filled in to allow trucks to reach the bridge site.

c. Phase III consisted of construction of the bridge and preparation of the far shore.

d. Phase IV was disassembly of the bridge.

e. Phase V was a convoy back to Long Binh and Di An.

9. Execution:

a. A 22 vehicle convoy left Di An at 220645 April 1968. The convoy arrived in Long Binh at 0800 hours with 21 vehicles. At Long Binh, 68 other vehicles joined the convoy. All vehicles reached the bridge site by 1230 hours. A few vehicles had to stay to change tires and for other minor repairs, but all vehicles made it to the site under their own power. The 2nd Platoon, Company D, 168th Engineer Combat Battalion completed sweeping the area for mines before the convoy arrived. No mines were found.

SUBJECT: After Action Report

b. Work was begun immediately on Phase II. By 221500 April 1968, the two construction sites and near shore bridge site were completed and work begun on the bridge. Bridging boats were placed in the water, cranes and air compressors positioned, and the first floats lifted into the water. A five (5) float reinforced end section for the far shore was constructed first. Next the near shore three (3) float end section was completed. On the morning of 23 April 1968, the five (5) float end section was used to transport a D5 Dozer to the far shore. The D5 Dozer cleared an area so that a D7 could be off loaded from the raft. A D7 Dozer was taken across in the afternoon and the far shore bridge site was constructed. The five (5) float raft was also used to transport men and equipment of the security forces elements of the 199th LT Infantry Brigade and 1/18 Infantry, back and forth across the river. The bridge erection boats were also used for this purpose. The dozers were also used to clear fields of fire and dig bunkers and bunker positions on both near and far shore.

c. An early rain in the evening made the river bank slippery and impeded operations. By 230600 April 1968, a total of 20 floats were in position. It was discovered that not enough bridging had been brought to bridge the gap and 18 more floats were ordered. By 1600 hours all floats available, 44, were in position and work stopped for the night.

d. At 241130 April 1968, 19 more loads of bridge arrived at the site and and work resumed. By 1600 hours, the bridge and bridge approaches were 100% complete. The bridge consisted of 58 floats. Two more floats were placed in the water in reserve. It rained very hard that night.

e. The first vehicle crossed the bridge at 250650 April 1968 and the last vehicle at 251145 April 1968. A total of 162 vehicles including one M48 tank with the right track missing and one crippled, self-propelled 155 MM gun crossed the bridge.

f. Phase IV was begun at 251200 April 1968. When work was stopped for the night at 2300 hours, there were 9 floats left in the bridge and seven (7) other floats left to be removed from the water. A 17 vehicle convoy left the site at 1630 hours for Long Binh, consisting of 14 Bridge Trucks with floats and 3 bridge erection boat trucks.

g. At 2400 hours, the enemy launched a mortar, RPG, and Recoiless Rifle, and small arms attack. During the attack, approximately 150 RPG rounds, 150 mortar rounds and 75 - 75MM Recoilless rifle rounds were launched by the enemy. The attack lasted approximately two hours.

SUBJECT: After Action Report

h. Disassembly of the bridge resumed at 260730 April 1968. The bridge was completely disassembled and loaded by 1100 hours. The last things removed from the water were the bridge erection boats. The convoy departed the bridge site in three stages. The first stage consisted of the vehicles belonging to the 168th Engineer Combat Battalion. The second stage vehicles of the 573rd Engineer Company (FB), and the third stage the 100th Engineer Company (FB).

i. The first vehicle left the site at 261320 April 1968 and the last vehicle cleared the site at 1445 hours. The 573rd Engineer Company (FB) arrived at Long Binh at 1700 hours. The 100th Engineer Company (FB) arrived at Long Binh at 1735 hours, and the 168th Engineer Combat Battalion convoy arrived at Di An at 1800 hours. Security was provided all the way to Long Binh by elements of the 11th Armored Cavalry Regiment.

