

UNCLASSIFIED

AD NUMBER
AD875706
NEW LIMITATION CHANGE
TO Approved for public release, distribution unlimited
FROM Distribution authorized to U.S. Gov't. agencies and their contractors; Administrative/Operational Use; MAY 1970. Other requests shall be referred to Assistant Chief of Staff for Force Development [Army], Washington, DC 20310.
AUTHORITY
AGO D/A ltr, 29 Apr 1980

THIS PAGE IS UNCLASSIFIED

**THIS REPORT HAS BEEN DELIMITED
AND CLEARED FOR PUBLIC RELEASE
UNDER DOD DIRECTIVE 5200.20 AND
NO RESTRICTIONS ARE IMPOSED UPON
ITS USE AND DISCLOSURE.**

DISTRIBUTION STATEMENT A

**APPROVED FOR PUBLIC RELEASE,
DISTRIBUTION UNLIMITED.**

20
CB

AD875706



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

IN REPLY REFER TO

AGDA (M) (2 Oct 70) FOR OT UT 702222 6 October 1970

SUBJECT: Operational Report - Lessons Learned, Headquarters, 34th Engineer Group, Period Ending 30 April 1970

SEE DISTRIBUTION

1. Subject report is forwarded for review and evaluation in accordance with paragraph 4b, AR 525-15. Information of actions initiated as a result of subject report should be forwarded to ACSFOR OT UT 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

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 Engineer School
 - US Army Field Artillery School
 - US Army Infantry School
 - US Army Ordnance School
 - US Army Transportation School

Copies furnished:

- Office, Chief of Staff, US Army
- Deputy Chiefs of Staff
- Chief of Research and Development

UNCLASSIFIED REPORT
DISTRIBUTION NO FOREIGN WITHOUT APPROVAL OF
ASSISTANT CHIEF OF STAFF FOR FORCE DEVELOPMENT
(ARMY) ATTN: FOR OT UT, WASHINGTON, D.C. 20310

STATEMENT #2 UNCLASSIFIED

This document is subject to special export controls and each transmittal to foreign governments or foreign nationals may be made only with prior approval of

Protective marking cancelled when separated from inclosure.

D D C
RECEIVED
OCT 22 1970
RECEIVED

VB

FOR OFFICIAL USE ONLY

AD NO. —
DDC FILE COPY

DEPARTMENT OF THE ARMY
HEADQUARTERS, 34TH ENGINEER GROUP (COMBAT)
APO San Francisco 96320

EGF-OP

14 May 1970

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS GSFOR-65(R2)

THRU: Commanding Officer
20th Engineer Brigade
ATTN: AVBI-CS
APO 96491

Commanding General
United States Army, Vietnam
ATTN: AVHGC-DST
APO 96375

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

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

1. Section 1, Operations: Significant Activities.

a. Command.

(1) During the reporting period, Headquarters, 34th Engineer Group (Const) remained located in the MeKong Delta of South Vietnam. The major activities of the Group continued to include operational support to 3rd Brigade, 9th Infantry Division, Second Field Force Vietnam, (IIFFORCEV) and US units in the IV Corps Tactical Zone, lines of communication (LOC's), construction in the MACV Facility Program, airfield maintenance and upgrade, base construction, quarry operations, and support to the Revolutionary Development Program.

FOR OT UT
702222
Inclosure

FOR OFFICIAL USE ONLY

1

PROTECTIVE MARKING IS EXCLUDED
FROM AUTOMATIC TERMINATION
(PARA. 13, AR 340-16)

EGF-OP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

(2) Colonel John E Sterling continued to command the Group throughout the period.

(3) Organization Structure:

(a) The organization of 34th Group remained unchanged for the reporting period.

(b) The 34th Engineer Group (Const) organization chart as of 30 April 1970 is attached as Inclosure 1.

(c) Unit locations for this period were as follows:

1. 35th Engineer Battalion (Cbt), Binh Thuy, RVN
2. 36th Engineer Battalion (Const), Vinh Long, RVN
3. 69th Engineer Battalion (Const), Can Tho, RVN
4. 93rd Engineer Battalion (Const), Dong Tam, RVN
5. 94th Engineer Detachment (Quarry), Vung Tau, RVN
6. 67th Engineer Company (Dump Truck), Vung Tau, RVN. The 2nd platoon remained attached to the 93rd Engineer Battalion.
7. 523rd Engineer Company (Port Construction), Binh Thuy, RVN.
8. 702nd Powerline Detachment, Vung Tau, RVN.
9. 34th Engineer Group (Const), HHC, Binh Thuy, RVN

(4) Area of Responsibility: During the reporting period there was no change in the Group's AGR. Inclosure 2 portrays the Group AGR.

b. Personnel, Administration, Morale, Discipline.

(1) Strength:

(a) At the end of the reporting period the strength of the Group was

	CFF	WO	EM	Total
Authorized	176	35	3830	4041
Assigned	174	35	3725	3934

(b) During the reporting period the Group rotated approximately 29% of its total authorized strength. Critical personnel shortages as of 30 April 1970, are listed below:

FOR OFFICIAL USE ONLY

INCL

2

EGF-OP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

<u>MOS CODE</u>	<u>JOB DESCRIPTION</u>	<u>AUTH</u>	<u>ASGD</u>
00Z50	Sergeant Major	5	4
12B30	Combat Engineer	72	23
51G30	Structure Specialist	26	4
51D20	Mason	44	8
51F40	Construction Supervisor	4	3
51H40	Construction Foreman	118	73
51H50	Construction Supervisor	20	14
51K20	Plumber	131	84
62B10	Engineer Equip Repairman	101	38
62C30	Quarryman	31	6
62H20	Concrete Paving Equip Spec	28	15
62N40	Construction Machine Super	84	64
53A10	Mechanical Main Apprentice	27	7
71T20	Maintenance Data Specialist	28	8
76A10	Supply Clerk	41	25
76X40	Subsistence Storage Spec	13	1
81C20	Draftsman	3	0
82E20	Survey Supervisor	2	0
91B40	Medical Liaison Agent	4	1

(c) 171 personnel extended their foreign service tour during the reporting period.

