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SECTION I SIGNIFICANT UNIT ACTIVITIES

1. (q) General

    a. The battalion base camp area has remained at the Dong Ha Combat Base in Quang Tri Province near the demilitarized zone. Working under the operational control of the 12th Regiment, 3d Marine Division, the battalion continually has at least one firing battery operating away from base camp. On several occasions two firing batteries have left Dong Ha on separate operations and on two instances, all firing batteries have been away from base camp on different operations. Remaining in general support of the 3d Marine Division, the battalion has provided heavy volumes of artillery fire in support of the Dong Ha region. Missions of direct support have been on a separate battery basis. Artillery fires have been provided for the following units: 2d and 3d Battalions, 3d Marine Regiment; 1st, 2d and 3d Battalions, 4th Marine Regiment; 1st, 2d and 3d Battalions, 9th Marine Regiment; 3d Marine Division; and 1st and 2d RVN Regiments.

    b. Since the end of the monsoon season, enemy activity in the DIZ area has greatly increased. Larger numbers of North Vietnamese regular army troops are being observed through this region than ever before. Viet Cong action has continued and with the increase of NVA troops in the Quang Tri Province, substantial enemy forces are found throughout the battalion's area of operation. Countering the large enemy build up of forces, the intensity and frequency of ARVN and Marine search and destroy operations have increased since the monsoon season ended. Forward observers are being furnished to the ARVN and Marine units for practically every operation undertaken in this region. Battalion air observer flights have increased recently, and currently the observers are flying three missions daily, mostly in the demilitarized zone and in North Vietnam.

    c. On 13 March 1967 the battalion commander fired the 50,000th artillery round delivered on target by this unit since its arrival in Vietnam in October 1966; the 100,000th round was fired on 22 April.

    d. When time is available, battalion personnel have continued on construction projects in base camp. Emphasis has been placed on the erection...
of heavily fortified personnel bunkers for the perimeter defense. End battery areas because of the frequency of mortar and rocket attacks on friendly bases near the demilitarized zone. On 28 April 1967 at approximately 0240 hours, the Dong Ha Combat Base received 50 incoming enemy 140mm (5.6 inch) rockets. Most of the rockets were fired at the Dong Ha air field, with only a few falling in or very near the battalion area. The total friendly casualties were 9 KIA and 39 WIA, none of whom were from this unit.

e. To insure a high degree of combat readiness monthly command inspections are conducted by the battalion commander. Staff visits to all batteries are continuous.

f. On 8 March 1967 the battalion had lost operational control over all the organic firing batteries. Due to operations in progress all the organic firing batteries were under operational control of the 1st Battalion, 12th Marine Regiment. However, one USMC 105mm towed howitzer battery and one platoon of USMC 155mm self-propelled howitzers were under this battalion's operational control.

g. The high burst registration is still being used to obtain registration data. The battalion registers its batteries with all charges, except charge 2, in the north and south. Wind cards are then used for computation of GFT settings for directions other than registration direction. Outstanding results have been achieved with the high burst registrations and with application of current met data three times daily, excellent target coverage has been obtained. The best data available is used at all times because of the necessity of first round accuracy since so many small villages are located in the area, and because of the large amount of unobserved fire for effect missions fired.

h. The battalion is continually making improvements in all areas of living and operations in Vietnam.

2. (U) Intelligence

a. Five security clearance requests have been submitted, one has been approved, the others are pending at this time.

b. A new series of maps have been received and issued according to the basic load.

c. The semi-annual inventory of classified documents was completed and a report forwarded in accordance with USARMV Regulation 340-5.

d. An NVA/VC order of battle card file is being maintained, using information received from the 12th Regiment, 3d Marine Division and MACV Perintreps. Recent reports indicate a large build up of NVA/VC in Quang Tri Province especially around Quang Tri City. This has been evidenced by two attacks on NVA installations in that area. Also reports indicate that replacements to local VC battalions are actually NVA, possibly from the 341st NVA Division.

3. (C) Operations and Training Activities
a. Plans. Current plans for the battalion are:

(1) To provide artillery support in defense of the Dong Ha Combat Base located at grid YD 226598.

(2) To be prepared to move firing batteries in area of Quang Tri Province to provide artillery fire support.

(3) To provide one firing battery for direct support of 3d Battalion, 3d Regiment, 3d Marine Division located in vicinity of the "Rock Pile" (XD 982542).

(4) To be prepared to provide one firing battery for direct support of the Gio Linh area (YD 214734).

(5) To provide one firing battery for direct support of the 1st Battalion, 9th Regiment, 3d Marine Division located near Quang Tri City (YD 340505) for an indefinite period.

(6) To conduct training as outlined by USARV, I FFORCEV and I FFORCEV Artillery training directives and to also have detailed section training.

(7) To continue base camp construction with emphasis on fortification.

b. Operations

(1) This battalion has provided direct and general support since arriving at the Dong Ha Combat Base in October 1966. Operation Prairie I ended on 31 January 1967, Operation Prairie II commenced the next day and continued until 17 March 1967. On 18 March 1967 Prairie III began and the battalion continued to provide artillery support until its termination on 19 April 1967. Presently the battalion is engaged in providing direct and general support for Operation Prairie IV which started 20 April 1967.

