69 Jun Art. ORL

CONFIDENTIAL

DEPARTMENT OF THE ARMY
OFFICE OF THE ADJUTANT GENERAL
WASHINGTON, D.C. 20310

IN REPLY REFER TO

AD 502062

AGAM-P (M) (13 May 69) FOR OT UT 691085 21 May 1969

SUBJECT: Operational Report - Lessons Learned, Headquarters, Americal Division Artillery, Period Ending 31 January 1969 (U)

SEE DISTRIBUTION

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

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

BY ORDER OF THE SECRETARY OF THE ARMY:

Kenneth G. Wickham
KENNETH G. WICKHAM
Major General, USA
The Adjutant General

1 Incl
as

DISTRIBUTION:
Commanding Generals
US Continental Army Command
US Army Combat Developments Command
Commandants
US Army War College
US Army Command and General Staff College
US Army Armor School
US Army Field Artillery School
US Army Infantry School
US Army Missile and Munitions School
US Army Ordnance School
US Army Quartermaster School
US Army Signal School
US Army Southeastern Signal
US Army Transportation School

Regraded unclassified when separated from classified inclosure.

CONFIDENTIAL

SECURITY MARKING

The classified or limited status of this report applies to each page, unless otherwise marked.
Separate page printouts MUST be marked accordingly.

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE LAWS, TITLE 18, U.S.C., SECTIONS 793 AND 794. THE TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW.

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U.S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

DISTRIBUTION (Cont'd)

Copies furnished:
Office, Chief of Staff, US Army
Deputy Chiefs of Staff
Chief of Research and Development
Assistant Chiefs of Staff
Chief of Engineers
Commanding Generals
  US Army Materiel Command
  US Army Weapons Command
Director, Weapons Systems Evaluation Group
Defense Documentation Center
Security Officer, Hudson Institute
Commanding Officers
  US Army Limited War Laboratory
  US Army Logistics, Doctrine Systems & Readiness Agency
  Americal Division Artillery
Commandant, Armed Forces Staff College

DEPARTMENT OF THE ARMY
Headquarters Americal Division Artillery
APO San Francisco 96374

AVDF-ATCO 15 February 1969

SUBJECT: Operational Report - Lessons Learned (RCS-CSFOR-65)

See DISTRIBUTION

1. (C) Section I: Operations: Significant Activities

a. Command:

(1) The following units are assigned, attached, or OPCON:

3d Battalion, 16th Artillery (155T): Attached

3d Battalion, 18th Artillery (8"/175mmSP): Attached

1st Battalion, 82d Artillery (155T/8"SP): Assigned

6th Battalion, 56th Artillery (Hawk): Assigned

Battery G, 55th Artillery (MG): Assigned

3d Platoon, Battery G, 29th Artillery (Searchlight): Assigned to the 108th Artillery Group, OPCON Americal Division Artillery.

251st Countermortar Radar Detachment: Assigned

252d Countermortar Radar Detachment: Assigned

(2) Division Artillery monitors the activities of the direct support battalions of the three infantry brigades.

6th Battalion, 11th Artillery: Assigned 11th Light Infantry Brigade

1st Battalion, 14th Artillery: Assigned 198th Light Infantry Brigade

3d Battalion, 82d Artillery: Assigned 196th Light Infantry Brigade

FOR OT UT
691085
Inclosure

b. Operations:

(1) Support Artillery Fires

(a) Heavy artillery support continues to be available throughout the division area of operations. Two batteries of heavy artillery were moved to Minh Long and Tra Bong Special Forces camps to provide heavy artillery support beyond the division boundary and extend the sphere of influence of the division. Both moves required extensive engineer work to make the roads passable for the heavy self-propelled artillery.

(b) Medium artillery continues to be available throughout the division area of operations. In order to provide this support, many of the batteries have had to operate as split fire units. One battery of medium artillery continues to operate in direct support of the 1st Squadron, 1st Cavalry.

(c) Light artillery units made 40 moves during the period, with most of the displacements being made by air. The provisional fourth firing battery in each direct support battalion again provided added coverage for the large brigade AO's.

(d) Artillery ammunition expenditures and percent of observed fires by caliber for the reporting period are as follows:

CALIBER	EXPENDITURES	PERCENT OBSERVED
105mm	168,530	62
155mm	83,750	41
8 in	18,176	30
175mm	11,986	8.8

(2) Division Artillery provided supporting fires for the following operations of the Americal Division:

Operation Vernon Lake II	2 Nov 68 to present
Operation Hardin Falls	2 Dec 68 to present
Operation Fayette Canyon	15 Dec 68 to present
Operation Russell Beach	13 Jan 69 to present

(a) Vernon Lake II

1. Operation Vernon Lake II commenced at 020601 November 1968 with the 11th Infantry Brigade conducting the operation.

2. Division Artillery supported the operation as follows:

a. B/6/11 moved from LZ Pepper (BS 496716) to LZ Cork (BS 448612) on

Inclosure

2 November, with one platoon (2 howitzers) moving to LZ Volunteer (BS 348593) on 2 December, and returning to LZ Cork on 13 December, remaining at LZ Cork through the end of the reporting period. D/6/11 moved from LZ Pepper to LZ Cork on 2 November, then to LZ Amy (BS 473526) on 11 November, remaining through the end of the reporting period. One platoon (2 howitzers) of A/6/11 moved from LZ Dragon (BS 730528) to LZ Cam (BS 393502) on 19 November, then to Minh Long Special Forces Camp (BS 536513) on 21 November, returning to LZ Dragon and out of the Vernon Lake II AO on 28 November.

b. Medium artillery. One platoon (2 howitzers) moved from Hill 54 (BT 394144) to LZ Cork and became OpCON to 6/11th Arty on 14 November. The platoon was attached to C/1/82, which was further attached to 6/11th Arty. On 2 January, one platoon (2 howitzers) C/1/82, moved from LZ Liz (BS 753432) to LZ Amy (BS 471524), remaining through the end of reporting period.

c. Heavy artillery. C/3/18 supported Vernon Lake II from positions at LZ Dragon and LZ Bronco (BS 812396) until 12 December when they moved by road to Minn Long Special Forces Camp, closing on 14 December.

d. Artillery organization for combat:

6th Battalion, 11th Artillery (105T) DS 11th Infantry Brigade

Battery C, 1st Battalion, 82d Artillery (+) (155T) Attached 6/11 Arty

Battery C, 3d Battalion, 18th Artillery (8"/175) GS

(b) Operation Hardin Falls

1. Operation Hardin Falls commenced at 020601 December 1968 with the 1/1 Cavalry conducting an accelerated pacification program.

2. Artillery support was provided by Battery A, 3d Battalion, 16th Artillery (155T), positioned at Hawk Hill (BT 224311). One platoon was moved out of the AO on 14 December 1968 and returned on 2 January 1969.