(d) The following promotions were made during the reporting period:
E7 - 17, E5 - 288, E4 - 427.

(2) Awards: The following awards were presented to 34th Engineer Group personnel:

Medal	Qty
Silver Star	0
Legion of Merit	1
Soldiers Medal	9
Air Medal	3
Bronze Star with "V" for Valor	4
Bronze Star for service/achievement	147
Joint Service Commendation Medal	0
Army Commendation Medal with "V" for Valor	1
Army Commendation Medal for service/achievement	983
Purple Heart	13
Certificate of Achievement (20th Engineer Brigade)	44

INCL

3
FOR OFFICIAL USE ONLY

IGF-OP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

(3) Re-enlistment: During the reporting period the Group Reenlistment rate remained at 100% for RA Career personnel, while RA 1st Term and AUS rose from 38.6% to 44.4%. Percentages quoted are based on quotas established by USA:RV, which are derived from .5% of the assigned strength.

(4) Public Information Office: The Public Information Program of the 34th Engineer Group (Const) continued to be a showcase of energetic endeavor with the Group newspaper, the Delta Developer taking third place in the 1969 USA:RV Annual Journalism Awards Competition, mimeographed category. In quality and quantity of news story releases by US Army Engineer Command, Vietnam (P), the 34th Group Information Office ranked second among all engineer groups in Vietnam. Feature stories released to higher headquarters during this period totaled 86 while hometown news releases totaled 1472. In addition to the publication of the Delta Developer, publication to the Delta Pictorial and the Group Secop continued.

(5) Chaplain's Activities:

(a) Character Guidance Training increased slightly this quarter from 91% to 93% of present for duty strength. This increase is believed due to continued command interest in this area of training and aggressive leadership on the part of the chaplains within the 34th Engineer Group. A slight increase was registered in the number of classes held from 40 to 41 per month this quarter.

(b) Chapel attendance continues to remain strong at 29% of present for duty strength per week. This is the same per cent as registered last quarter. Continued emphasis on the number of worship opportunities available is the outstanding accomplishment in this area. The 35th Engineer Battalion was without a chaplain for half of this period. The 69th Engineer Battalion Chaplain rotated in March causing to the Group a loss of a Catholic chaplain for a short period of time.

(c) The number of men counseled by chaplains with the Group continues to remain high due to the concern evidenced by Command and chaplains to assist the soldier in any way possible. Chaplains of the 34th Engineer Group counseled an average of 131 cases per chaplain or an increase over the 92 per chaplain per month of last quarter.

(d) The two Chaplain's Fund operations within the 34th Engineer Group remain in good financial condition. Both funds contribute significantly to a more encompassing chaplain program within the 34th Engineer Group.

(e) The 34th Engineer Group Headquarters at Binh Thuy opened a new facility for Chapel services in February in a Chapel/Theater building erected by contractor. There are no chapel facilities available in the 36th Engineer Battalion area. The 35th Engineer Battalion utilizes a

FOR OFFICIAL USE ONLY

EGF-OP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

medium wall tent for Chapel services which required considerable repair this quarter. Both the 69th Engineer Battalion and the 93rd Engineer Battalion have adequate chapel facilities.

(6) Civilian Hires: During the reporting period an average of 818 permanent hire Vietnamese were employed by the 34th Group, and were paid salaries totaling 25,756,245 VN\$. Daily hire employees averaged 213 and were paid wages totaling 2,510,332 VN\$. A hire freeze continued in effect until early April when the 34th Group received a maximum civilian ceiling of 977 spaces.

c. Intelligence and Counterintelligence: The primary sources of intelligence information for the 34th Engineer Group (Const) are USARV Weekly Intelligence Review, the JICSUM from Phong Dinh Province, II Field Forces PERINTREP, USARV Combat Intelligence and Security Review, Weekly Combat Lessons Bulletin, Monthly Battle Field Reports, and Commander's notes. Local intelligence is obtained daily from Air Force Security Police Daily Summary and the IV Corps 24 hour SITREP. Additional information is received from National Police, Naval Intelligence Liaison Officer, and Office of Security Information in Can Tho. Enemy incidents information, LOC interdiction and damage assessments are received from Group subordinates by SPOTREP.

d. Plans, Operations, and Training.

(1) Operational Support:

(a) Combat and operational support effort for the months of February, March, and April averaged 15.4%. The effort on 30 Apr 70 was 20.4% of the total manhours expended in the Group.

(b) The 93rd Engineer Battalion completed a 40'x80' K-wall reveted communications facility at Tan An in support of the 3rd Bdc/9th Inf Division.

(c) The 69th Engineer Battalion completed refuel and rearm facilities at Vi Thanh Airfield. Project included 12 refuel pads, 5 rearm pads, 4 rearm storage sites and 1 CH-47 refuel pad.

(d) The 69th Engineer Battalion completed repairs of Vi Thanh Airfield. Project consisted of removing MSAI matting, compacting and shaping base material, and replacing the matting.

(e) The 69th Engineer Battalion also completed refuel and rearm facilities at Bac Liou and Ca Mau airfields. Total project included eighteen UH-1 refuel pads, two CH-47 refuel pads, eight rearm pads and 4 rearm storage sites.

(f) The 35th Engineer Battalion completed two radar bunkers, a 16'x30' at Chi Lang and a 20'x24' at Tinh Bien. A bunker was also constructed to protect the generators at Tien Bien.