(2) "B" Battery continued to provide direct support for 3d Battalion, 3d Regiment, 3d Marine Division at the vicinity of the "Rock Pile" (XD 982542) and remained under operational control of 1st Battalion, 12th Marine Regiment, 3d Marine Division until rotated on 2 March 1967. Platoon displacement has been utilized by the battery in accomplishing its mission. On one occasion a platoon was displaced to Ca Lu (YD 014455) to support a search and destroy operation in the Ba Long Valley. The operation lasted a period of four days. This was the third move to Ca Lu by platoon but the first time for more than one day. On one occasion a platoon was moved from the battery position at the "Rock Pile" to Hill 100 (XD 973537) for a day to support a forward observer school being conducted to familiarize infantry squad leaders with the techniques of adjusting artillery fire. Six different recon patrols from the 3d Reconnaissance Battalion, 3d Marine Division were given artillery support from the battery location at the "Rock Pile." While the TET (Vietnamese Lunar New Year) cease fire was in effect, the battery expended over one thousand rounds of high explosive ammunition to support a small recon team surrounded by large
Viet Cong force. Firing throughout the night of 8-9 February 1967, at times as close as 30 meters to the Marine Recon, the battery's artillery support enabled the recon team to survive the Viet Cong attack. They were successfully extracted by helicopter the following morning. One platoon of "M" Battery, 4th Battalion (155mm)(SP), 12th Marine Regiment was placed under operational control of "B" Battery from 6 to 15 February. The 155mm fire direction center was operated by "B" Battery and no problems were encountered. On 28 February 1967 the battery displaced and occupied Hill 100(XD 973 537) once again, this time to provide direct support for a search and destroy operation on the west side of "Rasmorback Ridge" (XD 9657). After 49 consecutive days in direct support of 3d Battalion, 3d Regiment, 3d Marine Division, "B" Battery was rotated back to the Dong Ha Base Camp and was replaced by "C" Battery.

(3) "A" Battery displaced from the Dong Ha Combat Base on 28 February 1967 and moved to Camp J. J. Carroll YD 061545 and was placed under operational control of the 1st Battalion, 12th Marine Regiment. Immediately after occupying their position at Camp Carroll, the battery began providing the heavy volumes of fire for the 3d Battalion, 4th Marine Regiment and the 2d Battalion, 3d Marine Regiment, both engaged in a heavy fire fight with a large NVA force. On 1 March 1967 the battery displaced to grid YU 061572 between Camp J. J. Carroll and Cam Lo. Continuing in support of this operation, part of the Operation Prairie II, on 3 March 1967 the battery fired on the most lucrative observed target for the battalion since arriving in Vietnam. "A" Battery, massing their fires with "K" and "M" Batteries, 4th Battalion (155mm)(SP), 12th Marine Regiment, fired over one thousand rounds of high explosive ammunition at a large North Vietnamese Army force trapped at grid YD 084663 (northwest of Cam Lo). The battery returned to base camp on 8 March 1967 and was placed under the operational control of this headquarters once again. After occupation of position at Dong Ha the battery immediately began firing on two Viet Cong battalions.

(4) "E" Battery replaced "A" Battery at Camp J. J. Carroll YD 061545 on 5 March 1967 and operational control of the battery was taken by the 1st Battalion, 12th Marine Regiment. The battery was given a general support mission. On 7 March 1967 between 0020 and 0600 hours the battery received enemy mortar and rocket fires on three different occasions. Approximately one hundred rounds total were fired at the battery position areas by the enemy. During all three attacks the battery fired continuous countermortar fires with excellent results. The ability of the unit to continue firing during the mortar and rocket attacks demonstrates the value of armored protection afforded the section personnel by the self-propelled howitzer.

No casualties were received. In excess of two thousand rounds of high explosive ammunition were expended on countermortar fires during the attacks and into the daylight hours of 7 March. The battery returned to base camp.
on 8 March 1967 and again came under the operational control of this battalion with a mission of general support for the 3d Marine Division.

(5) "C" Battery replaced "B" Battery on 2 March 1967 near the "Rock Pile" (XD 982542), and assumed a direct support mission for 3d Battalion, 3d Regiment, 3d Marine Division. The battery was placed under the operational control of the 1st Battalion, 12th Marine Regiment. On five different occasions one platoon was displaced to the vicinity of Cam Lo (XD 01A455), twice to provide artillery fire for the supported unit during operations in the Ba Long Valley. On three other occasions they supported convoy movements to the Khe Sanh (XD 844417) installation. When the battery was split into two elements, a fire direction capability was maintained at each position. In addition to the split fire direction center, the battery also divided its ammunition section and communication section to the degree necessary to support each position area. Heavy volumes of fire have been provided for the supported unit on almost every operation. During a search and destroy operation in the Dong Ha Mountain area (XD 018594), intense artillery support was necessary and was provided effectively by the battery.

(6) "A" Battery replaced "B" Battery on 8 March 1967 under operational control of the 1st Battalion, 12th Marine Regiment. Remaining in general support of the 3d Marine Division, the battery provided neutralization fires both observed and unobserved on numerous enemy targets. An effective H & I program of fires were delivered by the 3d Battalion, in defense of the area. The battery returned to base camp at Dong Ha on 6 April 1967, and operational control was transferred back to this battalion. The mission of the battery remained the same, general support for the 3d Marine Division.

(7) "B" Battery displaced from its base camp position to Cam Lo on 2 April 1967 and occupied grid YD 133592 to provide support for
the 3d Battalion, 3d Regiment, 3d Marine Division during a short operation north of Cam Lo. Operational control was once again given to the 1st Battalion, 12th Marine Regiment. The same day the battery moved from base camp, one half of the unit was released and returned to Dong Ha. The remainder returned on 6 April 1967.

(8) "A" Battery moved to the vicinity of Quang Tri City and occupied grid YD 340505 on the morning of 14 April 1967. The battery moved to this location to provide artillery support for Quang Tri City (YD 338 532) which recently has been the victim of several NVA/VC attacks. The battery's primary mission is to provide direct support for the 1st Battalion, 9th Regiment, 3d Marine Division which is presently conducting operations in the vicinity of Quang Tri City. Presently the battery is providing effective H & I fires for protection of the city and providing neutralization fires for the supported unit. They also attack targets of opportunity throughout the area. The battery has an important role in the city's defensive plan. The duration of the operation remains indefinite at the present time.