(c) Operation Fayette Canyon

1. Operation Fayette Canyon commenced at 150601 December 1968 with the 196th Infantry Brigade conducting the operation.

2. Division Artillery supported the operation as follows:

a. Operation was supported by A/3/82 from LZ Ross (BT 028341) and LZ Ryder (AT 946343) and D/3/82, who moved from LZ Baldy (BT 133453) to LZ Cacti (BT 060473) on 14 December, returning to LZ Baldy on 2 January.

b. Medium artillery. One platoon (2 howitzers) of Battery A, 3d Battalion, 16th Artillery moved from Hawk Hill (BT 224311) to LZ Baldy on 14 December, returning to Hawk Hill on 2 January. Battery A (-), 1st Battalion, 82d Artillery moved from Hill 54 (BT 397143) by road to LZ Ross on 12 December, then moved by air to LZ Sooner (AT 869359) on 13 December. Battery A (-) moved out of the AO on 1-2 January. Battery C, 3d Battalion, 16th Artillery supported the operation from LZ Ross until 9 January, when 4 howitzers were moved to LZ Ryder and the other platoon remained at LZ Ross.

c. Heavy artillery. Battery B, 3d Battalion, 18th Artillery supported the operation from LZ Ross throughout the period.

d. Artillery organization for combat:

3d Battalion, 82d Artillery (105T) DS 196th Infantry Brigade

Battery A (-), 1st Battalion, 82d Artillery (155T) Attached 3/82 Arty

Platoon, Battery A, 3d Battalion, 16th Artillery (155T) Reinforcing 3/82 Arty

Battery C, 3d Battalion, 16th Artillery (155T) GS-R 3/82 Arty

Battery A, 3d Battalion, 18th Artillery (8"/175) GS

(d) Operation Russell Beach

1. Operation Russell Beach commenced at 130700 January 1969 under the control of Task Force Cooksey. Operation was a joint operation with US Marines Special Landing Force and elements of the 2d ARVN Division.

2. Division Artillery supported the operation as follows:

a. Operation was supported by A/1/14 from LZ North (BS 725907) and B/1/14 from LZ South (BS 702827). A/1/14 moved to LZ South on 17 January.

b. Medium artillery support was provided by platoon of B/1/82 and platoon of D/1/82 from LZ Dottie (BS 621855) from 13 January to 27 January, when the 155mm platoon moved to LZ South.

c. Artillery organization for combat:

1st Battalion, 14th Artillery (105T) DS 198th Infantry Brigade

Platoon, Battery B, 1st Battalion, 82d Artillery (155T) Reinforcing 1/14th Arty

Platoon, Battery D, 1st Battalion, 82d Artillery (8"SP) Reinforcing 1/14th Arty

(e) Chu Lai TAOR

1. Operations in the Chu Lai TAOR were conducted by 198th Infantry Brigade, TF Cooksey, and 11th Infantry Brigade.

2. Division Artillery provided the following support for the TAOR:

a. Light artillery moved frequently to support operations throughout the TAOR. At the beginning of the reporting period, the direct support batteries were located at the following fire support bases:

A/1/14 Arty	LZ Gator (BS 571963)
B/1/14 Arty	LZ Young (BT 188158)
C/1/14 Arty	LZ Buff (BS 537625)
D/1/14 Arty	Fat City (BS 439075)

One platoon of A/1/14 moved from LZ Gator to LZ Buff on 14 November, to LZ Dottie on 17 November, returning to LZ Gator on 5 December, and A/1/14 moved to Operation Russell Beach on 13 January. B/1/14 moved to LZ Buff on 29 November, to LZ Dottie on 26 December, to LZ Paris (BS 480828) on 28 December, returning to LZ Dottie on 5 January, and to Operation Russell Beach on 13 January. C/1/14 moved to Oregon AO on 14 November. One platoon of D/1/14 moved to LZ Gator on 13 January. C/6/11 moved from Duc Pho AO to LZ Buff on 18 January to support an operation north of the Song Tra Khoc River, and west of QL 1.

b. Medium artillery. 1st Battalion, 82d Artillery (-) had batteries in the following locations at the start of the period.

A/1/82 Arty	Hill 54 (BS 397143)
B/1/82 Arty	LZ Gator (BS 573965)
D/1/82 Arty	LZ Dottie (BS 630853)

One platoon of A/1/82 moved to Vernon Lake II AO on 14 November. Battery A (-) moved to LZ Sooner on 12-13 December and was attached to 3/82 Arty, returning to Hill 54 on 1 January and occupying new fire support base at Fat City on 8 January. B/1/14 moved one platoon to LZ Dottie on 14 November and moved a second platoon to Hill 54 on 12 December, with battery headquarters and one platoon remaining at LZ Gator. One platoon moved from LZ Dottie to LZ Gator on 26 December, with a second platoon moving from Hill 54 early on 1 January. One platoon moved from LZ Gator to LZ Dottie to provide battlefield illumination in the vicinity of Quang Ngai, with the second platoon moving to LZ Dottie to reinforce C/6/11 Arty operating west of QL 1. D/1/82 remained at LZ Dottie until 6 January, when one platoon was moved to Fat City to provide 8" support to the northern portion of the TAOR.

c. Heavy artillery was positioned at Hill 54 until 3 January when A/3/18 Arty commenced the move to Tra Bong Special Forces Camp (BS 342883), closing on 5 January.

d. Artillery organization for combat:

1st Battalion, 14th Artillery (105T) DS 198th Infantry Brigade

1st Battalion, 82d Artillery (-) (155T/8"SP) GS-R 1/14 Arty

Battery A, 3d Battalion, 18th Artillery GS

(f) Duc Pho AO

1. Operations continued in the Duc Pho AO under control of 11th Infantry Brigade.

2. Division Artillery provided the following support for the AO:

a. A/6/11 moved one platoon from LZ Dragon to Vernon Lake II AO on 19 November, returning to LZ Dragon on 28 November. On 11 December, A/6/11 moved from LZ Dragon to LZ Bit (BS 730358), returning on 17 December. One platoon moved to vicinity of Nghia Hanh (BS 611625) to support a blocking position on 16 January, returning to LZ Dragon on 22 January. C/6/11 supported the AO from LZ Thunder (BS 869318) until 1 January, when one platoon was moved to LZ Charlie Brown (BS 928220), returning on 3 January. C/6/11 moved to Chu Lai TAOR on 18 January.

b. C/1/82 provided medium artillery support to Duc Pho AO with battery (-) at LZ Liz (BS 757432) and one platoon at LZ Thunder (BS 869318), until 2 January, when one platoon moved from LZ Liz to LZ Amy (BS 471524).

c. Heavy artillery support was provided by C/3/18 from positions at LZ Dragon and LZ Bronco (BS 812397) until 12 December, when the road move to Minh Long Special Forces Camp (BS 534515) commenced, with the battery closing on 14 December.

d. Artillery organization for combat:

6th Battalion, 11th Artillery (-) (105T) DS 11th Infantry Brigade

Battery C, 1st Battalion, 82d Artillery (155T) Attached 6/11 Art;

Battery C, 3d Battalion, 18th Artillery (8"/175SP) GS

(g) Oregon AO

1. Operations continued in the Oregon AO with elements of the 196th Brigade, 198th Brigade, and 1/1 Cav conducting operations.