5

FOR OFFICIAL USE ONLY

EGP-OP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

(g) The 93rd Engineer Battalion is presently engaged in a major repair of Ban Tre Airfield. The project includes removal of existing AM2 matting, compaction and crowning of base material, water proofing with asphalt, and replacing the matting. Also included is construction of eight UH-1 refuel pads, one CH-47 refuel pad, 3 roarm pads and 2 rearm storage sites.

(h) The 69th Engineer Battalion and the 36th Engineer Battalion are both constructing facilities for aviation unit relocations at Can Tho and Vinh Long Airfield respectively. The Can Tho construction consists of 42,000 Square Yards of CH-47 parking apron and 16 revetments with 3,000 Square Foot of maintenance shops, 15,000 Square Foot of BEQ/BOQ, 3,000 Square Feet of administration, water storage and electrical distribution. The Vinh Long construction consists of 20,000 Square yards of parking apron, 500 Square Yards taxiway and latrines and showers.

(i) The 35th Engineer Battalion is presently upgrading Moc Hoa Airfield. The project consists of removal of the MSA1 matting, shaping and compacting the base material and placing new MX-19 aluminum matting to upgrade the airfield for C-130 traffic.

(j) The 93rd Engineer Battalion is upgrading approximately 52 KM of secondary roads in Long An Province. Clay fill is hauled, compacted and shaped to form base. A laterite cap is then placed to make the roads capable of carrying all weather traffic. Bridges are being constructed or improved to be Class 12.

(2) Lines of Communication:

(a) During the past quarter, 34th Group has concentrated its greatest effort on the 1970 CENCOM LOC construction. The average level of effort during this period was 69.5%. The LOC construction effort peaked at 73.1% during the week of "Operation 25 Klicks." "Operation 25 Klicks" established the 20th Brigade goal of 25 kilometers and 34th Group goal of 10.5 kilometers of 2 lane asphalt paving during one week of operation. The 34th Group, with 3 paving trains, passed their goal by paving 13.24 kilometers.

(b) The 35th Engineer Battalion (Cbt) has retained its mission of upgrading QL-4 from Thanh Hoa to Soc Trang to Class "F" standards. The Battalion was also tasked with the mission of placing the asphaltic concrete surface on QL-4 between Cai Rang and Thanh Hoa. Bridge construction continued to require a large portion of the 35th Engineer Battalion's effort.

(c) The 36th Engineer Battalion (Const) has continued the Class "A" upgrade of QL-4. The 36th Battalion remained responsible for placing the asphaltic concrete surface between the My Thuan Ferry and Can Tho Ferry. The remaining work includes 20.0 kilometers of paving - two 2" lifts and 7 meters wide. LTL-7A, Vinh Long to Ap An Dien, is being upgraded to class "F" standards by the 36th Battalion. In April the 36th Battalion added a

FOR OFFICIAL USE ONLY

EGF-OP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for the Period ending 30 April 1970, RCS CSFOR-65(R2).

35 TPH continuous asphalt hot-mix plant to the existing 80 - 100 TPH plant system at Vinh Long.

(d) The 69th Engineer Battalion (Const) has concentrated its LOC effort on QL-4 between Cai Rang and Thanh Hoa and from Ba Cong to Binh Minh. One portion of this section of QL-4, called the Binh Minh Bypass, involved construction of over 3 kilometers of Class "A" highway through rice paddies. The embankment consists of paddy clay and clay-lime mixture. Over 50% of the Bypass was completed during the past quarter.

(e) The 93rd Engineer Battalion (Const), continued the Class "F" upgrade of TL-24 between My Tho and Go Cong. Four kilometers of roadway, called the Cho Gao Bypass, shaped through rice paddy and jungle, was initiated in mid-March and on 30 April was nearly 50% complete. The 93rd Battalion has also maintained a company sized effort on the Tactical (Secondary) Road net in Long An Province and completed all vertical construction at Tan An for the 3rd Bde/9th Inf Division.

(f) Rock Offload sites for LOC construction were maintained and operated at Phung Hiep, Soc Trang, Vinh Long, Ap Luoc Kay, Binh Minh, Dong Son, and Tan An by the 34th Engineer Group. The 94th Engineer Detachment (Quarry) continued to operate the Vung Tau quarry/crusher operation producing over 90,000 tons of crushed rock each month in support of the Delta Rock Agency.

(g) The 34th Group began preliminary planning for the 1971 LOC program during this period. The 279 kilometers of road programmed for upgrade includes LTL-6A, TL-26, LTL-7A, LTL-31, LTL-27, LTL-9, LTL-10, and LTL-8A.

(3) Base Construction

(a) 34th Group Base Construction for this period averaged 6.0% of the manhour effort. The base construction manhour effort at the end of April stands at 2.8%.

(b) The 69th Engineer Battalion completed a 30'x30' communications bunker at Bac Lieu.

(c) The 36th Engineer Battalion completed a 20'x20' communications bunker at Tra Vinh.

(d) The 35th Engineer Battalion completed a 20'x40', a 20'x20' and a 20'x30' communications bunkers at Long Xuyen, Rach Gia and Cai Mau respectively.

(e) The 93rd Engineer Battalion completed the 824 man cantonment for the 3rd Bde/9th Inf Division at Tan An. The scope included 48,000 square feet of BEQ, 16,000 square feet of BOQ, 20,000 square feet of administration, 3 each 40'x96' Pascoe buildings and 3,000 linear feet of electrical distribution.

7

FOR OFFICIAL USE ONLY

EGF-CP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

(f) The 35th Engineer Battalion completed the Cao Lanh Detention Center. Facilities included two 100 man barracks, two guard towers, kitchen facilities, and perimeter lighting and fencing.

(g) The 69th Engineer Battalion completed the 292nd Finance Center at Binh Thuy. The project included construction of a 40'x96' and 40'x144' Pascoo building, electrical wiring and a 8'x18'x10' reinforced concrete vault.

(h) The 93rd Engineer Battalion completed construction of the Tan An Dog Kennels. Project included a 2550 square foot kennel to house 26 scout dogs, water supply, and electrical wiring.