10. Results:

a. Enemy Personnel Losses: 10KIA, 1POW and 16 probable KIA

b. Friendly Personnel Losses: 29 WIA, 1 KIA (13 WIA from Engineer Units)

c. Enemy Equipment Captured: 4 - AK 47's, 2 - AK 50's, 2 - RPG Launchers, and assorted RPG rounds and ammo.

d. Friendly equipment losses: One 5-Ton truck loaded with bridge from the 573rd Engineer Company (FB), one jeep and two VRC 46 radios from the 573rd Engineer Company (FB), one water trailer belonging to the 557th Engineer Company (LE), one APC and one fuel tanker from the 11th Armored Cavalry Regiment, one bridge erection boat belonging to the 100th Engineer Company (FB), and one .45 calibre pistol from the 2nd Platoon, Company D, 168th Engineer Combat Battalion. All of this equipment was destroyed. Eight 5-Ton trucks, one 3/4 ton truck, one jeep, and one tank were damaged.

e. Enemy structures destroyed: None

f. Acres cleared: N/A

11. Administration and Logistics:

a. Rations: Rations were provided by Company A, 168th Engineer Combat Battalion and 100th Engineer Company (FB). Resupply was by UH-ID, CH-47, and road convoy.

b. Arms and Ammunition: The basic load was taken by all personnel. This was sufficient for the entire operation.

c. Uniforms and Equipment: The uniforms and equipment each individual took with him were sufficient for the entire operation.

EBA-COA

SUBJECT: After Action Report

COMMANDERS COMMENTS AND OBSERVATIONS

The concept of the Operation was finalized the afternoon prior to departure. Prior to 140021 April 1968 the mission was for rafting at a site six kilometers downstream from the eventual bridge site. A ten minute air recon mission was conducted at 1500 feet elevation on the afternoon of 21 April 1968 and served for the original river gap estimate. This last minute change left inadequate organization time for assigning tasks to units located at Long Binh and proved to be a handicap at the bridge site.

The convoy on 22 April 1968 was uneventful except one 5 ton truck developed valve trouble and could not continue. This vehicle contained considerable barrier material and this material had to be air lifted to the bridge site at a later date. The advance party of the 2nd Platoon, Company D, 168th Engineer Battalion and a site layout party from the 100th Engineer Company (FB) were air lifted to the bridge site at 0700 hours, cleared the site for mines and determined a motor park location prior to the arrival of the convoy.

Minimum site preparation was required, and both construction sites and the near shore bridge site were constructed in good time.

One construction site was used as a launch site for the bridge boats and the other one organized into a raft assembly site to build the far shore end section of five floats first, and then the near shore end sections of the floats. The floats and saddle assembly were inflated and built on ground 50 feet from the raft assembly site and moved to the site by use of lowbeds. A crane launched the floats and the assembly crew balked the floats. The end ramps were built and finished at the bridge site by another crew.

A problem encountered while launching the boats was the discovery of inoperable boats from the 15th Engineer Battalion which had to reloaded and removed. Of four boats sent by the 15th Engineer Battalion, only one was operable for any time.

In the late afternoon of 22 April 1968, a heavy monsoon rain at the construction site slowed operations down to a crawl. All vehicles had to be winched to the river site and back uphill and the crane had to be deadmanned to prevent overturning. This condition lasted until early morning on the 23rd. Construction continued all night under truck lights and by dawn twenty floats were attached and balked at the bridge site.

EBA-COA

SUBJECT: After Action Report (Commander's Evaluation)

Problems of the first 24 hours of operation included inexperienced boat operators, weather, and inexperienced personnel at the construction site. On the afternoon of 22 April an amphibious assault of the far shore was conducted by A Company of the 199th Light Infantry Brigade using bridge erection boats.

At 1100 hours 23 April, a direct measurement of the remaining gap indicated 15 addition floats would be required to close the bridge. All available bridge was finished at 1600 hours. A security force patrolled the bridge the night of 23 April and periodically throw hand granades in the water to prevent UDT teams from approaching the bridge. A mine boom of ½" cable and logs was placed across the river 200 feet upstream to catch any floating mines.

At 0800 hours 23 April, a D5 Dozer was loaded on the far shore end section raft and was taken to the far shore and off-loaded. This dozer prepared an off-loading site for a D7 Dozer which was rafted to the far shore. The D7E prepared the far shore bridge site, The tractor was also used to clear fields of fire for the far shore security elements.