2. Division Artillery provided the following support for the AO:

a. A/3/82 supported the AO from LZ Ross, with one platoon at LZ Ryder from 30 November to 3 January. B/3/82 remained at LZ Center (BT 050250) during the period. C/3/82 supported the AO from LZ West (AT 990250), moving a platoon to LZ Karen (AT 914238) on 14 November, then to LZ Stoner (AT 869359) on 5 December, moving to LZ West on 12 December, then to LZ Karen on 16 January. D/3/82 supported the AO from LZ Baldy until 14 December when the battery moved to LZ Cacti (BT 060473), returning to LZ Baldy on 2 January. C/1/14 provided support from LZ Bowman (BT 239141) from 14 November to 19 January, when the battery moved to LZ Professional (BT 173076).

b. Medium artillery support for the AO was provided by 3d Battalion, 16th Artillery. A/3/16 provided direct support for 1/1 Cav from fire support base located at Hawk Hill (BT 224311). B/3/16 provided support from Thien Phuoc Special Forces Camp (BT 105142), moving a platoon to LZ West (AT 988249) on 31 December. C/3/16 supported the AO from LZ Ross, with two platoons moving to LZ Ryder on 9 January.

c. Heavy Artillery support was provided by B/3/18 from LZ Ross.

d. Artillery organization for combat:

3d Battalion, 82d Artillery (105T) DS 196th Infantry Brigade

1st Battalion, 14th Artillery (-) (105T) DS 198th Infantry Brigade

3d Battalion, 16th Artillery (-) (155T) GS-R 3/82d Arty

Battery A, 3d Battalion, 16th Artillery (155T) DS 1/1 Cavalry

Battery B, 3d Battalion, 18th Artillery (8"/175) GS

c. Countermortar radar detachments:

(1) 251st CM Radar Detachment is positioned at LZ Cork (BS 456609) with primary sector to the south and southwest.

(2) 252d CM Radar Detachment is positioned at Artillery Hill (BT 515039) with primary sector to the northwest into the rocket belt around Chu Lai.

d. Battery G (MG), 55th Artillery has been deployed throughout the division AO in primarily a ground defense role, providing fire base and installation security, firing suppressive fires, and security for convoys and road clearing operations. The weapons are deployed in 20 different semi-permanent positions, facilitating their displacement in support of newly established fire bases or assigned ground support missions.

e. 3d Platoon, G Battery (SL), 29th Artillery has been deployed throughout the division AO, being used extensively to provide battlefield illumination and as a navigational aid for the supported infantry. Wherever possible, searchlight positioning is collocated, on one fire base, with the Quad 50 caliber machineguns. Target detection and responsive engagement have been greatly enhanced in providing security for isolated fire bases.

f. 6th Battalion, 56th Artillery: SECRET, forwarded under separate cover.

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

a. Personnel.

(1) Shortage of Artillery Chiefs of Section and Gunners.

(a) OBSERVATION: At the present time, Division Artillery has a 60% deficiency of the authorized E-6, Section Chiefs (MOS 13B40) and E-5, Gunners (MOS 13B40).

(b) EVALUATION: Battery Commanders are required to rely on E-4 or lower grades to fill the NCO positions. This lack of experience requires the Chief of Firing Battery and the Executive Officer to take an increased role in supervising firing battery operations.

(c) RECOMMENDATION: That an adequate flow of qualified personnel in the grade of E-5 and E-6, MOS 13B40 be maintained.

(2) Artillery Combat Leader Program (Skill Development Base).

(a) OBSERVATION: The graduates of this program assigned to the Americal Division Artillery have increased overall combat effectiveness of the artillery battalions.

(b) EVALUATION: The Americal Division Artillery has 64 graduates of the Artillery Combat Leader Program assigned. Included are 57 MOS 13B40, 4 MOS 13B20, 2 MOS 13E40, and 1 MOS 13E20. Of these graduates, 3 have been promoted (13B40), 1 is currently recommended for promotion, 11 are not recommended for promotion and 2 have been demoted. The remainder of personnel are not eligible for promotion at this time.

(c) RECOMMENDATION: That the Artillery Combat Leader Program be continued with increased stress on leadership.

(3) Shortage of Radar Operators and Mechanics.

(a) OBSERVATION: Qualified replacements for Radar Operators, MOS 17B20 and Radar Mechanics, MOS 26B20 have not been assigned.

(b) EVALUATION: The lack of qualified replacement personnel in the radar MOS's requires the units to utilize personnel with soft skill MOS's to fill vacancies. This ultimately results in promotion to E-4 or E-5 and reclassification. It is entirely possible that school trained personnel are being assigned to RVN and diverted to other MOS's because the units are in effect training their own radar operators and mechanics.

(c) RECOMMENDATION: That all 17 series MOS personnel be assigned to radar units regardless of number of position vacancies.

(4) Shortage of Basic Artilleryman (13A10).

(a) OBSERVATION: Insufficient basic artillerymen (MOS 13B10) replacements were assigned during the period 1 October 1968 - 31 December 1968.

(b) EVALUATION: The lack of qualified artillerymen requires USARV to authorize assignment of MOS's 12B10, 11E20, and 11B20 to artillery units, giving them authority to reclassify and promote the affected individuals. Coupled with the severe shortage of qualified NCO's, this necessitates an extensive training program in each firing battery. Approximately 140 personnel have been retrained and reclassified to 13B10 during this reporting period. Moreover, at the close of the period, this division was short 163 personnel in MOS 13B10 and authorized MOS substitution.

(c) RECOMMENDATION: That the production of MOS 13B be more closely monitored and that adequate personnel be assigned to maintain the USARV goal of 105%.

b. Operations

(1) Gun Direction Computer M-18 (FADAC) - Air Data

(a) OBSERVATION: The high density of army aircraft in the combat area has necessitated the utilization of the Artillery Warning Control Center. This warning system requires immediate input from artillery fire units in the form of a GT line (in degrees) and a maximum ordinate prior to firing.

(b) EVALUATION: Although the azimuth of fire (mils) and the maximum ordinate (feet) are available within the computer it requires multiple operator actions to obtain the data.

(c) RECOMMENDATION: Aircraft density will continue to be high and the safety for these aircraft is an important consideration; it is recommended that a modification in the programming be considered, whereby the FADAC operator could obtain, in one operation, the necessary data.

(2) Collocation of a platoon of 155mm Howitzers with a battery of 105mm Howitzers.

(a) OBSERVATION: In the counterinsurgency environment too often the capability to reinforce direct support artillery is lost because of the distances involved between the positions of the direct support and reinforcing artillery units.

(b) EVALUATION: A platoon of 155mm Howitzers can be attached to a direct support battery to provide reinforcing fires, and to extend artillery coverage to provide the supported battalion more maneuver room. This collocation of artillery also reduces requirements for the establishment of fire bases to support raids and short term operations outside the 105mm range fan.

(c) RECOMMENDATION: When direct support batteries are outside of the range of reinforcing artillery units, 155mm Howitzers should be

attached and collocated with the 105mm batteries.

