UNITED STATES ARMY ALASKA

EXERCISE "LITTLE BEAR"

FINAL REPORT

HEADQUARTERS, UNITED STATES ARMY, ALASKA

1 JUN 60


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MANEUVER AREA,
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HEADQUARTERS
UNITED STATES ARMY, ALASKA
APO 949, Seattle, Washington

ARAGT-O 268

1 June 1960

SUBJECT: USARAL Final Report on Exercise LITTLE BEAR (RCS CSGPO-(OT)-183)

TO: Commanders, Units, Organizations, Installations and Activities Indicated in Distribution

1. Attached is United States Army, Alaska (USARAL) Final Report of Exercise LITTLE BEAR which was conducted during the winter of 1959-1960.

a. A separate cost report for Exercise LITTLE BEAR will be submitted, not later than 1 June 1960, in compliance with subparagraph 9b, Letter, AGAM-P 345.2 (1 Jul 59), Department of the Army, DCSOPS, 20 July 59, subject: "Directive for Exercise LITTLE BEAR."

b. CONUS forces will submit a separate report in compliance with subparagraph 9a, DA Letter cited above, with information copy to Commanding General, USARAL.

c. Classified annexes to the Final Report, Exercise LITTLE BEAR will be distributed separately.

2. Exercise LITTLE BEAR was a partly free, partly controlled maneuver involving the 1st Battle Group, 9th Infantry (reinf) as Aggressors, and the 1st Battle Group, 12th Infantry, 4th Infantry Division (reinf) as US Forces.

3. The Exercise provided for cadre training of CONUS units at the United States Army Cold Weather and Mountain School, Fort Greely, Alaska. This cadre then conducted further training of individuals and small units, in cold weather operations at Fort Richardson, Alaska. In the final phase, a ten day field exercise in the Lake Louise area terminated Exercise LITTLE BEAR. In addition to providing a vehicle for training battle groups for operations in extreme cold, various user tests were conducted.

4. The tactical play of the Exercise required the US Force, with a high degree of air mobility, to attack and destroy enemy forces in the vicinity of Gulkana; and be prepared, on order, to continue the attack to seize Tok Junction or Big Delta Junction. The Aggressor Force, with a high degree of ground mobility was given the mission of attacking south to seize Tahneta Pass on the Glenn Highway; and on order, continue the attack to seize the Fort Richardson-Elmendorf-Anchorage complex (see figure 2, (Part II) to Section IV). Simulated nuclear weapons were employed during the second half of the Exercise.

5. The action began with both forces moving to contact at Tolsona Creek. The movement was characterized by the combined use of helicopters and skis by the US Force. Aggressor movement was characterized by the use of armored personnel carriers and M41 tanks. Snowshoes and skis were also employed in patrol and attack situations. As both sides employed nuclear weapons, it became apparent that skillful use of nuclear weapons dominate today's battlefield. Maximum utilization of cross-country and airlift capabilities were required for rapid exploitation and dispersal of units, under nuclear conditions. Also, it became evident that combined cross-country and airlift capability is more desirable for accomplishment of the mission than providing forces with either a ground or air-mobility only. For realism and maximum training value, nuclear, electronic psychological, chemical and biological warfare were played throughout the Exercise. Special Forces teams were employed for behind-the-lines activities on both sides. A more realistic portrayal of the capabilities and limitations of the forces involved could have been realized by the participation of close air support by tactical air.

6. Section VII of this report contains the consolidated conclusions and recommendations of this Headquarters. Exercise LITTLE BEAR proved to be an outstanding training vehicle for the STRAC forces as well as the USARAL troops. Additionally the Exercise served as a very realistic test vehicle of doctrine and equipment in northern areas. It also provided a basis for modernizing and improving equipment stocks in this theater.

FOR THE COMMANDER:

[redacted]

WALTER V. NICHOLS
Major, AGC
Asst Adjutant General

1 Incl
Final Report
Exercise LITTLE
BEAR

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UNITED STATES ARMY, ALASKA

FINAL REPORT
EXERCISE LITTLE BEAR

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FINAL REPORT EXERCISE LITTLE BEAR

SECTION I - GENERAL

1. GENERAL. a. Final Report, Exercise LITTLE BEAR, is divided into sections as indicated in the Table of Contents. Conclusions and recommendations have been consolidated in Section VII, Conclusions and Recommendations.

b. Exercise LITTLE BEAR was conducted in compliance with Letter, AGAM-P 354.2 (1 Jul 59), Department of the Army, DCSOPS, 20 July 1959, subject: "Directive for Exercise LITTLE BEAR."

(1) The Exercise was organized initially as a free maneuver. In the middle of the problem partial control was exercised to test commanders reaction to uneffected situations. The US Force was represented by the 1st Battle Group, 12th Infantry (reinf), 4th Infantry Division, Fort Lewis, Washington, and the Aggressor Force was represented by the 1st Battle Group, 9th Infantry (reinf), Yukon Command, USARAL.

(2) The Main Command Post, Headquarters, USARAL, operated as the Maneuver Director Headquarters, and represented the higher headquarters of each side, but was neutral as far as tactical directions were concerned.

(3) The Exercise had no planned scenario. Tactical play was initially left to the ingenuity of each battle group commander. During the controlled phase of the Exercise, mission type orders were issued to each task force by the Maneuver Director.

(4) Control was exercised by umpires organized on a modified area umpire system. The umpire organization is discussed in Part VII, Section IV.

c. The Exercise was conducted approximately 170 miles northeast of Anchorage, Alaska, in the Lake Louise-Gulkana area. The area consisted of a rough rectangle 50 miles long and 25 miles wide. This particular area was selected because it represented all typical features of northern regions with low elevation, rolling hills, numerous lakes and muskeg and provided a history of extreme cold and adequate snow. It was a typical undeveloped area with no road net or other lines of communication. (See map on inside of front cover.)