(i) The 35th Engineer Battalion is presently constructing facilities for the 52nd Signal Battalion Headquarters at Binh Thuy. Project includes construction of a 40'x96' Pascoo warehouse and a 40'x144' headquarters building.

(j) The 69th Engineer Battalion is constructing a 40'x78' messhall addition as part of the aviation unit relocation at Can Tho Airfield.

(k) The 94th Engineer Detachment (Quarry) is constructing a new and expanded crushing complex at Vung Tau. The new site is located on a sand fill approximately $\frac{1}{2}$ of a mile from the quarry.

(l) M.C.V facilities were completed at Tra Vinh, Moe Hoa, Long Phu, and Sa Dec. The development of the M.C.V facility by the 523rd Engineer Company (PC) at Sa Dec included a 1100 foot shoot pile sea wall and drainage system.

(m) MER construction was completed at Dong Son, Tan An and Ap Muoc Xay. The 93rd Engineer Battalion is currently constructing MER facilities at Tan An. This project includes six OIE revetments, four LOH6 revetments, eight UH-1 revetments, a 200'x220' parking apron, and a 240'x300' taxiway.

(4) Construction Support Operations:

(a) Tons of rock produced: 290,000 tons

(b) Tons of asphalt purchased: 27,482 tons

(c) Tons of asphalt produced: 34,513 tons

(5) Design and Construction Engineering:

(a) The engineering and plans section devoted a large portion of its effort in providing subordinate units with technical design assistance and information. During the last quarter significant design projects included:

FOR OFFICIAL USE ONLY

EGF-OP

SUBJECT: Operational Report - Lessons Learned by Headquarters, 34th Engineer Group (Const) for the period ending 30 April 1970, RCS CSFCR-65(R2)

Communications facilities at Tinh Binh and Moc Hoa; Chi Lang bunker; standard bridge abutment design; clay-lime-cement stabilization study; and 52nd Signal Battalion Headquarters building. The Engineering and Plans section also maintained the status reports on the 1970 LOC Road and Bridge Program. Preliminary planning for the 1971 LOC Program got underway with road and bridge reconns, land use requests, surveys, construction planning and estimates. The drafting personnel contributed substantially to the production of the Engineer Section by preparing drawings for projects designed at Group level, updating and drafting charts for briefings, and revising drawings produced by subordinate units.

(b) The Soils and Survey teams continued to devote the majority of their effort to supporting the 35th Engineer Battalion's construction of QL-4 south, Thanh Hoa to Soc Trang. CER, moisture, density, and Marshall Stability tests were an everyday occurrence in support of the 35th Battalion's Quality Control Program. The Soils Section also made gradation tests on rock from the offload sites at Phung Hiop and Soc Trang. The survey section continued the work of laying out bridge sites, staking out road centerlines, and taking cross-sections along QL-4. In addition to occasional support given to the other battalion's, the Survey and Soils teams contributed significantly to the Group Quality Control Program.

(c) The Group Quality Control Team made frequent visits to the battalion work sites to give assistance to the Group and Battalion Commanders in maintaining quality construction. The Quality Control Program has proven to be very successful.

(d) The Group Photography Section contributed significantly to the PIO publications, Liaison Officer, and Commander's briefings.

(6) Land Clearing:

(a) The 36th Engineer Battalion began land clearing operations on 11 Feb 70 in Sa Dec Province. In 17 days the land clearing team cleared 261 acres with their 5 romo plows and 2 bulldozers. The area generally consisted of small to medium sized trees in heavy underbrush and wet, swampy land with many canals. Enemy activity encountered consisted entirely of mines and booby traps. There were no US casualties. Security for the operation was provided by the Sa Dec Province Regional Forces. Combat engineer support and river transportation were provided by the 9th ARVN Infantry Division. The total friendly casualties consisted of 1 RF KIA and 5 RF MIA, all from booby traps. In addition to clearing the growth, the following were destroyed: 25 grenade traps, 3 ea 105mm mines, 1 ea 60mm mine, 89 ea 2 man bunkers, 16 ea 4 man bunkers, 8 ea 6 man bunkers, and 56 ea spider holes. Two cache's were found with a total of 320 lbs rice, 1 barber set, and 2 sets of documents. Two Hoi Chans surrendered to the security company.

FOR OFFICIAL USE ONLY

EGF-CP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(A2)

(b) After 7 days standown for maintenance in the battalion area, the land clearing team began movement by ARVN river boats and then by ARVN lowboys, to arrive at Tinh Bien in Chau Doc Province, within 10 km of the Cambodian border. The clearing operation finally got off to a good start at clearing on 11 Mar 70 and in the next 13 days, cleared 536 acres of large bamboo trees and other hardwoods. The area was dry sandy and dust, with the heat and dust increasing the maintenance problems. In addition to clearing the land, the following were destroyed: 66 ea 2 man bunkers, 54 ea 4 man bunkers, 25 ea 6 man bunkers, 12 ea 8 man bunkers, 5 ea 10 man bunkers, 19 ea booby trapped grenades, 8 ea mortar rounds, 3 ea rockets, 4 ea mines and 2 ea 500 lb bombs. One cache of 5 ea rifles, 2 ea VC flags and medical supplies were also discovered. There were no US casualties in this area. The local security was provided by two Regional Force Companies from Chau Doc Province. One RF was wounded by a booby trap during that part of the operation.

(c) Coinciding with the completion of that area was an increase in enemy activity, so the land clearing team withdrew to a local MACV site to allow the security forces to participate fully in offensive operations. After 5 days of maintenance the new area was determined to be secure and the team moved back out to commence cutting on 29 Mar 70. The new area was a thick forest and more enemy resistance was encountered in the clearing of 501 acres in 18 days. There were two dozers hit by 3-40 rockets, the night defensive position was attacked by ground forces one night and several booby traps were encountered which were set up in trees where the shrapnel could hit the dozer operator. A total of 12 US from the land clearing team were wounded plus one advisor was killed by a land mine while driving a jeep. In addition to the landclearing, 24 earthen bunkers, 14 concrete bunkers, 13 mines and 19 grenade traps were destroyed. 3 ea RF's were killed and 20 RF's wounded from the security forces.