The remaining bridge was convoyed to the site the morning of 24 April and arrived at 1140 hours. The bridge was completed and closed by 1600 hours 24 April. A total of 900 feet of gap was bridged using 58 floats with two more floats available for hasty repair. The anchorage system was 45 degree guide lines and kedge anchors placed 150 feet out from the bridge at intervals of every sixth float upstream and twelveth float downstream. The stream current was minimal and did not fluctuate measurably during heavy rains. The anchorage system proved adequate for the bridge.

The night of 24 April, 150 guards were provided to secure the perimeter and the bridge. A Force of 60 was used on the bridge.

At 060525 April, the 11th Armored Cavalry Regiment crossed 161 tracked vehicles from the 1st Squadron, crossing all vehicles and men required. A M48 tank was pulled across using a 5 ton bobtail. The tank was inoperable with one track missing. The only other crippled vehicle was a self propelled 155MM gun which was towed by another self propelled 155MM gun. The combined bridge class of two 155M guns was 54 and caused no problems. The heaviest single vehicle was the AVLB and this was crossed singly. The spacing of vehicles on the bridge was 50 feet for the APC's, 150 feet for the M48's and 155MM guns, and the ALVB's crossed alon Crossing was completed at 1140 hours.

EBA-COA

SUBJECT: After Action Report (Commander's Evaluation)

The disassembly began at 1200 hours and continued until 2300 hours when work halted. Three disassembly sites were operated and were sufficient. Three six foot rafts were moved to the takedown site and were debalked at this point. The center line crew started debalking the remaining bridge, sending empty floats to the disassembly site for deflation. At 1700 hours 25 April a convoy of 14 loaded bridge trucks and three boat trucks left the site to return to Long Binh. By 2300 hours, 43 floats were out of the water and loaded.

At 0005 25 April, a mortar and ground attack started and continued for two hours. A total of 150 mortar, 150 RPG, 75-75MM recoiless rifle rounds, and small arms fire were recieved by the night defensive position. Friendly losses were 1 KIA, and 29 WIA. Enemy losses were 10KIA, 1 captured, 16 probable KIA. Friendly equipment losses were one 5 ton bridge truck loaded (573rd), one jeep (573rd), one fuel tanker (11th ACR), one APC (11th ACR), one water trailer (D Co, 168th Engr B one bridge boat (100th FB) and various weapons and radios.

From 0730 to 1100 hours, the remaining floats were removed from the river and loaded, a total of 17 floats remained from the night before.

The far shore security force was extracted using bridge boats. The boats were then removed from the water. A convoy of 7 empty vehicles from the 100th Engineer Company (FB) arrived at 1100 hours and assisted moving equipment and damaged vehicles to Long Binh.

The return convoy was in three march units and started at 1330 hours 26 April. The last vehicle left the site at 1445 hours and the convoy was closed at 1800 hours 26 April.

OBSERVATIONS AND LESSONS LEARNED

1. Proper Prior Reconnaissance:

a. Observation: Due to the limited time between notification and the start of the mission, the only bridge reconnaissance at the site was an aerial one conducted at 1500 feet for ten minutes. This proved insufficient for determination of the river gap and condition of the near shore area.

b. Recommendation: When possible a ground reconnaissance with representative of the Combat Engineer Company, the Float Bridge Company providing the equipment and a reconnaissance crew to determine river gap and shore conditions, should be conducted in advance of the mission to allow for proper planning and task organization.

2. Measuring River Gaps:

a. Observation: Two independent triangulations of the river gap were made and both proved 250 feet short. This prevented an accurate amount of bridging to be requested until a later time. The method of triangulation is accurate on paper work but site conditions at the time decreased the accuracy.

EBA-COA

SUBJECT: After Action Report (Commander's Evaluation)

b. Recommendation: A direct measurement be made to determine accurate river gaps employing either distance measuring devices or commo wire.

3. Faulty Equipment:

a. Observation: Three bridge boats were inoperable when sent to the field. They were put into the water and had to be immediately removed and reloaded. These boats had not been in the water for nine months and were useless.

b. Recommendation: A maintenance schedule be maintained to insure an operational status of erection boats. A water test of the vehicles should be included in the schedule.