(3) Artillery adjustment training for infantry units.

(a) OBSERVATION: When short and long range patrols or small infantry units are deployed without FO's or commanders extensively trained in the use of artillery adjustment, many lucrative artillery targets are not engaged.

(b) EVALUATION: Service practice for all infantry units within the supported brigades can be conducted to insure that all members in the chain of command, from platoon sergeant to company commander, are well versed in all aspects of artillery adjustments. Short and long range patrols likewise can be thoroughly scheduled, to include extensive briefings and training by the direct support artillery battalion S3, liaison officers, and forward observers. The capabilities and limitations of artillery units must be included, as well as, the present artillery unit's disposition. This training can be accomplished as rifle companies rotate through fire bases and as the short and long range patrols make preparations for field operations.

(c) RECOMMENDATION: As many members as possible of infantry companies, to include short and long range patrol units, should be trained by their supporting artillery battalion on artillery fire adjustments.

(4) Accurate preparation fire in mountainous terrain.

(a) OBSERVATION: Due to nonavailability of local met stations, firing batteries in mountainous terrain sometimes must depend on met data obtained in the coastal areas. Thus, preparation fires may not be on target as would be expected.

(b) EVALUATION: To reduce the requirement to adjust preparatory fires because of the met problem, each preparation can be checked by firing a smoke or HE round to determine if corrective action is required. For preparations planned as extended zone sweeps, it is extremely difficult to adjust the preparation after it has begun since there is no one specific grid from which to adjust.

(c) RECOMMENDATION: All planned preparatory fires in mountainous terrain should be updated by firing an observed check round, adjusting from that round as necessary.

(5) 6400 mil GFT settings.

(a) OBSERVATION: The use of 8-directional GFT settings provides timely, accurate data, and a closer check with FADAC than the wind card system.

(b) EVALUATION: The formation of composite M114A1 (155mm) Howitzer/M110 (8") Howitzer batteries without a compatible FADAC program necessitates the exclusive use of manual data for one of the systems. In order to have accurate firing data in all directions for the weapon system without the services of FADAC, a method of obtaining valid 8-directional GFT

settings was developed by combining and condensing eight DA Form 6-15's to a single form for each charge. The use of 6400 mil GFT settings reduces the chance of computational errors inherent to the wind card system since once applied they are valid throughout 800 mils. The system provides a high degree of accuracy in all directions without additional computations thus placing all targets within transfer limits.

(c) RECOMMENDATION: It is recommended that an 8-directional plot form for each type weapon similar to those attached as inclosures 1 and 2 be standardized to replace the wind card system.

(6) Prevention of spade damage.

(a) OBSERVATION: Short blocks of wood between the spades and imbedded trail legs cause damage to the spades on the M114A1 (155mm) howitzers.

(b) EVALUATION: In an effort to insure fast 6400 mil shift capability, octagonal and decagonal shaped gun pits have been used. The trail legs form a periphery which have a radius approximately two feet larger than the shifting radius of the 155mm towed howitzer. By placing short blocks of heavy timber between the spades and the trail legs, firing can be accomplished without having the spades imbed in the ground in front of the trail legs. Thus, the howitzer can be shifted on its 6400 mil speed shifting jack by two cannoneers since no effort is required to lift the spades out of the ground. However, since the short blocks of wood are not always in contact with the entire rear face of the spade, undue stress is placed upon the center spade rib. After several hundred rounds are fired at the higher charges, spades develop cracks in the center ribs and top plates. The spades become disfigured to the point where they are dangerous to use and must be replaced.

(c) RECOMMENDATION: The radius of the trail leg periphery should be no more than one foot larger than the shifting radius of the weapon. The trail legs should be implanted from six inches to one foot below the surface of the gun pit and loamy soil or sand/laterite mixture placed in front of the trail legs. This arrangement allows the spades to seat properly into the ground in front of the trail legs and evenly distributes the stress on the spades and trail legs. The loam or sand/laterite mixture assures relatively easy raising of the spades for rapid shifts in direction.

(7) Use of illuminating projectile as a navigation aid.

(a) OBSERVATION: Because of dense vegetation and extended periods of poor visibility caused by fog and low moving clouds, "Smoke High Streamer" rounds can be difficult for observers to detect.

(b) EVALUATION: Illuminating projectiles can be used as a suitable substitute for Shell, Smoke under very poor weather conditions or other conditions of poor visibility. The illuminating projectile, fired with a 200 meter height of burst, provides a bright flare which is easily spotted.

(c) RECOMMENDATION: That during time of fog or low clouds an illuminating projectile be used as a navigation aid in lieu of Shell, Smoke.

(8) Culvert section racks for collapsible drums.

(a) OBSERVATION: Many collapsible drums are being damaged during careless placement on mountain top fire bases. They are also difficult to drain.

(b) EVALUATION: In elevating collapsible drums to drain them of their contents, the use of inverted 60 inch culvert sections has been successfully adopted. Staking three rows of four sections each as closely together as possible on a slightly inclined plane, the user may then lower the incoming drums into the trough formed by the inverted culverts. The end of the drum is free for connecting valves and hoses; also most of the fluids can be drained easily from the collapsing drum. As an additional benefit, the culvert racks prevent damage from rolling.

(c) RECOMMENDATION: That 60 inch culvert sections be utilized as racks for collapsible drums on mountain top fire bases.

(9) The use of the GOER in transporting supplies over marshy terrain.

(a) OBSERVATION: During a recent cross country move, nine GOER vehicles were attached to a firing battery for the purpose of carrying Class III, IV, and V supplies. Seven of these vehicles failed to complete the move as they were unable to negotiate the difficult terrain.

(b) EVALUATION: Upon the advice of the GOER platoon leader, the vehicles were loaded with as much as 15 tons of ammunition. The convoy traveled on an unimproved road infrequently traveled by wheeled vehicles. The GOER's frequently bogged down traversing stream bypasses. Seven of the nine did not cross the first stream and returned to the starting point. The GOER's were unable to drive cross-country because the soft ground would not support the weight. The "walking" techniques used by drivers damaged the road making it impassable to other vehicles. The wide wheel base also crumbled the sides of the narrow road and the vehicles would slide from the road. All vehicles lacked OEM, technical manuals, and repair parts, making minor repairs impossible. One GOER completed the 26 KM march over unimproved roads and a second one was towed to completion. A total of 250,000 lbs of supplies were carried by all nine vehicles. By comparison, 2-2½ ton cargo trucks carrying a full 600 gal water pod completed the trip without unusual difficulty.

(c) RECOMMENDATION: Before GOER's are used in supporting field operations a complete reconnaissance of the route and terrain to be negotiated is essential. Loads must be judiciously considered and coordinated with a knowledgeable representative of the Transportation Corps.

c. Training

(1) Forward observers' and liaison officers' training.

(a) OBSERVATION: Newly assigned company grade officers require additional training and an orientation to reduce the time required to fully acclimate themselves to the position of forward observer or liaison officer.