(d) The land clearing team again moved back to the battalion area for 5 days maintenance stand down and 26 Mar 70, moved into Vinh Long Province for present clearing operations. The present area is again a wet, soft area with many canals throughout the area.

(e) Our experience gained in land clearing in the swampy delta areas during the dry season shows that rano plows can clear only 40% as much per day as when working on dry land.

(7) Training:

(a) Other than the training required by US AR Reg 350-1 and 20th Engineer Brigade Reg 350-1, the 34th Engineer Group personnel received training from Quinton-Budlong representatives on special MC, LOC equipment. In addition selected soldiers were sent to USAECV(P) classroom and laboratory instruction on soils testing and equipment. On-the-job training on all pieces of equipment has been continual practice.

FOR OFFICIAL USE ONLY

EGF-OP

SUBJECT: Operational Report - Lessons Learned by Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2).

(b) Units of the 34th Group trained 19 personnel from the 7th ARVN Engineer Group. Eleven of these were trained as mechanics and eight were trained as wheel tractor 290M operators. Classroom and OJT lasted from 34 to 63 days.

(c) Civilian hires were trained to be carpenter, masons, equipment operators, rock crusher operators and asphalt plant operators.

(7) Civic Action: Due to the concentrated troop and equipment effort on LOC construction, very little civic action construction could be done. However, the doctors and medical personnel of the 34th Group units took an active interest in providing medical aid to local nationals through Medcap.

c. Logistics.

(1) Rock:

(a) The Lines of Communications Program (LOC) has been delayed significantly by delay in shipment of crushed rock scheduled for delivery through the construction season. The amount of crushed rock shipped to the Delta versus the amount required during February, March and April 1970, illustrates the adverse effect that material non-deliveries had on construction.

<u>MONTH</u>	<u>SHIPPED</u>	<u>PROGRAMMED REQUIREMENTS</u>
February	156,133	319,000
March	165,306	345,645
April	175,977	384,380

(b) In February the rock shipments fell short due to the short month, and the TET Holiday when all OICC and ARVN operated offload sites and quarries were closed.

(c) In March the delay in rock shipments was due to strikes at OICC operated offload sites and quarries and to the closing of the canal out of Nui Sap Quarry while the Long Xuyen bridge was being repaired.

(d) In April the delay in shipping was due to the diversion of barges for shipping of sand from Thu Duc for thirteen days of the month and the shipping of less than six barges of rock a day from the Nui Sap Quarry.

(e) Many other problems delayed shipments during this three month period such as inoperative equipment at quarries and offload sites, responsiveness of tugs and barges, to tides and lack of necessary security.

//

FOR OFFICIAL USE ONLY

EGF-OP

SUBJECT: Operational Report - Lessons Learned by Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

(2) Transportations:

(a) Transportation of construction materials into the Delta continued to be a severe problem. Local support units are only authorized to be supplied by water and air and are not permitted to run convoys to the major depot in the Long Binh area. This necessitates the multiple handling of materials (i.e., from the depot to Newport docks or an airfield to be loaded on a carrier, unloading of the materials at an airfield or across the beach, and then moving the materials to the requisitioning or local DS unit). This multiple handling, in addition to being time consuming, increases the possibility of loss and damage to material. Unit convoys continue to be, in many cases, the only rapid means of supply.

(b) Although nine LCU's and five LST's have been dedicated to resupply of the Delta, supporting transportation is still unable to keep pace with consumption. A major bottleneck in the water resupply system is the poor turn-around time of boats, caused primarily by slow port operations at Binh Thuy and Can Tho. This situation has worsened in the last few months due to the build up of cargo on the ARVN beach and the lack of material handling equipment and haul capability within the Delta.

(c) The troop reduction program, with simultaneous emphasis on reduction of materials inventory has also made it difficult at times to locate materials for Operational Support type projects where there is little lead time in which to requisition.

f. Maintenance: Maintenance work load increased during the last three months mainly due to the addition of over 150 items of critical equipment, including an asphalt plant, three paving trains, and a land clearing mission. Repair parts for the asphalt plant, paving trains and some plows have been extremely hard to find. Repair parts for the asphalt plant must be rebuilt at Vinnet Corporation located at Cam Ranh Bay and flown to Vinh Long. Damage to track frames, equalizer bars, and equalizer bar pads by mines cause a high loadline of some plows. Parts for graders, 10 ton rollers, AC scoop loaders and bituminous distributors remained critical and provided the largest reduction in production.

g. 523rd Engineer Company (Port Construction).

(1) Command:

(a) The 523rd Engineer Company (Port Construction) remained at Binh Thuy, RVN, APO 96320, during this reporting period.

(b) CPT Jerry W Luoma assumed command on 22 February 1970 and commanded throughout the major part of the reporting period.

(2) Personnel, Administration, Morale, and Discipline:

FOR OFFICIAL USE ONLY

EGF-OP

SUBJECT: Operational Report - Lessons Learned by Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

(a) At the end of this report period the unit strength was:

	<u>OFF</u>	<u>WO</u>	<u>EM</u>
Previously Authorized:	9	1	215
Presently Authorized:	9	1	169
Presently Assigned:	7	1	131 (as of 30 Apr 70)

(b) During the reporting period the overall strength dropped approximately 38 men to DEROS, however these personnel spaces are expected to be filled during the next quarter.