(9) "B" Battery displaced from base camp on 26 April 1967 to occupy a position near Khe Sanh (XD 844417) to provide direct support for infantry units which, on several occasions, made heavy contact with enemy forces in that area. Because of bridges being destroyed on highway 9 between Ca Lu (YD 014455) and Khe Sanh, the battery was halted at Ca Lu, unable to proceed. Meanwhile a 105mm towed howitzer battery was helilifted to Khe Sanh. "B" Battery moved to the "Rock Pile" (XD 982542) and relieved "C" Battery, on 28 April 1967. Operational control was given to 1st Battalion, 12th Marine Regiment and the battery assumed a direct support mission for the 3d Battalion, 3d Regiment, 3d Marine Division.

(10) "K" Battery, 4th Battalion (155mm)(SP) 12th Regiment, 3d Marine Division, placed under the operational control of this battalion on 15 December 1966, remained in that status until the morning of 29 April 1967. No problems were encountered. In firing missions, the battalion fire direction center operated in the same ideal manner with this battery as it does with the firing batteries organic to the battalion. Two platoons were located in the Dong Ha base camp and one platoon in Cam Lo (YD) 128510). Both locations were in general support of the 3d Marine Division and under the operational control of this headquarters. The platoon which was located in Cam Lo (YD 128510) had the additional mission of providing defensive fires for the Con Thien area (YD 116702). The remaining two platoons at Dong Ha had the additional mission of providing defensive fires for the artillery positions at Gio Linh (YD 214742) and Quang Tri City (YD 338 532). On 27 April 1967 one platoon from the Dong Ha base camp was moved to Dong Ha Village at grid YD 231607. The platoon still remained under the operational control of this battalion. The next morning one howitzer moved from the position at grid YD 213607 to Gio Linh (YD 214742). Operational control was given to Composite Artillery Battalion at Gio Linh. The battery left the Republic of Vietnam for Okinawa on 29 April 1967 for reorganization and refitting.
(11) "F" Battery (105mm towed howitzer), 2d Battalion, 12th Regiment, 3d Marine Division remained under the operational control of this battalion from 5 March 1967 until 10 March 1967.

(12) The battalion has continued to send out squad size reconnaissance patrols at an average of five days each week. The mission of these patrols is to examine their area of responsibility for enemy activity and to disrupt any preparations for mortar attacks on the Dong Ha area. The battalion is also supplying personnel nightly for night ambush patrols. Security personnel have been supplied on various occasions for convoy movements throughout the area. On 21 March 1967 an ammunition convoy departed Dong Ha for the artillery positions at Gio Linh (YD 214742) under the direction of the 1st Marine Regiment. Several trucks and security personnel from this battalion were part of the convoy. During the road march to Gio Linh the convoy was ambushed by a large enemy force and several trucks were completely destroyed and others were damaged. One 5 ton ammunition truck from Service Battery of this battalion was completely destroyed and was later declared a combat loss. The truck had been carrying 105mm ammunition for resupply of a Marine 105mm howitzer battery located at Gio Linh at the time. No personnel from the battalion were casualties.

(13) The battalion survey section has rechecked the survey data for the Dong Ha Combat Base. In conjunction with a F.M.E. team from the 8th Target Acquisition Battalion, 26th Artillery, the battalion survey section extended survey control from Dong Ha along Highway 9 to the "Rock Pile" (XP 982542), Ca Lu (YD 014455) and to the artillery positions at Camp J. J. Carroll (YD 061545). The same D.M.E. team extended survey control to the Gio Linh area (YD 214734) along Highway 1. From the established control along Highway 1 the battalion survey section surveyed in the artillery positions at Gio Linh. Extending control from an ARVIN survey control point, a battery center was surveyed in near Quang Tri City (YD 338532) to provide surveyed accuracy for the firing of "A" Battery on operations in that area. Flash bases were surveyed to allow the batteries located at the "Rock Pile" and Quang Tri City to conduct high burst registrations in these areas.

c. Training: The battalion is conducting training on a daily basis with emphasis on perimeter defense, infantry tactics, fire direction procedures, safety, familiarization firing of small arms and crew served weapons, first aid, field sanitation, preventative maintenance, use of anti-personnel round (beehive), and section training for each section within the battalion. These subjects have all been taught in past training periods. Current and future training schedules provide for emphasis of important points and the introduction of additional details in each subject area. An officer and ESC training program has also been successfully instituted. When time is available classes are taught to these people. The subject matter for these classes emphasizes fire direction familiarization and firing battery procedures.

d. Chemical: Chemical activities have not been employed in this area to date. However, chemical training has been conducted in past training periods and additional training is programmed for future classes.

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Psychwar: This unit is not engaged in psychwar; however, on one occasion the battalion area was used by a psychwar loudspeaker team to broadcast the Chieu Hoi program to Dong Ha village and the surrounding hamlets. The Chieu Hoi program is an attempt to appeal to North Vietnamese Army soldiers, Viet Cong soldiers, and Viet Cong oriented civilians to rally to the rightful government of the Republic of Vietnam. Battalion personnel have been given an orientation class on psychological warfare.