(b) EVALUATION: Division Artillery has initiated a Forward Observers and Liaison Officers Orientation and Training Course. The program of instruction includes: 14 hours of classroom instruction and practical exercise; 4 hours of organizational briefings and conducted tours of fire direction centers, fire bases, and an Infantry Battalion Tactical Operation Center; and 8 hours of artillery service practice. The service practice starts with a demonstration of the various types of projectiles and fuzes commonly used in Vietnam. Students are then required to initiate calls for fire on selected targets from an OP position and on "walking shoots". This training is required for all incoming field artillery company grade officers and supplements the initial training received at the Americal Combat Center.

(c) RECOMMENDATION: None

d. Intelligence: Omitted

e. Logistics:

(1) Additional methods for external loads of 8" and 175mm Class V.

(a) OBSERVATION: Because of a general shortage of Cargo Bags, A-22, available for hauling Class V supplies, an alternate method has been developed to accomplish this mission.

(b) EVALUATION: TM 55-450-11 recommends Cargo Bag, A-22 for hauling Class V supplies by helicopter. These bags are not readily available in Vietnam. The following technique has been developed and used to sling load 8" and 175mm projectile and powder.

175mm and 8" Projectiles

Materials required: 2 ea 20', 2 loop-slings
2 ea 3', 3 loop-slings or endless slings
1 ea clevis assembly

Preparation: Place eight pallets of 175mm or six pallets of 8 inch projectiles in two rows. Place one 20' sling through the top of each row of pallets. Connect all four sling ends to the clevis assembly. Attach the clevis assembly to the two 3' slings or the two endless slings. This process requires two men approximately five minutes to prepare. For additional safety, another sling can be placed through the eyebolt of all projectiles and also connected to the clevis assembly. This is recommended for the 8 inch projectiles. The load weighs 7400 lbs (175mm) and 7344 lbs (8 inch).

175mm and 8" Propellant Charge

Materials required: 4 ea 20', 2 loop-slings
1 ea clevis assembly
2 ea 3' slings with link assemblies or endless slings.

Preparation: Place four pallets of 175mm or 8 inch propellent charges in two rows. Place one 20' sling under each pallet, center the sling, and attach a choker hitch at the top. Insure it is cinched tightly and in the center of each pallet. Prepare each of the other three pallets in the same manner. Attach the four sling ends to the clevis assembly and attach two 3' slings or endless slings to the clevis assembly. This process requires two men approximately ten minutes to prepare. The load weighs 7296 lbs (175mm) and 6492 lbs (8 inch).

(c) RECOMMENDATION: That the technique described above be adopted as an alternate method to the M-22 Cargo Bag if adequate supplies of M-22 are not available.

(2) Repair parts for M110 and M107 artillery weapons.

(a) OBSERVATION: The M110 and M107 are frequently inoperative as a result of an inadequate supply of a few critical repair parts. Examples of these parts are as follows:

ITEM	FSN
Carrier, Traversing Mechanism	2520-733-8163
Differential Assembly	2520-937-3133
Valve, Solenoid	2520-736-0242
Switch, Oil Pressure	2520-736-233
Valve, Safety Relief	4820-719-6348
Tube, Assembly, Metal	2590-955-5498
Hydraulic Elevating Motor	2520-733-8144
Cylinder	2520-730-6645
Cylinder Assembly	1025-863-7786
Screw, Cap Hex Head	5305-655-9279
Switch, Sensitive	5930-699-9085
Pump, Rotary	4320-747-7865
Motor, DC	6105-513-9631
Pump, Rotary, Power Driven	2910-862-6931
Drive Assembly	2520-909-2460
Belts, V, (set of 4)	3030-780-8001
Screw	5305-502-5037

(b) EVALUATION: A shortage of repair parts has resulted in several weapons being inoperative for periods of 3 days to 3 weeks.

(c) RECOMMENDATION: That continuing emphasis be placed on bringing the Prescribed Load List up to the authorized level of stockage.

(3) M&R program for M107/M110 artillery weapons.

(a) OBSERVATION: The M&R program provides for a complete disassembling and cleaning of all heavy artillery weapons on a quarterly basis. Both ordnance personnel and the weapon's crewmembers perform this maintenance to include the replacement of all unserviceable parts. The effectiveness of the program for the M107 and M110 howitzers has proven to be of limited value due to a general shortage of repair parts at the organizational and support maintenance levels.

(b) EVALUATION: The R&d program began on 1 Nov 68 for the purpose of improving the materiel readiness of M107/M110/578 carriages by allowing sufficient time for support maintenance, assisted by crews and unit maintenance personnel, to overhaul the armament and automotive components of each carriage. To support this effort, organizational and support maintenance shops were authorized to use MWO BALL MSL & PLL requisitions. There has been no significant improvement in the availability of these repair parts. Specific shortages that have delayed the program are hydraulic motors, PTO belts, and auxiliary drives.

(c) RECOMMENDATION: The R&d program for the M107/M110 be suspended until such time that repair parts are available at organization and support maintenance levels.

(4) Gun Directional Computer M-18 (FADAC) Ballistic Program Tapes

(a) OBSERVATION: The Phase III, Issue 2, Ballistic Program Tapes for the FADAC are not available to support the nonstandard artillery combinations presently used in Vietnam.

(b) EVALUATION: In June 1968, this headquarters coordinated this problem area with the USARV G3 office. On 13 July 1968, a message was forwarded by the CG, Americal Division outling the required program tape operational needs:

(1) 8 inch Howitzer, M110/155mm Howitzer, M114A1

(2) 8 inch Howitzer, M110/105mm Howitzer, M101A1

(3) 175mm Gun, M107/155mm Howitzer, M114A1

(4) 175mm Gun, M107/105mm Howitzer, M101A1

(5) 155mm howitzer, M114A1/105mm Howitzer, M101A1

Headquarters, USARV initiated action with the Combat Development Command on this matter on 10 October and subsequently requested the status of the program tapes on 22 December 1968. In December this headquarters made an inquiry to the Commanding General, United States Army Field Artillery Center. In response, information has been received indicating that the Issue 2 (Revised) tapes will be available in February or March.