(c) The foreign Service Tour Extension Program produced the following results:

Total Eligible for DEROS:	72
Extended beyond DEROS:	5
DEROS'ed.	67

(d) Reenlistments during the period: 1

(e) No unusual disciplinary problems occurred. Disciplinary Actions during the period were as follows:

Article 15's - 12
Summary Court Martials - 0
Special Court Martials - 1
General Court Martials - 0

(f) Promotions:

E-6 - 1
E-5 - 10
E-4 - 17

(g) Awards:

Bronze Star - 13
Army Commendation Medal - 40
Brigade Certificate of Achievement - 0

13 FOR OFFICIAL USE ONLY

EGF-OP

SUBJECT: Operational Report - Lessons Learned by Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

(h) News releases - 27

(i) Feature stories - 1

(3) Plans Operational and Trainings

(a) The 523rd Engineer Company (PC) during this period engaged in 84½ working days and 4½ days of training. The training consisted of classes on pertinent military subjects, personnel hygiene, safety and familiarization of weapons and equipment.

(b) The principal operational activity during the reporting period consisted of work on nine projects. Projects worked are as follows:

1. The Sa Doc Seawall was constructed at the MACV compound, to prevent further erosion of the land. The project consists of approximately seven miles of wood, steel "H" pile, and sheet pile. SD: 15 July 1969, CD 9 March 1970.

2. The Vinh Long Rock Offloading facility project consisted of the disassembly of the old damaged pier, and replacing of wood pile, caps, stringers and decking. This work was accomplished while rock offloading continued. SD: 27 Jul 69, CD: 11 Feb 70.

3. At Vung Tau recrusher site the service platoon with assistance of crews from the 36th Engineer Battalion and the 93rd Engineer Battalion drove approximately one mile of "H" pile, and sheet pile for head walls and ramps. They also placed concrete for seven pads for crushing equipment and generator shed. This work was accomplished in support of the 94th Engineer Detachment (Q). SD: 24 Jun 69. CD: Feb 70

4. The Dong Son Rock pier project consisted of driving pile and constructing dolphins for a temporary rock offloading site to be used by the 93rd Engineer Battalion on TL-21. SD: 28 Jan 70, CD: 6 Feb 70.

5. The Tan An mooring dolphins and repair work consisted of driving seven mooring dolphins, replacement of docking on pier, and the installation of additional diagonal bracing on pier have been completed, and three dolphins constructed. Construction of four additional dolphins deferred to a later date. SD: 16 Mar 70, CD: 15 Nov 70.

6. Bridge 5 on LTL-7A involved the demolition of existing concrete piers, and driving four steel "H" pile bridge piers. This work is in support of the 36th Engineer Battalion. SD: 20 Mar 70, CD: 15 May 70, (Piers Only)

7. Bridge 4 on LTL-7A involved demolition and dredging of existing piers and the driving of four steel "H" pile bridge piers. This work is in support of the 36th Engineer Battalion. SD: 25 Feb 70, CD: 15 May 70 (Piers Only).

14

FOR OFFICIAL USE ONLY

EGF-OP

SUBJECT: Operational Report - Lessons Learned by Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

8. The Thanh Tan rock offloading facility work consisted of driving a sheet pile headwall with wing walls and deadman system to provide a hard stand for off-loading rock barges. This project was in support of the 69th Engineer Battalion. SD: 3 Apr 70. CD 15 Apr 70.

9. Bridge 2 on QL-4 consists of driving sheet pile headwall and a mono-tube abutment. This project is in support of the 35th Engineer Battalion. SD: 28 Apr 70, and is in progress at this time.

h. 57th Engineer Company (Dump Truck).

(1) Command:

(a) During the reporting period this unit continued to support the 94th Engineer Detachment (Quarry). The 2nd platoon continued to support the 93rd Engineer Battalion at Dong Tam. During the latter portion of the reporting period, Vietnamization of the Vung Tau operation was well underway.

(b) CPT Thomas R Marshall was the commanding officer for this quarter.

(2) Personnel, Administration, Morale, and Discipline:

(a) At the end of the reporting period the personnel strength was:

	OFF	WO	EM	TOLL
AFTH	3	1	109	113
ASSG	3	0	147	150

(b) During the reporting period 33.7% of the unit's personnel rotated to CONUS.

(c) During the reporting period there were 42 awards and decorations given to individuals of this unit. There were no IG complaints, no class I or Class II offenses and no AWOL during this period. Personnel within the unit received 31 Company Grade Article 15's.

1. 94th Engineer Detachment (Quarry).

(1) Command:

(a) CPT Clyde H Madry Jr took command on 3 Jan 70 and has commanded through this reporting period.

(b) The 94th Engineer Detachment (Quarry) has remained in Vung Tau, RVN, for the entire period.

(2) Personnel, Administration, Morale and Discipline:

FOR OFFICIAL USE ONLY

EGF-OP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

(a) The status of personnel at this unit for the end of the reporting period was as follows:

	OFF	WO	EM	TOTAL
AUTH	4	1	191	196
ASSG	7	2	254	263

These figures show that there was an increase of 17 men over the previous reporting period.

(b) Extensions during the period were as follows:

Eligible for extension	150
Extension beyond DEROs	30
Extension beyond DEROs	76

(c) During the reporting period there were 42 awards and decorations given to individuals of this unit.

(d) Personnel of the 94th Engineer Detachment received 118 Delinquency Reports, no field grade Article 15's, nine company grade Article 15's, no Summary Courts Martial, one Special Court Martial. There were, one IG complaint, no Class One offenses, no Class Two offenses and 1 AWOL.