4. Logistics

a. During the last quarter, the logistical support received by the battalion has shown much improvement over the support received in the previous quarter. In the subsistence area more frequent issues of fresh fruit and vegetables, potable ice, fresh milk, and more complete "B" rations have permitted the battery mess sections to serve a nutritious, well balanced diet.

b. Vehicle deadlock rates continue to remain low, but the repair parts supply is still almost non existent. At the present time 31% of the artillery and vehicle PLL line items have a zero balance. Three 4.2 KW generators, a component of the M577A1 command post remain deadlined because of lack of replacement parts. These deadlined generators are extremely critical losses to the battalion and battery fire direction centers. Replacement parts for these generators have been ordered "Red Ball" since early November 1966 but have not been received to date. One 5 ton truck M54A2 was declared a combat loss on 22 March 1967.

c. At the present time 14 tubes, M103 for the 105mm howitzer M108 have been replaced. It is anticipated that in the next 2 weeks the remaining 4 tubes will be replaced. Due to the high humidity and rain experienced in this area, the panoramic telescope, M117, is a continuous problem. The optical lens of the sight becomes fogged because of condensation. The continuous moisture causes the electric wiring within the sight to deteriorate resulting in short circuits. At the present time eighteen panoramic telescopes, M117, are on requisition. When these sights are received the continuous problem of sight repairing should be alleviated.

d. In the last three months the battalion ammunition section has hauled in excess of 85,000 rounds of 105mm howitzer ammunition. This is a tremendous increase over the last quarter when only 21,800 rounds were trucked to the firing batteries.

e. At the present time there are critical shortages of TA 50-901 items. This shortage is due to current directions requiring personnel being assigned to other units in Vietnam to take their TA 50-901 with them to their new station. However, individual replacements coming from CONUS do not have an issue of TA 50-901 when arriving for duty with the battalion. Requisitions are filled very slowly; consequently, numerous personnel are not fully equipped for combat.

5. Civil Affairs: The battalion has been engaged in supporting Dong Ha hamlet which has a total population of 997 Vietnamese. Also civic affairs programs have been instituted in the areas surrounding the hamlet of
Dong Ha with a total of approximately 2500 Vietnamese being supported by the battalion. Unit personnel have assisted the villagers in constructing a dispensary, and additional self-help programs are planned for the future. School supply packs, clothing and soap have been distributed continually in the hamlet and surrounding areas. Under the MEDCAP program approximately 1800 Vietnamese have been treated by the battalion's medical section.

6. (b) Personnel

a. The battalion is currently engaged in an enlisted personnel infusion program designed to reduce the rotation hump of personnel who would have left the battalion in September 1967.

b. R&R quotas are being received by the battalion and all indications are that approximately 40% of the assigned personnel will have the opportunity to take R&R. By making maximum use of the stand by R&R program, there is a possibility that all personnel desiring R&R will be afforded the opportunity to take it.

7. (U) Artillery

a. The battalion is equipped with the M109 self-propelled 105mm howitzer. Each battery fire direction center has one M577A1 personnel carrier in which to operate their fire direction center. The battalion fire direction center is equipped with two such personnel carriers. Both the M109 howitzer and the M577A1 personnel carrier have proved to be extremely satisfactory and effective in this area of Vietnam. The cross country mobility of the tracked vehicles has been very beneficial on almost every occasion that a firing battery has deployed on an operation (see part 1, operations). At times the low load capacity of bridges in this area have presented a problem during operations, but this problem has been alleviated by Marine engineers who have constructed new bridges and repaired old ones so that the load capacity of the bridges is greater than that necessary to support any of the battalion's vehicles. The armor protection for crew, ability to occupy and displace rapidly, and 6000-traverse capability of the self-propelled M109 battery is ideal for the type of warfare encountered by the battalion.

b. Having a Marine 155mm howitzer self-propelled M109 battery under the operational control of the battalion has given additional flexibility and a greater range capability for the battalion. The M109 has proved to be a very satisfactory weapon and has given some battalion personnel experience with the weapon. Occasional malfunctions in the hydraulic system of the M109 continue to be a problem.

c. Both the M109 and the M103 have had major problems with the panoramic telescope M117. Some of the problems with this sight have been somewhat alleviated since the end of the monsoon season, but the problem still exists.

d. To date, 14 M103 howitzer tubes have been replaced in the M108 howitzers. It is anticipated that within the next two weeks the 4 remaining tubes will be replaced. At the present time the V.E. of the old and new
tubes have presented no problems in firing; however, when tube replacement is completed throughout the battalion, a calibration team will be requested and calibration will be conducted immediately to establish new comparative V.E.'s.

6. Other: None

SECTION 2 (v) COMMANDER'S OBSERVATIONS AND RECOMMENDATIONS

Part I Observations (Lessons Learned)

1. \( (v) \) Personnel: None

2. \( (v) \) Operations

a. \( \text{Item: Nonvalidity of weight corrections for 105mm white phosphorus ammunition.} \)

Discussion: Because of the dense jungle areas within the battalion's area of operation, forward observer fire requests often include shell white phosphorus (WP) in the adjustment phase and high explosive (HE) in fire for effect. In the computation of firing data by the fire direction center computers, the weight corrections for variation from standard weight (two square for 105mm ammunition), found in the tabular firing table for each charge in table "F", columns 18 and 19, are always applied to the firing data whenever WP (weight five square in most cases) is fired. When the forward observer sends his final correction and enters fire for effect, HE is fired and the weight corrections are no longer applied unless the HE varies from the two square standard weight, but this is normally not the case. When the HE is fired after initial adjustment with WP, experience has shown that the HE impacts 50-150 meters over the target, showing the weight corrections applied for WP in the adjustment phase is invalid, even though the application is made correctly. Theoretically the observer’s final correction prior to firing for effect with HE should put the HE on target. However, WP weight corrections are not valid, therefore additional corrections by the observer are necessary to bring the fire for effect rounds back on target. These subsequent corrections which are necessary to neutralize the target, waste ammunition and are a loss of critical time.