(c) RECOMMENDATION: That follow up action be taken to expedite the delivery of the program tapes.

f. Organization: Omitted

g. Other: Omitted

3. SECTION 3, Headquarters, Department of the Army Survey Data: Negative Input.

2 Incl
as

LAWRENCE M. JONES, JR.
Colonel, Field Artillery
Commanding

DISTRIBUTION:

COPY	
1	Dept of the Army (ACSFOR-DA) ACofS For Force Development, Washington, D.C. 20310
2 - 3	Dept of the Army (ACSFOR-DA) ACofS For Force Development, Washington, D.C. 20310, THRU: Commanding General, Americal Division, APO 96374
4 - 5	Commander-in-Chief, US Army Pacific, ATTN: GPOP-DT, APO 96558
6 - 7 - 8	Commanding General, US Army Vietnam, ATTN: AVHGC-DST, APO 96307
9 - 10	Commanding General, Americal Division, ATTN: AVDF-GC, APO 96374
11	Commanding General, Americal Division, ATTN: AVDF-HL, APO 96374
12	6th Battalion, 11th Artillery
13	1st Battalion, 14th Artillery
14	3d Battalion, 16th Artillery
15	3d Battalion, 18th Artillery
16	1st Battalion, 82d Artillery
17	3d Battalion, 82d Artillery
18	6th Battalion, 56th Artillery
19	3d Platoon, Battery G, 29th Artillery
20	Battery G, 55th Artillery
21 - 25	File, Div Arty S3

AVDF-GC (15 Feb 69) 1st Ind
SUBJECT: Operational Report Lessons Learned (Americal Division Artillery)

DA, Headquarters, Americal Division, APO SF 96374 1 MAR 69

TO: Commanding General, United States Army Vietnam, APO SF 96375

1. Forwarded herewith is the subject report of the Americal Division Artillery for the period ending 31 January 1969.

2. This Headquarters concurs with the observations and recommendations contained in the basic communication except paragraph 2e(3) (c), Section II. Nonconcur with the recommendation to suspend the R&R program for the M-107/M-110 howitzers. The critical problem is to obtain the required repair parts prior to the complete disassembly of the weapons. The ACofS, G4 is currently engaged in requesting contact teams from appropriate maintenance support activities for on-site inspection of the weapons ten days to two weeks prior to the date the weapons are disassembled. This program is expected to identify specific parts that will have to be replaced in order for this command to take necessary action to obtain the required parts prior to disassembly of the weapons.

FOR THE COMMANDER:

JOHN K. SAMMET
1LT, AGC
Asst AG

AVHGC-DST (15 Feb 69) 2d Ind
SUBJECT: Operational Report-Lessons Learned (RCS-CSFOR-65)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 1 APR 1969

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

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 January 1969 from Headquarters, Americal Division Artillery.

2. Comments follow:

a. Reference items concerning Personnel Shortages, page 8, paragraphs 2a(1), (3) and (4). Nonconcur with recommendations. USARV is currently 58.4 percent of its authorized strength in MOS 13B40 as compared to 58.6 percent of authorized strength in the Americal Division. MOS 17B20 is a severe shortage MOS in USARV with the Americal Division slightly below the command average. Action will be taken to bring the division up to the command average. MOS 26B20 is a USARV shortage MOS. The Americal Division is above the USARV average in this MOS. USARV is currently at 91.0 percent of authorized strength in MOS 13A10 as compared to 90.8 percent MOS fill in the Americal Division.

b. Reference item concerning Repair parts for M110 and M107 artillery weapons, page 14, paragraph 2e(2); concur. Repair parts required will continue to be requisitioned in order to fill Authorized Stockage Levels and Prescribed Load Lists. Frequent reconciliation of requisitions with the DSU is recommended to insure the validity of requisitions. In some cases and with the approval of the Supporting Maintenance Activity, a serviceable part may be removed from the end items being evacuated for rebuild to remove a similar item off deadline providing a like unserviceable part is placed on the item being evacuated. Unit will be notified of the above.

c. Reference item concerning Gun Direction Computer, M-18 (FADAC) Ballistic Program Tapes, page 15, paragraph 2e(4); concur. On 22 December 1968, USARV G-4 dispatched a follow-up message requesting current status of the new tapes and requesting air shipment when tapes are available. The response indicated that development is being expedited, however the programs must be completely documented, thoroughly tested, and matched with current operator instructions.

FOR THE COMMANDER:

C. D. WILSON
1LT, AGC
Assistant Adjutant General

Cy furn:
Americal Div Arty
Americal Div

GPOP-DT (15 Feb 69) 3d Ind (U)
SUBJECT: Operational Report of HQ, Americal Div Arty for Period Ending 31 January 1969, RCS CSFOR-65 (R1)

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

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, except as indicated below.

2. Reference paragraph 2b, 2d Indorsement. Concur with action to obtain required repair parts prior to disassembly of weapons.

FOR THE COMMANDER IN CHIEF:

C. L. SHORTT
CPT, AGC
Asst AG

CHART RG	ENTRY RG	LINE NO	WD DIR	WD SP.	TEMP.	DEN.
6000	6000	02				

	Value	Std	Var	unit Cor	Plus	minus	Dh	+0.1	+0.3
AIR TEMP		100%	P	+25.5/-22.0			Cor Val		
AIR DENS		100%	P	-7.7/+7.6					
PROJ WT		4 SG	P	+27/+28					
	VE	m/s		DV RG					
PROP TEMP	to CH VE	m/s	17.0/-15.6						
	DV	m/s	unit corr	DV RG					
				DV/C/D/ST					

WIND DIR																
DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH WIND DIR																
WIND SPEED																
COMPONENT																
RG WIND																
UNIT CORR	10.2	8.2	10.2	8.2	10.2	8.2	10.2	8.2	10.2	8.2	10.2	8.2	10.2	8.2	10.2	8.2
	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
RG WIND COR																
DV/T/D/ST																
ROTATION				15		22		15			15		22		15	
TOT LG COR																
CH RANGE	6000		6000		6000		6000		6000		6000		6000		6000	
COR TT RG																
ROUND " "																
ELEV																
TOT EL COR																
TDE																

DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH DIR WIND																
WIND SPEED																
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
X WD COR																
CROSS WD																
UNIT CORR	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21
X WD COR																
RGE/INLET	5.4		5.4		5.6		5.7		5.7		5.7		5.6		5.4	
REG DEF COR																
GPT DEF COR																

BATTERY D DATE/TIME _____ CHARGE 4

1/82 Form 3-9, 13 Sept 68

Incl 1

BATTERY D DATE/TIME ______________ CHARGE 5

			CHART RG	ENTRY RG	LINE NO.	WD DIR	WD. SP.	TEMP	DENS
			7420	7400	02				
	Value	Std	Var	unit cor	Plus	Minus	Dh	+0.1	+0.3
AIR TEMP		100%	D I	+10.4 -10.6			Cor Val		
AIR DENS		100%	D I	-15.0 +14.4					
PROJ WT			D	-23 +24					
PROP TEMP	VE / Chg to VE / DV	Ms / mV / Ns	+19.0/ -19.0 / Unit cor	DV RG / DV RG / DV/T/D/WT					

WIND DIR																
DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH DIR WIND																
WIND SPEED																
	H	T	H	T	H	T	H	T	H	T	H	T	H	T	H	T
COMPONENT																
RG WIND																
UNIT CORR	9.8 +	-8.0 −	9.8 +	-8.0 −	9.8 +	-8.0 −	9.8 +	-8.0 −	9.8 +	-8.0 −	9.8 +	-8.0 −	9.8 +	-8.0 −	9.8 +	-8.0 −
RG WIND COR																
DV/T/D/WT																
ROTATION				20		28		20			20		28		20	
TOT RG COR																
CH RANGE	7420		7420		7420		7420		7420		7420		7420		7420	
TOT RG COR																
COR ENT RG																
ROUND " "																
ELEV																
TOT FZ COR																
TIME																

DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH DIR WIND																
WIND SPEED																
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
X WD COR																
CROSS WD																
UNIT CORR	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35
X WD CORR																
ROT/DRIFT	4.7		4.8		4.9		5.0		5.0		5.0		4.9		4.8	
REG DEF COR																
EFT DEF COR																

Incl 1

BATTERY D DATE/TIME ______________ CHARGE 5
1/S2d Form 3-9. 26 Aug 68

BATTERY D DATE/TIME _____ CHARGE 6

	CHART RG	ENTRY RG	LINE NO.	WD DIR	WD.SP.	TEMP	DENS
	10,000	10,000	03				

	Value	Sta	Var	unit cor	Plus	Minus	
AIR TEMP		100%	D 1	14.1 -16.2			Cor V4
AIR DENS		100%	D 1	-29.3 +27.5			
PROJ WT			D 1	-13 +15			
PROP TEMP	VE chg to VE		23.1/22.9	DV RG			
	DV		Unit cor	DV RG			
				DV/T/D/wt			

WIND DIR																
DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
ch dir wind																
WIND SPEED																
	H	T	H	T	H	T	H	T	H	T	H	T	H	T	H	T
COMPONENT																
RG WIND																
UNIT CORR	11.9 +	10.1 -	11.9 +	10.1 -	11.9 +	10.1 -	11.9 +	10.1 -	11.9 +	10.1 -	11.9 +	10.1 -	11.9 +	10.1 -	11.9 +	10.1 -
RG WIND COR																
DV/T/D/WT																
ROTATION				27		38		27			27		38		27	
TOT RG COR																
CH RANGE	10000		10000		10000		10000		10000		10000		10000		10000	
TOT RG COR																
COR ENT RG																
ROUND " "																
ELEV																
TOT EZ COR																
TIME																

DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH DIR WIND																
WIND SPEED																
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
X WD COR																
CROSS WD																
UNIT CORR	.46	.46	.46	.46	.46	.46	.46	.46	.46	.46	.46	.46	.46	.46	.46	.46
WD CORR																
ROT/DRIFT	9.1	/	9.2	/	9.4	/	9.5	/	9.6	/	9.5	/	9.4	/	9.3	/
REG DEF COR																
GFT DEF COR																

Incl 1

BATTERY D DATE/TIME_____ CHARGE 7

CHART RG 13000	ENTRY RG 13,000	LINE NO. 05	WD DIR	WD.SP	TEMP	DENS

	Value	Std	Var	unit cor	plus	Minus	Dh		
AIR TEMP		100%	D	+8.3 -11.9			Cor Val		
AIR DENS			D	-49.9 +46.3					
PROJ WT			D	-3 +4					
	VE			DV RG					
PROP TEMP	Chg to VE		25.5/25.3						
	DV		Unit cor	DV					
				DV/T/D/wt					

WIND DIR																
DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH DIR WIND																
WIND SPEED																
	H	T	H	T	H	T	H	T	H	T	H	T	H	T	H	T
COMPONENT																
RG WIND																
UNIT CORR	14.8	-12.1	14.8	-12.1	14.8	-12.1	14.8	-12.1	14.8	-12.1	14.8	-12.1	14.8	-12.1	14.8	-12.1
RG WIND COR																
DV/T/D/wt																
ROTATION				33		47		33			33		47		33	
TOT RG COR																
CH RANGE	12300		12300		12300		12300		12300		12300		12300		12300	
TOT RG COR																
COR ENT RG																
ROUND " "																
ELEV																
TOT FZ COR																
TIME																

DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH DIR WIND																
WIND SPEED																
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
X WD COR																
CROSS WD																
UNIT CORR	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55
X WD CORR																
ROT/DRIFT	8.5		8.7		8.8		9.1		9.2		9.1		8.8		8.7	
REG DEF COR																
GFT DEF COR																

Incl 1

[illegible] CHART 7 ([illegible] RANGE)

[illegible]	[illegible]	LINE NO	[illegible]	WD SP	TEMP	DENS
15000	15000	06				

	VALUE	STD	VAR	UNIT COR	PLUS	MINUS
AIR TEMP		100%	D	+20.2 +29.5		
AIR DENS		100%	I	+5 3.2		
PROJ WT		4 SQ	[illegible]	+3 4.3 +6		
	VE	M/S		DV RG		
PROP [illegible]	C VE [illegible]	M/S	+27.1 +26.2			
	DV	M/SCOR		DV [illegible]		
				[illegible]		

DN	+0.1	+0.3
COR VAL		

[illegible] DIR OF [illegible]	6400		0000		1600		2400		3200		4000		4800		5600	
[illegible]																
[illegible] SPEED																
	[illegible]	T	[illegible]	T	[illegible]	T	[illegible]	T	[illegible]	T	[illegible]	T	[illegible]	T	[illegible]	T
[illegible]																
[illegible]																
UNIT COR.	20.5	16.4	20.5	16.4	20.5	16.4	20.5	16.4	20.5	16.4	20.5	16.4	20.5	16.4	20.5	16.4
	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
[illegible] COR																
DV/[illegible]																
ROTATION				33		46		33			33		46		33	

TOT RG COR								
C RG	15000	15000	15000	15000	15000	15000	15000	15000
TOT RG COR								
COR [illegible] RG								
ROUND " "								
[illegible]								
[illegible] COR								
[illegible]								

DIR OF FIRE	6400		0000		1600		2400		3200		4000		4800		5600	
[illegible] WD																
[illegible] SPEED																
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
[illegible] COR																
[illegible]																
UNIT COR	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62
[illegible] COR																
ROT/DRIFT																
[illegible] DEF COR																
[illegible] DEF COR																

Incl 1

155 MM DATE/TIME _____ CHARG 4

CHART RG 5200	ENTRY RG 5200	LINE NO 01	WD DIR	WD SP	TEMP	EL

	Value	Std	Var	Unit Cor	Plus	Minus	Dh Cor Val
AIR TEMP		100%	D	+4.5 -0.1			
AIR DENS		100%	D	-6.7 +6.8			
PROJ WT			D	-35 +35			
	VE	m/s		DV RG			
PROP TEMP	CHTOVE	m/s +9.5 -7.5					
	DV	m/s unit corr		DV RG DV/T/D/Wt			

WIND DIR																
DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH WIND DIR																
WIND SPEED																
COMPONENT RG WIND																
UNIT CORR	4.5 +	2.0 -	4.5 +	2.0 -	4.5 +	2.0 -	4.5 +	2.0 -	4.5 +	2.0 -	4.5 +	2.0 -	4.5 +	2.0 -	4.5 +	2.0 -
RG WIND COR																
DV/T/D/WT																
ROTATION			12		16		12				12		16		12	
TOT RG COR																
CH RANGE	5200		5200		5200		5200		5200		5200		5200		5200	
COR ENT RG																
ROUND " "																
ELEV																
TOT EZ COR																
TIME																

CIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH DIR WIND																
WIND SPEED																
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
X WD CORR																
CROSS WD																
UNIT CORR	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21
X WD CORR																
ROT/DRIFT	8.0		8.0		8.2		8.2		8.3		8.2		8.2		8.0	
DEG DEF COR																
GET DEF COR																