(3) Plans, Operations, and Training:

(a) The 94th Engineer Detachment (Q) is engaged in rock crushing and loading operations. During the period the amount of rock crushed by size is as follows:

	$\frac{2''}{-0-}$	$\frac{1\frac{1}{2}''}{-0-}$	$\frac{3}{4}''$	$\frac{3}{8}''$
	239,092		56,918	23,391

(b) During the period the following amount of rock by sizes was loaded on barges:

	$\frac{2''}{-0-}$	$\frac{1\frac{1}{2}''}{635}$	$\frac{3}{4}''$	$\frac{3}{8}''$
	209,121		52,698	6,449

(c) Local issues for the period were as follows:

	$\frac{2''}{-0-}$	$\frac{1\frac{1}{2}''}{-0-}$	$\frac{3}{4}''$	$\frac{3}{8}''$
	4,290		21,469	4,990

(d) Stock piles as of 30 April 1970 were as follows:

	$\frac{2''}{-0-}$	$\frac{1\frac{1}{2}''}{-0-}$	$\frac{3}{4}''$	$\frac{3}{8}''$
	875		781	960

EGF-OP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 94th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

(a) The operations of the 94th Engineer Detachment (Q) were supported by elements of the 67th Engineer Company (DT) and 702nd Powerline Detachment.

(f) The 94th Engineer Detachment (Q) engaged in 83 working days and 6 days training. The training consisted of classes on pertinent military subjects and maintenance.

J. 702nd Powerline Detachment.

(1) Command:

(a) The 702nd Powerline Detachment remained in Vung Tau, RVN in support of the 94th Engineer Detachment (Quarry) construction.

(b) During this period the commanding officer was as follows:

1. First Lieutenant Dale Jopson, 1 February 1970 to 26 February 1970.

2. First Lieutenant James Lossman, 26 February 1970 to 8 March 1970.

3. Captain John W McCoy, 8 March 1970 to 30 April 1970.

(2) Personnel, Administration, Morale and Discipline:

(a) As of 30 April 1970, the unit is at authorized strength of 13 enlisted men and 1 officer.

(b) No unusual disciplinary problems developed during this period.

(3) Plans, Operations, and Training:

(a) During the reporting period the unit was employed on the following projects:

1. The installation of the electrical powerlines for the Cao Lanh Detention Facility.

2. The installation of the power distribution system for the primary and secondary lines at the 94th Engineer Detachment (Quarry) rock crusher site. Two transformer banks were installed in this operation.

(b) Training for this quarter was consistent with pertinent regulations.

EGF-OP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for period ending 30 April 1970, RCS CSFOR-65(R2)

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

a. Personnel. None

b. Intelligence. None

c. Operations.

(1) Civilian Hires:

(a) OBSERVATION. Vietnamese civilian employees are used to the maximum extent in an effort to complete mission.

(b) EVALUATION. The Vietnamese civilians have proven to be effective equipment operators, truck drivers, carpenters, and masons. Vietnamese employees can be used in base construction work which would result in release of U.S. military personnel for Operational Support missions.

(c) RECOMMENDATION. That Vietnamese hiring program be reviewed to allow increased numbers of Vietnamese civilians to be hired in the skilled levels.

(2) US/ARVN Affiliation:

(a) OBSERVATION. An affiliation program was instituted in the 34th Group during this reporting period. Each battalion within Group has been assigned one or more ARVN Engineer Battalions as an affiliate unit.

(b) EVALUATION. The purpose of this program is to establish specific ties between two units with the same mission - Engineer Support. By establishing this permanent relationship between the ARVN and US units, close social, technical, and operational ties will develop. The program has proven to be very valuable and has generated interest in joint training and operational mission.

(c) RECOMMENDATION. That the ARVN/US Affiliation Program be continued and expanded.

d. Organization. None.

e. Training.

(1) US/ARVN Mechanics OJT Programs:

FOR OFFICIAL USE ONLY

EGF-OP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for Period Ending 30 April 1970, RCS CSFOR-65(R2)

(a) OBSERVATION. The mechanics OJT programs disclosed that interpreters are the key to an effective training program.

(b) EVALUATION. Due to the importance of a mechanic developing proper thought patterns in attempting to diagnose mechanical difficulties, it is necessary to have constant communication between the instructor or demonstrator and the trainee.

(c) RECOMMENDATION. During the OJT of mechanics or other technical skills an interpreter is necessary for each work group. A desirable rate is one interpreter per 2-3 trainees.

(2) Driver Training:

(a) OBSERVATION. During the reporting period, the 67th Engineer Company (DT) found it necessary to train many replacement drivers from CONUS. The lack of knowledge demonstrated by the replacements relating to motor stables and safe driving habits suggests deficient preparation in AIT.

(b) EVALUATION. This situation has contributed to a relatively sharp increase in the deadline rate of critical items. Much valuable supervisory time has been wasted on retraining U.S. personnel.

(c) RECOMMENDATION. It is recommended that the AIT for all 64A and 64B MOS personnel be reviewed for effectiveness.

f. Logistics.

(1) Rome Plow Deadline:

(a) OBSERVATION. Damage to track frames, equilizer bars, and equilizer bar pads by mines caused a high deadline rate with Rome Plows.

(b) EVALUATION. These parts are almost never replaced in normal usage and have low demand data causing them not to be stocked.

(c) RECOMMENDATION. That a PLL of parts required by land clearing dozers be required before the unit goes to the field.

(2) Repair Parts for Construction Equipment:

(a) OBSERVATION. Deadline construction equipment has critically limited construction.

(b) EVALUATION. Unavailability of parts for graders, 10 ton rollers AC scoop leaders, and bituminous distributors caused the most serious delay in construction progress.

EGF-OP

SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th Engineer Group (Const) for the period ending 30 April 1970, RCS CSFOR-65(R2)

(c) RECOMMENDATION. That these items be command managed by logistical personnel to improve the procurement of repair parts.

g. Communications.

(1) AM/FM Radio Equipment:

(a) OBSERVATION. The FM radio equipment organic to a Port Construction Company is both insufficient in quantity and inadequate in capability.