Observation: Prior to entering fire for effect with HE, when adjustment has been with WP, the fire direction center must insist that one single HE round be fired immediately prior to the fire for effect phase of the mission. In many instances the best results are obtained by requesting the observer change to HE immediately after observing the first WP round.

b. \( \text{Item: Azimuth indicators for the perimeter defense to determine locations of enemy mortar and rocket positions.} \)

Discussion: Because of the constant threat of enemy mortar and rocket attacks on the Dong Ha Combat Base, it is necessary to have some method of rapidly pinpointing enemy mortar and rocket positions in order to deliver immediate and accurate counter mortar and rocket fires. Counter mortar radar has not been employed in this area to date; therefore, it was
necessary for the battalion to devise a method of locating enemy positions. Azimuth indicator, commonly called "whiz wheels", was the answer to the problem. Currently, "whiz wheels" are being employed in all perimeter positions. Using the "whiz wheel", individuals are able to determine grid azimuths to the nearest ten mils from their positions. When a flash from an enemy mortar or rocket position is observed, an azimuth is immediately determined along with a distance and sent to the battalion fire direction center where a polar plot is made from the bunker location, and a grid is determined. If more than one perimeter position observes the same flash, intersection is used in determining a grid where the enemy is located. The "whiz wheel" is an octagonal piece of plywood with a pointer and numerical scale. The plywood is painted red and numbers indicating mils are painted in white on the board. The colors were selected for easy night reading. The pointer on the "whiz wheel" is made of banding from 105mm ammunition boxes, and is mounted on the board with a central pivot. When used, the pointer is aimed like a rifle. The circle is 16 inches in diameter and the pointer is 14 inches long. The "whiz wheel" is oriented in each bunker with survey instruments, and it is numbered in such a manner that the azimuth to the target is read at the rear of the pointer.

Observation: The "whiz wheel" is an excellent method of increasing the accuracy of observation capabilities of personnel on the perimeter. Without a counter mortar radar capability, a definite technique of fixing enemy mortar and rocket positions is necessary and the "whiz wheel" is a good solution. The "whiz wheel" is easily constructed, maintained and understood, and is an integral part of the battalion's overall defense plan.

c. Item: Placing the deflection correction on the cursor as opposed to the paper front of the GFT, to save wear and tear on the GFT paper front.

Discussion: With numerous metro messages computed daily, it has been found that the paper front of the GFT wears off quite easily due to the constant changing of the deflection correction. A method of placing the deflection correction on the cursor has been devised in order to stop the wear and tear on the GFT paper front. When the GFT setting is placed on the GFT, the elevation and time gage lines are constructed in the normal manner. To place the deflection correction on the cursor, the drift correction in the block under the elevation gage line is subtracted algebraically from the deflection correction computed from registration or subsequent metro message. Since drift is always applied left (added to the deflection) it will always have a positive sign. Left and right deflection corrections are handled in the same manner with right being minus and left being plus. The difference, resulting from the algebraic subtraction, is placed on the cursor, with the sign of the solution. This number is then added algebraically to the drift correction under the elevation gage line at any given range to obtain the deflection correction for that range.

Observation: It has been found that constructing GFT settings so that the deflection correction is placed on the cursor has been easily adapted to by the fire direction center computers, and is one less place the
computer must look for data during a fire mission. Constructing the deflection correction on the cursor greatly extends the useful life of each individual GFT.

d. Item: Accuracy of 1:50,000 Vietnam map series currently in use.

Discussion: In fire direction procedures it has been noted that in some instances prominent terrain features being fired upon are not accurately depicted on the 1:50,000 Vietnam map currently in use. Also, man made objects built recently are not shown on maps. On operations to the west of the Dong Ha base camp in the vicinity of the "Rock Pile" (XD 982542), it was found that terrain features are not entirely accurate. The terrain in this area is extremely rugged, mountainous jungle, and has caused misorientation of forward observers on several occasions. In one case, while firing spotters rounds for observer orientation, it was discovered after firing upon three prominent hill masses in the area, that there was a fourth large hill mass not located on the map. On other occasions there have been terrain features on the map not actually located on the ground. Man made objects are not updated on the current map series being used. Villages no longer exist in many locations but are depicted on the current map series. This causes a problem when plotting a fire mission, and the plot is within a village. Clearance to fire the mission is delayed to thoroughly check to determine if firing can be done without injuring civilians. In some cases, there has not been a village located in the area under question for several years. Because of safety requirements it is necessary for a thorough check prior to firing to insure that no one actually occupies the village. In several instances the villages have not been occupied for several years.

Observation: Units should be made aware, prior to their deployment, that the current Vietnam map series is not entirely accurate. Working through liaison channels and through the unit S-2, the maps in the unit's area of operation should be updated as much as possible, and as soon as practical after arrival in Vietnam.

e. Item: Heavy timbers for bunker construction

Discussion: Normal supply channels do not provide enough heavy timbers for the construction of durable personnel and ammunition bunkers for the perimeter defense and battery areas. Supply channels are also too slow in delivering the small amounts of heavy timbers that are received. It has been necessary for battalion personnel to cut heavy logs and haul them approximately eight miles to the base camp area for erection of these bunkers.

Observation: Supply channels should provide additional heavy timbers especially for units under the constant threat of enemy mortar and rocket attacks. Units should be prepared to cut their own timbers.

f. Item: Dirt filled wooden 105mm ammunition boxes used in construction of personnel bunkers.
Discussion: During mortar and rocket attacks on one battery, it was noted by battery personnel that shell fragments from nearby exploding rounds easily pierced the wooden ammunition boxes used in the construction of personnel bunkers, even though the boxes were filled and packed with dirt. It was also noted that the bunkers which were constructed with sand bags in addition to ammunition boxes held up against shell fragments much better than entire structures made only of ammunition boxes. Besides the shell fragments piercing the ammunition boxes, it also ripped pieces of wood and nails from the boxes and these items were propelled and acted like missiles. Since 105mm ammunition is also issued in steel containers called "jungle packs", it is suggested that these "jungle packs" be saved and used in conjunction with sand bags, in the erection of necessary structures for ammunition and personnel protection. The steel container filled and packed with dirt, gives both rigidity and resistance to weight, and provides a difficult surface for shell fragments to penetrate. Using "jungle packs" for bunker construction is extremely effective and has definite advantages over the wooden ammunition boxes. Filled with dirt and alternated layers of sand bags, the "jungle pack" provides excellent overhead cover.