Incl 2

155mm DATE/TIME _____ CHARGE 5

CHART RG	ENTRY NO	LINE NO	WD DIR	WD SP	TEMP	DENS
6500	6500	02				

	Value	Std	Var	unit corr	Plus	Minus
AIR TEMP		100%	D	+21.9 +21.6		
AIR DENS		100%	D	+12.7 +12.8		
PROJ WT			D	-15 +15		
	VE	n/a		DV RG		
PROP TEMP	Chg to VE	n/a	+3.3 -3.1			
	DV	n/a	Unit	DV RG DV/T/D/Wt		

Dh
Cor Val

WIND DIR																
DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH DIR WIND																
WIND SPEED																
	H	T	H	T	H	T	H	T	H	T	H	T	H	T	H	T
COMPONENT																
RG WIND																
UNIT CORR	10.2	9.3	10.2	9.3	10.2	9.3	10.2	9.3	10.2	9.3	10.2	9.3	10.2	9.3	10.2	9.3
	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
RG WD COR																
DV/T/D/WT																
ROTATION				15		22		15			15		22		15	
TOT RG COR																
CH RANGE	6500		6500		6500		6500		6500		6500		6500		6500	
TOT RG COR																
COR BAT RG																
ROUND # #																
ELEV																
TOT FZ COR																
TIME																

DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH DIR WIND																
WIND SPEED																
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
X WD COR																
CROSS WD																
UNIT CORR	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31
X WD COR																
ROT/DRIFT	8.1		8.1		8.3		8.5		8.5		8.5		8.3		8.1	
RNG DEF COR																
GFT DEF COR																

CHART RG	ENTRY RG	LINE NO	WD DIR	WD SP	TEMP	DENS
9000	9000	03				
				Dh		
				Cor Val		

	Value	Std	Var	Unit Cor	Plus	Minus
AIR TEMP		100%	D I	+17.2 -17.9		
AIR DENS		100%	D I	-25.6 +25.4		
PROJ WT			D I	[illegible]		
	VE		+6.4 -6.2	DV RG		
PROP TEMP	Chg to VE					
	DV		UNIT CORR	DV RG		
				DV/T/D/Wt		

WIND DIR																
DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH DIR WIND																
WIND SPEED																
	H	T	H	T	H	T	H	T	H	T	H	T	H	T	H	T
COMPONENT																
RG WIND																
UNIT CORR	12.2	10.5	12.2	10.5	12.2	10.5	12.2	10.5	12.2	10.5	12.2	10.5	12.2	10.5	12.2	10.5
	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-
RG WIND COR																
DV/T/D/WT																
ROTATION				21		30		21			21		30		21	
TOT RG COR																
CH RANGE	9600		9600		9600		9600		9600		9600		9600		9600	
TOT RG COR																
COR ENT RG																
ROUND " "																
ELEV																
TOT FZ COR																
TIME																

DIR OF FIRE	6400		0800		1600		2400		3200		4000		4800		5600	
CH DIR WIND																
WIND SPEED																
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
X WD CORR																
CROSS WD																
UNIT CORR	.48	.48	.48	.40	.48	.48	.48	.48	.48	.48	.48	.48	.48	.43	.48	.48
WD CORR																
ROT/DRIFT	9.7		9.8		10.0		10.2		10.2		10.2		10.0		9.8	
REG DEF COR																
GFT DEF COR																

1st/82d FORM 3-10
6 Sep 68

155mm Charge 6 DATE/TIME ________________

Incl 2

CHART RG	LINE?? RG	LINE NO.	WD DIR	WD SP	TEMP	DENS
12,000	12,000	05				
				Dh		
				Cor Val		

	Value	Std	Var	unit corr	Plus	Minus
AIR TEMP		100%	D / I	+12.8 / -11.3		
AIR DENS		100%	D / I	-15.4 / +15.1		
PROJ WT			D / I	-4 / +3		
	VE	m/s	D / I	DV RG		
PROP TEMP	Chg to VE	m/s	+7.1 / -6.9			
	DV	m/s	unit cor	DV [illegible]		
				DV/T/D/Art		

WIND DIR								
DIR OF FIRE	6400	0800	1600	2400	3200	4000	4800	5600
CH DIR WIND								
WIND SP								

	H	T	H	T	H	T	H	T	H	T	H	T	H	T	H	T
COMPONENT																
RG WIND																
UNIT CORR	15.5 +	12.8 -	15.5 +	12.8 -	15.5 +	12.8 -	15.5 +	12.8 -	15.5 +	12.8 -	15.5 +	12.8 -	15.5 +	12.8 -	15.5 +	[illegible]

	6400	0800	1600	2400	3200	4000	4800	5600
RG WIND COR								
DV/T/D/Art								
ROTATION		27	38	27		27	38	27
TOT RG COR								
CH RANGE	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
TOT RG COR								
COR ENT RG								
ROUND " "								
ELEV								
TOT FZ COR								
TIME								

DIR OF FIRE	6400	0800	1600	2400	3200	4000	4800	5600
CH DIR WIND								
WIND SPEED								

	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
X WD COR																
CROSS WD																
UNIT CORR	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60
X WD CORR																
RCT/DRIFT	11.2		11.[illegible]		11.5		11.8		11.9		11.8		11.5		11.3	
REG DEF COR																
GFT DEF COR																

1st/82d FOM 3-10
6 Sep 68
Incl 2

155mm Ch 7 DATE/TIME ______________

UNCLASSIFIED
Security Classification

DOCUMENT CONTROL DATA - R & D

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

1. ORIGINATING ACTIVITY (Corporate author) HQ, OACSFOR, DA, Washington, D. C. 20310	2a. REPORT SECURITY CLASSIFICATION Confidential 2b. GROUP 4

3. REPORT TITLE

Operational Report - Lessons Learned, Hq, Americal Division Artillery

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

Experiences of unit engaged in counterinsurgency operations, 1 Nov 68 to 31 Jan 69.

5. AUTHOR(S) (First name, middle initial, last name)

CO, Americal Division Artillery

6. REPORT DATE 15 February 1969	7a. TOTAL NO. OF PAGES 31	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. b. PROJECT NO. c. N/A d.	9a. ORIGINATOR'S REPORT NUMBER(S) 691085 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	

10. DISTRIBUTION STATEMENT

11. SUPPLEMENTARY NOTES N/A	12. SPONSORING MILITARY ACTIVITY OACSFOR, DA, Washington, D.C 20310

13. ABSTRACT

DD FORM 1 NOV 68 1473

UNCLASSIFIED
Security Classification

END

DATE
FILMED

6 69

U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
Springfield, VA 22161

FIRST CLASS

F

C01-6760
2085

Ref. No:428730026
D/A-20000

HINES, LESLIE

PAPERCOPY
BF$17.50
Copies:001
00928461

94290

[redacted] 503174130

Credit Card charged

009284610200F50317

AD 502062

This is not a bill. It is your record of shipment. An invoice will follow for ship and bill. For any adjustments on this order, please return this card with your correspondence.