(b) EVALUATION. The 523rd Engineer Company (Port Construction) presently has two LCM8's, two self propelled barges and three pile driving barges. These elements frequently operate independently at ranges in excess of 75 miles from the Company Headquarters. An AM radio communication net has been established within this unit utilizing equipment on hand receipt from several Bn's within the 20th Brigade. The resulting increase in reliable communications has greatly increased the effective utilization of equipment within this unit.

(c) RECOMMENDATION: AM communication equipment be made available.

h. Materials.

(1) Pile Driving:

(a) OBSERVATION. The diesel and drop hammers organic to Engineer Units for pile driving are, at best cumbersome for driving sheet pile.

(b) EVALUATION. The 523rd Engineer Company (Port Construction) has procured and used a non-military pneumatic hammer with great success. The hammer is lighter than diesel hammers and consequently easier to handle. In addition, it causes less wear and tear on the crane than the drop hammer. Since it is pneumatic, it is easily maintainable.

(c) RECOMMENDATION: The 523rd Engineer Company (RC) has a great deal of experience with diesel, pneumatic and drop hammers. It is recommended that pneumatic hammers be made available to Engineer Units.

EGF-OP
SUBJECT: Operational Report - Lessons Learned of Headquarters, 34th
Engineer Group (Const) for period ending 30 April 1970, RCS
CSFOR-65(R2)

- 2 INCL
2 Incls w/d HQ DA
1. Gp Organizational Chart
2. Gp AOR May

Alfred F. Lawrence Jr.
ALFRED F LAWRENCE JR
LTC, CE
Acting Commander

Copies Furnished:
1 - CO, 35th Engr Bn
1 - CO, 36th Engr Bn
1 - CO, 69th Engr Bn
1 - CO, 93rd Engr Bn
1 - CO, 523rd Engr Co
1 - CO, 94th Engr Det
1 - CO, 67th Engr Co

FOR OFFICIAL USE ONLY

AVBI-OS (14 May 70) 1st Ind
SUBJECT: Operational Report - Lessons Learned of Headquarters,
34th Engineer Group (Const) for Period Ending 30 April
1970, RCS CSPOR-65 (R2)

DA, HEADQUARTERS, 20TH ENGINEER BRIGADE, APO 96491 11 JUN 1970

TO: Commanding General, United States Army Vietnam, ATTN:
AVHGC-DST, APO 96375
Assistant Chief of Staff for Force Development, Department
of the Army, Washington, D. C. 20310

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

2. This headquarters concurs with the submitted report with the
following comments:

a. Section 2, paragraph e (1), page 18-19: Non-concur: To
date, the mechanics OJT program has graduated 10 ARVN personnel.
The recommendation that one interpreter be assigned for every
2-3 trainees is not realistic. Present assignment of interpreters
within the Brigade is based on operational requirements. Classes
for 10-15 trainees could easily be handled by one interpreter.

b. Section 2, paragraph g, page 20: Concur: The AM net
for this unit was established by transferring AN/GRC-106 radios
from the Group Headquarters. Recommend that required equipment
be submitted on a MTOE change with a request for temporary loan
until such change is approved. Should another situation arise
requiring AM voice communications, the TOE resources will not be
available.

FOR THE COMMANDER:

D. L. Mc Bride

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

Copy Furnished:
CO, 34th Engr Gp

PROTECTIVE MARKING IS EXCLUDED
FROM AUTOMATIC TERMINATION
(PARA. 13, AR 340-16)

22

FOR OFFICIAL USE ONLY

AVHGC-DST (14 May 70) 2d Ind
SUBJECT: Operational Report-Lessons Learned of Headquarters, 34th
Engineer Group (Const) for period ending 30 April 1970, RCS
CSFOR-65 (R2)

Headquarters, United States Army Vietnam, APO San Francisco 96375 17 JUL 1970

TO: Commander in Chief, United States Army Pacific, ATTN: GPOP-DT,
APO 96375

1. This Headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 30 April 1970 from Headquarters, 34th Engineer Group (Const) and comments of indorsing headquarters.


2. Comments follow:

a. Reference item concerning "Rome Flow Deadline," page 19, paragraph 2(f): concur. The commander maintaining the prescribed load is the approving authority for PLL's IAW C1, AR 735-35, paragraph 6-2c. The appropriate commander has been notified of this comment. No action by USARPAC or DA is recommended.

b. Reference item concerning "Repair Parts for Construction Equipment," page 19, paragraph 2(f)(2): concur. These items are already managed by USARV. No action by USARPAC or DA is recommended.

c. Reference item concerning "Pile Driving," page 20, paragraph 2(h): nonconcur. Action is required at unit level to submit MTOE/MTDA changes as appropriate. Unit has been so advised.

FOR THE COMMANDER:



D. J. Winter
CPT, AGC

Assistant Adjutant General

Cy furn:
20th Engr Bde
34th Engr Gp

FOR OFFICIAL USE ONLY

GPOP-DT (14 May 70) 3d Ind
SUBJECT: Operational Report of HQ, 34th Engineer Group (Const)
for Period Ending 30 April 1970, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 5 AUG 70

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

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:

D.D. Cline
D.D. CLINE
2LT, AGO
Asst AG

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1. ORIGINATING ACTIVITY (Corporate author) HQ DA, OACSFOR, Washington, D.C. 20310		2a. REPORT SECURITY CLASSIFICATION FOR OFFICIAL USE ONLY 2b. GROUP Protective Marking is Excluded from Automatic Termination
3. REPORT TITLE Operational Report - Lessons Learned, HQ, 34th Engineer Group		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Experiences of unit engaged in counterinsurgency operations 1 Feb to 30 Apr 70.		
5. AUTHOR(S) (First name, middle initial, last name) CO, 34th Engineer Group		
6. REPORT DATE 14 May 1970	7a. TOTAL NO. OF PAGES 27	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) 702222	
8c. PROJECT NO. N/A	8d. 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 DA, OACSFOR, Washington, D.C. 20310
13. ABSTRACT		