Observation: Bunkers constructed only from ammunition boxes filled and packed with dirt are not sufficient to resist penetration by shell fragments. Sand bags and "jungle packs" are much more resistant to shell fragments than are ammunition boxes even though they may be packed with dirt.

g. Item: Deflection and azimuth scales for self-propelled howitzer turret race rings.

Discussion: In order to lay the tube of the M108 in the direction of fire rapidly after receipt of a fire mission, it has been found that labeling the turret race ring for deflection and azimuth facilitates rapid laying of the tube. To label the turret race ring for deflection, the tube must be placed in the center of traverse at deflection 3200. An easily identifiable fixture in the howitzer is chosen as an index. A vertical line is placed on the race ring directly above the chosen index and labeled 3200. The tube is then traversed to the left 50 mils (or whatever increment is desired) and labeled deflection 3250; this process is continued until the entire 6400 mil deflection capability is labeled on the turret race ring. Labeling the race ring for azimuth is similar to marking deflection. The tube is placed in center of traverse on the azimuth of lay and the chosen index is marked with the azimuth on which the battery is laid. The tube is traversed to the right 50 mils (or whatever increment is desired) and the new azimuth is labeled above the index. The same process is followed until the entire 6400 mils is completely labeled. There are several advantages of labeling howitzers for deflection. Often during night firing, large deflection shifts are necessary. Gunners can watch the deflection markings on the race ring until they near the announced deflection and are able to take up the proper aiming post displacement with the sight. Deflection indexes help eliminate picking up the wrong set of aiming posts when traversing. "Blind spots" at certain deflections can be marked above the deflection markings on the race ring so that the gunner may switch to an alternate aiming point if announced deflection is within a "blind spot". The section chief has the opportunity to supervise additional duties when he gives a quick visual check on the
deflection setting. Labeling for azimuth has advantages also. Increased speed is obtained in laying the howitzer on firing data, when azimuth is announced in the fire commands immediately after pieces to follow. This allows the tube to be traversed while the remainder of the fire commands are being sent to the howitzer sections. No fire zones can also be marked off on the turret, immediately gaining the attention of the section chief as soon as azimuth is announced.

Observation: The marking of the turret race ring with deflection and azimuth scales greatly assist howitzer sections in obtaining speed in delivery of artillery fire. These deflection and azimuth scales also act as aids for the section chief to free him somewhat to supervise other activities during a fire mission.

3. (U) Training and Organization
   a. Item: Organization (see Incl 1)

4. (U) Intelligence: None

5. (U) Logistics:
   a. Item: One additional 400 gallon water trailer for each battery.

Discussion: The battalion is authorized five 400 gallon water trailers (PSM 2330-542-2039) for the purpose of maintaining a water supply for each battery. Under the TOE each battery has one of those water trailers for its own use. Because of operations necessitating the movement of batteries from the base camp area, often one water trailer does not provide sufficient water for the battery. On numerous occasions the batteries are located long distances from the nearest water point, and when on operations the batteries often must provide water for infantry and other security elements, which at times number up to one hundred personnel. This normally doubles the amount of water requirements. The majority of the water is used for cooking, washing mess kits, and cleaning kitchen equipment. The remainder is used for drinking, washing, and showering. At some water points a truck may remain in line at the water point from one to five hours before receiving water. Together with the travel time required to and from the water point and the time spent at the water point, it has been found that five additional water trailers for the battalion are necessary. Also one day each week the trailers must be decontaminated and this means the trailer is a loss to the battery for an eight hour period.

Observation: Five additional 400 gallon water trailers are necessary for the battalion, to enable the batteries to meet their water requirements.

PART II RECOMMENDATIONS

1. (U) Personnel: None

2. (U) Operations
a. Recommend that battalion and battery fire direction centers require all forward observers to use high explosive ammunition instead of white phosphorus ammunition as much as possible during the adjustment phase of observed fire missions to avoid nonvalid fire for effect with HE.

b. Recommend that azimuth indicators, "whiz wheels", be used on perimeter defense, to permit accurate location of flashes from enemy mortar and rocket positions, when counter mortar radar equipment is not available.

c. Recommend that deflection corrections be placed on the cursor of the GFT instead of on the paper face in order to prevent unnecessary wear and tear of the GFT.

d. Recommend that the 1:50,000 Vietnam map series be updated as much as possible by units through their S2 and liaison personnel.

e. Recommend that additional quantities of heavy timbers be made available through normal supply channels especially to units which are very susceptible to enemy mortar and rocket attacks.

f. Recommend that 105mm ammunition boxes not be used to provide protection in the construction of personnel bunkers unless supplemented with sandbags. "Jungle packs" are also recommended for use in bunker construction.

g. Recommend that deflection and azimuth scales be used on the turret race rings of all self-propelled howitzers.

3. (U) Training and Organization: None

4. (U) Intelligence: None

5. (U) Logistics

a. Recommend that the battalion be authorised five additional 400 gallon water trailers (FSN 2330-542-2039) be used to meet current water requirements. The water trailers have been requested by S-4. The request, if approved, will provide trailers on a loan basis until a TOE change is approved by DA.

LEE R. ROGER
LTC, Arty
Commanding

DISTRIBUTION:
CG, OFFICE Arty - 9
AVFA-AT-D (8 May 67) 1st Ind

SUBJECT: Operational Report of Lessons Learned for Quarterly Period Ending 30 April (RCS C3FOR-65) (1st Bn, 40th Arty) (U)

HEADQUARTERS, I FIELD FORCE VIETNAM ARTILLERY, APO 96350 15 May 67.