4. Inadequate training of bridging personnel:

a. Observation: This was the first major bridging mission for this company and served to impress the fact that training and familiarization of equipment are needed in all levels in order to perfect organization and construction techniques. The bridge boat operators in particular were poorly trained. They could drive the boat but could not operate it. As long as sixty minutes were required at first to move a five float raft 150 meters upstream.

b. Recommendation: Time to be set aside for bridge and raft training for al personnel who would be involved in this type mission.

5. Risk Crossing:

a. Observation: One M48 tank from the 11th Armored Cavalry Regiment was inoperable and had a track missing. The vehicle had to be towed using a tow bar and could not be winched across because it could not be steered. The bridge class of this vehicle is 52, combat loaded. In order to get this crippled vehicle across the bridge, it was determined a five ton tractor, bridge class 11, was the lightest vehicle available which could pull a tank on level ground.

b. Recommendation: When involved with vehicles which are inoperable, cripple or over weight, careful consideration must be given on how to cross the bridge with minimum weight. These vehicles must be crossed last and if necessary abandoned if determined detrimental to the bridge or mission.

EBA-COA

SUBJECT: After Action Report (Commander's Evaluation)

6. Bridge Site Size:

a. Observation: For this operation, the area which could be adequately secured by the means available was approximately one half the desired space required for bridge construction and vehicle dispersion. An attack of any type, as proven on this operation, will cause damage and loss of equipment when dispersion is not available.

b. Recommendation: When planning a bridge site a desirable total area should be computed and described to the security force to determine if they are able to properly secure it with the means they have available.

7. Messing and Rations Security:

a. Observation: When operations involve different units working on a common mission, the field rations for the complete organization must be centralized and the issuance controlled to insure supply economy. Some difficulty was encountered on this operation due to too many units issuing rations indiscriminately and a possible shortage could have occurred.

b. Recommendation: On operations where supporting units bring their own field rations with them, a single control point be established and the issuance be monitored to insure completness and economy.

8. Utilization of D5 Dozers:

a. Observation: In order to prepare the far shore approach, a light dozer was needed to clear the area of jungle and cut an off-loading site for larger dozers used to finish the site preparation. The D5 proved very effective except for one defect. The far shore was covered with green thick bamboo groves and the operator of the dozer was exposed to physical danger from the sharp edges of the bamboo.

b. Recommendation: The D5 be mounted with a protective cab to prevent the operator from being injured by the jungle or falling objects.

9. Bridge Security:

a. Observation: The bridge itself was secured for three nights by a force on the bridge. Automatic weapons and illumination were available on call. Hand grenades were thrown into the water at various intervals upstream and downstream to protect the bridge from underwater demolitions teams. A mine boom was also placed upstream for floating mines.

b. Consideration must be given to the security of the bridge at night and underwater demolitions (i.e. grenades, C-4), illumination, starlight scopes, radar, or other detection devices be obtained and utilized. The use of demolition must be closely supervised by senior NCO's or OIC's to prevent accidental damage to the bridge.

EBA-COA

SUBJECT: After Action Report (Commander's Evaluation)

10. Additional Bridge Equipment at the Site:

a. Observation: In case an enemy attack would occur and damage the bridge, or damage to portions of the bridge was caused by non-enemy means, an additional amount of bridging must be available at the site and also at a control point in the rear areas to insure adequate and hasty repair of the bridge. The amount of additional bridge at the site should be proportional to the amount used in the bridge itself. In the event of a bridge equipment shortage, additional end ramps should be at the site to allow a conversion from a bridging to a rafting or ferrying operation.

b. Recommendation: That a minimum of 10% additional bridging be available at the site and 50% backup in the rear echelon. Also enough end ramps sections should be taken to the bridge site to allow one each for every six floats in the water.

11. Hand Tools:

a. Observation: On M4T6 bridging, the most important hand tool is the three pound hammer. You will never have too many at a site and a large percent of loss and damage can be expected. The other important item for night operations is hand lamps for pin men. Adequate lights and additional batteries must be taken to the field for night operations.

b. Recommendation: In planning for a M4T6 bridge problem all available three pound hammers or likely substitutes and hand held electric lanterns must be brought to the field for bridging operations at day and night.

Douglas E. Holen

DOUGLAS E HOLEN
CPT, CE
Commanding

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