TO: Commanding General, I Field Force Vietnam, ATTN: AVFA-GC-OT, APO 96350

1. Concur with observations and recommendations contained in basic communication.

2. Reference Section 2, Part II, para 5: Unit has been advised of USARV message unclas AVHQD-SP 23669, DTD 11150Z Apr 67, Subj: Water Trailer, 400 Gallon, which states that USARV will issue water trailers to combat units on a temporary basis. The unit's requirement was included in a forecast of requirements from this headquarters to USARV.

FOR THE COMMANDER:

[Signature]

LEO E. ELLIS
LTC, Artillery
Adjutant
AVFA-GC-OT (8 May 67)  2d Ind
SUBJECT: Operational Report of Lessons Learned for Quarterly Period Ending 30 April 1967 (U)

HEADQUARTERS, I FIELD FORCE VIETNAM, APO 96350

TO: Commanding General, United States Army Vietnam, APO 96307

1. (U) This headquarters has reviewed the contents of the 1st Battalion, 40th Artillery operational report for the quarterly period ending 30 April 1967, and the preceding indorsement with the following comments:

2. (C) Reference Section I - Significant Unit Activities.

a. Paragraph 3d - PsyWar: Concur. This unit does not conduct Psywar activities but has shown commendable interest by having troop orientation in psychological warfare. Troop orientations of this type are encouraged at all levels.

b. Paragraph 4b - Logistics: Concur. Coordination with IFFORCEV Artillery indicates that the comments concerning PLL at 31 per cent zero balance and repair parts supply being almost non-existent may be questionable. A representative from IFFORCEV Artillery is currently at the unit investigating requisition procedures, status of follow-up, and validity of outstanding requisitions. Units have been requested to provide document numbers of "Red Ball" requisitions for 4.2 KW generators which have been outstanding since November 1966. These document numbers will be checked through the "Red Ball" office in Saigon to determine their validity.

c. Paragraph 4c - Logistics: Concur. Fogging of panoramic telescope MIL7 is a universal problem in RVN. Attempts were made recently to locally fabricate a dehumidifying device but these efforts were not successful. 1st Logistical Command reported that four dehumidifier devices are due in-country prior to 1 July 1967. Necessary technical representatives to assist in the installation and training of maintenance support personnel will arrive with the equipment. The availability of these devices will reduce the current maintenance down time of instruments susceptible to fogging; however, sufficient maintenance float sight will have to be made available in order to have an effective program. This unit indicates 18 additional sights are on requisition.

d. Paragraph 4d - Logistics - Concur. Ammunition is allocated to this unit by III MAF, however, it is obvious that the ASR which was 30 rounds per tube, per month for the period, was greatly exceeded; apparently because of missions fired in support of maneuver elements in heavy contact.
SUBJECT: Operational Report of Lessons Learned for Quarterly Period Ending 30 April 1967 (U)

3. (C) Reference Section II, Part II – Recommendations.

a. Paragraph 2a – Operations: Concur. It is considered a normal practice in some areas in RVN to use white phosphorus ammunition in the adjustment phase prior to establishment of range bracket.

b. Paragraph 2b – Operations: Concur. The use of azimuth indicators readily facilitates establishment of direction to points of interest, and is a practical innovation where counter-mortar radar equipment is unavailable.

c. Paragraph 2c – Operations: Non-concur. The cursor is a moving part of the graphical firing table and as the range changes the deflection correction and the manufactured hairline would maintain the same relationship; deflection correction is a function of drift. Construction of deflection correction scales should be accomplished as indicated in paragraph 335, FM 6-40.

d. Paragraph 2d – Operations: Concur. It is a normal function of the unit S2 to maintain the situation map and any other pertinent records required by the commander, which include updating of all other maps within the organization. Paragraph 12, FM 6-20-2 enumerates the functions of the artillery S2.

e. Paragraph 2e – Operations: Concur. It is preferable that heavy timbers for fortification be obtained from forests in the vicinity of the construction site, and not be supplied through supply channels from rear installations.

f. Paragraph 2f – Operations: Concur. Personnel bunkers should be constructed of sturdy material capable of withstanding small arms fire and shrapnel, in order to afford a limited degree of protection.

g. Paragraph g – Operations: Concur. I FFORCEV Artillery has been informed to notify the 1st Battalion, 40th Artillery to submit an equipment improvement recommendation (EIR).
AVFA-GC-OT (8 May 67)
SUBJECT: Operational Report of Lessons Learned for Quarterly Period Ending 30 April 1967 (U)

h. Paragraph 5a — Logistics: Concur. A recommendation for a basis of issue of additional water trailers was provided USARV on 28 April 1967 by this headquarters. USARV has an action which consolidates requirements for the item of equipment and recommends to DA that additional water trailers be provided combat units. There were five water trailers requested for the 1st Battalion, 40th Artillery.
SUBJECT: Operational Report-Lessons Learned for the Period Ending 30 April 1967 (SCS CSFOR-65) (U)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96307

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

1. (U) This headquarters has reviewed the Operational Report-Lessons Learned for the period ending 30 April 1967 from Headquarters, 1st Howitzer Battalion (105mm)(SP) 40th Artillery as indorsed.

2. (C) Pertinent comments follow:

a. Reference item concerning repair parts supply, paragraph 4b page 8; and paragraph 4h, 2d Indorsement: Concur. A recent visit to the unit (11-12 June 67) revealed that the zero balance was 26%. The unit reconciled their document register with the Da Nang Sub-Area Command during the period 10-12 June 67. It was noted that there were no deadlined weapons and only two vehicles were carried EDP. On 12 June 67 a part for one of the vehicles was forwarded to the unit. Frequent reconciliations will result in a higher percentage of fills and they should be accomplished at least every 30 days.

b. Reference item concerning the M117 Panoramic Telescope, paragraph 4c, page 8; and paragraph 7c, page 9: Concur in 2d Indorsement comments. A program is currently underway to establish a general support repair capability in RVN to alleviate problems in this category. A current MWO has been published and will be applied to the M117 Panoramic Telescope on a rotational basis.

c. Reference item concerning the critical shortages of TA 50-901 items, paragraph 4e, page 8: Concur. Some TA50-901 items have been in short supply during recent months, however these shortages are being alleviated through expeditious shipments from CONUS and PACOM depots. Personnel departing a unit on rotation or for other overseas re-assignments are required to turn in their TA50-901 equipment. This equipment should be properly renovated and reissued unless unserviceable or uneconomically repairable. Additionally, property book officers are authorized an over-stockage of this item in accordance with AR 735-35.

d. Reference item concerning malfunctions of the M-109 hydraulic system, paragraph 7b, page 9: Concur. A product improvement program is being considered by this command. To date there are about 100 engineering changes being studied for the M-109, and some of these apply to the hydraulic system. During the interim, proper attention to adjustments and organizational maintenance procedures will alleviate many of the hydraulic system problems.
AVNOC-FD (9 May 67) 3d Ind
SUBJECT: Operational Report—Lessons Learned for the Period Ending
30 April 1967 (RCS CSPOR-65) (U)

e. Reference item concerning white phosphorus ammunition, paragraph 2a, page 15: Concur. Shell WP and/or smoke should be used by all forward and air observers to assist in the location of the rounds and of their proximity to friendly elements. The weight deviation between these type shells and HE must be considered by the observer and FDC and applied prior to entry into the fire-for-effect phase of the mission. I FFORECE Arty and Division Arty Operational SOP's are explicit in the use of shell WP and/or smoke as the 1st round in an adjustment mission. I FFORECE has taken adequate steps to insure implementation of this procedure.

f. Reference item concerning azimuth indicators, paragraph 2b, page 15: Concur. The use of a device to provide a rough azimuth to enemy mortar positions is a practical field expedient in the event a unit does not possess Countermortar Radar Capability. I FFORECE has provided this information to all artillery units in its AO.

g. Reference item concerning updating the Vietnam map, paragraph 2d, page 15; and paragraph 3d, 2d Indorsement: Concur with observation that S2's are basically responsible for keeping unit maps updated with current information; however the basic problem indicated can be solved to a great extent with current directives and/or procedures:


(2) USAEV Regulation 117-5 and each individual map sheet informs users to report map errors to Army Map Service for correction on subsequent editions. Since implementation of the new series L 7014 (1:50,000 scale of Vietnam) in October 1966, many revised editions have been published because of significant corrective and/or updating data. The 1:50,000 scale map sheet which includes the "Rock Pile" is available in Edition 2 and an adjoining sheet is already available in Edition 3.

(3) It is not sufficient for S2's noting errors to post their own maps; they also have a basic responsibility to forward appropriate data to Army Map Service, where corrective action can be taken which will benefit all future map users.

h. Reference item concerning the GFT setting, paragraph 2c, page 15: Concur with paragraph 3c, 2d Indorsement. The GFT setting corresponds to registrations corrections for range, elevation, and time. A deflection
AVHGC-FD (8 May 67)  
3d Ind  
SUBJECT: Operational Report—Lessons Learned for the Period Ending  
30 April 1967 (BCS CSPOR-65) (U)  

correction cannot be placed on the GFT cursor in that deflection is a  
function of drift. The procedures outlined in Change 2, paragraph 335,  
FM 6–40 for the construction of a deflection correction scale must be  
followed to insure accurate firing data. I FFORCEW has initiated adequate  
action to insure that proper procedures are followed.

1. Reference item concerning heavy timbers, paragraph 2g, page  
15: Concur in 2d Indorsements comments. It is common practice to use  
natural timbers for construction of fortifications.

FOR THE COMMANDER:

[Signature]

E. L. KENNEY  
CPT, AGC  
Asst Adjutant
SUBJECT: Operational Report for the Quarterly Period Ending 30 April 1967
from HQ, 1st How 8n (105mm)(SP), 40th Arty (RCS CBFOR-65)(U)

HQ, US ARMY, PACIFIC, APO San Francisco 96558  20 SEP 1967

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

(C) This headquarters has evaluated subject report and forwarding endorsements and concurs in the report, as endorsed, subject to the following comments:

a. Reference paragraph 2a, 3d Indorsement. The M117 Panoramic Telescope is a candidate for intensive management under the Closed Loop concept. It will be discussed during the Weapons Closed Loop Conference scheduled 25 thru 29 September 1967.

b. Reference paragraph 2c, 3d Indorsement. Headquarters USARV is being advised to investigate this matter and inform this headquarters of item status and corrective action taken. COMARC is also being requested to inform all CONUS commanders of the problem and recommended solutions.

c. Reference paragraph 2d, 3d Indorsement. Representative of the AMC Project Managers for the M109 How 8n recently visited USARV and established a three phase program for improving the entire posture of the M109 fleet. The actions include: Replacement of approximately 50% of total in-country fleet with 4th year production vehicles; providing product improvement kits and related repair parts; and furnishing technical assistance personnel to assist in installation of kits. This program is expected to commence in November 1967 and be completed approximately June 1968.

FOR THE COMMANDER IN CHIEF:

[Signature]

G. L. McMULLIN
MAJ, AGO
Asst AG

Confidential
1st Bn
40th Arty

HQ Bty
E117

SVC Bty
02 W3 E82

FLYING BATTERY
(105mm How SF)

"A"
06 E90

"B"
06 E90

"C"
06 E90

4th Bn, 12th Mar
Reg "K"
1 Feb 67 to 29
Apr 67

2d Bn, 12th Mar
Reg "F"
5 Mar 67
to 10 Mar 67

Denotes operational control
under 1st Battalion, 40th
Artillery

Denotes operational control
under 1st Battalion 12th
Regiment, 3d Marine Division