2. MISSION. a. The objectives for Exercise LITTLE BEAR as stated in paragraph 3, DA Letter cited in 1b, above, were:

(1) To provide field training for designated units from the Continental United States and USARAL in cold weather operations.

(2) To provide data for--and practice in reinforcement--the Alaskan Command in the event of an emergency.

(3) Training objectives, see paragraph 9, Annex L, Headquarters, USCONARC Training Directive, 13 August 1958, as modified by Letter ATTNG-D&R 461/23, Headquarters, USCONARC, 26 January 1959, subject: "Annex L to USCONARC Training Directive."

b. The Maneuver Director amplified and added to these objectives in Annex B (Objectives of Exercise) to Maneuver Plan, Exercise LITTLE BEAR as follows:

(1) Provided information for determining equipment which accompanied CONUS troops, and equipment to be furnished from stocks in Alaska for future deployment.

(2) Training in tactics and techniques applicable to northern operations under winter conditions, to include:

(a) Cross-country movements in areas having poorly developed or nonexisting road nets and communication lines.

(b) Tactical operations emphasizing development of techniques for conduct of the offense and defense, to include sustained operations.

(c) Employment and defense against nuclear and conventional weapons in areas where overland mobility will be restricted.

(d) Utilization of Transportation Company (Lt Hel)(H-21) for deployment of troops, resupply and evacuation.

(e) Employment of the Transportation Company, Armored Carrier.

(f) Employment of the Light Tank Company.

(g) Resupply to individuals, units and organizations on independent type missions.

(h) Integrated training in survival, evasion and escape.

(i) Aggressive use of all available intelligence collection and dissemination means; timeliness, complete reporting; and nuclear target intelligence.

(j) Utilization of tactical air for reconnaissance and aerial photographic missions.

(k) US Army Security Agency support of communications security.

(l) Combat intelligence, to include:

1. Extended ground reconnaissance, including operation in enemy territory for extended periods.

2. Prisoner of war interrogation.

3. Processing of information.

4. Tactical and organic, visual and photo reconnaissance.

5. Weather.

6. Radiological fallout monitoring and reporting.

7. Counterintelligence measures.

8. Pre and post strike analysis of nuclear weapons.

(m) Employment of long-range patrols, operating for several days, to include necessary support.

(n) Employment of personnel in behind-the-lines activities, to include necessary support.

(o) Construction of temporary type roads, to include ice crossings, bridges and installation of bridging materials suitable for carrying wheeled, tracked and sled transportation.

(p) Construction of field fortifications and barriers in deep snow and frozen ground.

(q) Combat techniques in deep snow and extreme cold.

(r) Deception activities in the undeveloped areas of the North.

(s) Chemical and biological warfare.

(t) Electronic warfare.

(3) Continued to evaluate the capability of a reinforced infantry battle group, as modified and reinforced for northern operations, to engage in offensive and mobile defense under northern winter conditions and determine factual answers to the following questions:

(a) Does the battle group possess the capability, when dispersed in northern areas where road nets are nonexistent and/or limited, or moving to concentrate when required, execute an assigned mission rapidly and reassume a dispersed posture before the opposing force can retaliate with nuclear weapons?

(b) To what extent does the battle group have a capability of defending itself against nuclear attack under conditions where mobility may be restricted?

(c) Does the battle group possess the capability of establishing command mobility, applicable to command post organization and in terms of adequate communications within the battle group and attached elements?

(d) What techniques and equipment should the battle group employ to establish observation over an extended area?

(e) Can the battle group develop required combat intelligence with emphasis on adequate combat surveillance and target acquisition?

(f) What distance can a rifle company operate away from the main body and the battle group still maintain control of communications and logistical support of the unit?

(g) Is the 4.2-inch mortar and the self-propelled 105mm Howitzer capable of providing adequate support to the infantry battle group operating independently in northern areas?

(h) To what extent and how successful were specialized air-mobile forces which were utilized for reconnaissance, combat, and supply of elements of the battle group in operating over a dispersed area?

(i) Was the logistical system, techniques and equipment which were utilized, capable of functioning effectively and providing necessary support to dispersed elements of the battle group operating independently in the nuclear battlefield with limited lines of communications?

(j) Was the basic load prescribed for the units realistic? Take into consideration unit capability to transport the basic load.

(k) In keeping with the prescribed basic load, what is the required supply rate (RSR) recommended for ammunition expenditure to support a tactical operation of this type?

(l) What amount of engineer effort is required to support the battle group when employed in undeveloped terrain under winter conditions?

(m) What are the capabilities of battle group radio communications, to include the capability of radio equipment to provide command control, adequacy of maintenance facilities and battery supply implications at battle group, company, platoon and squad levels?

(n) What are the capabilities of battle group wire communications, to include the capability of wire equipment to provide command control, adequacy of maintenance facilities and wire supply implications at battle group, company, platoon and squad levels?

(o) To what extent was spot photography utilized by the battle groups to assist in developing intelligence and tactical operations?

(p) Should the personnel section of the battle group be located with and employed under the supervision of the next higher headquarters when the battle group is operating independently?

(q) What equipment and techniques are necessary for the employment of the medical platoon when the battle group is operating independently?

(r) What techniques and equipment are necessary for land navigation in the northern regions where limited land marks and inaccurate map coverage exist?

c. Troop tests and evaluations. The Exercise provided an excellent vehicle for user tests and evaluations. The following tests were conducted during the Exercise. (A detailed report of each item is contained in Section VI of this report.)

(1) Effectiveness of minefields in cold weather and deep snow (ARACD 60-T-1).

(2) Evaluation of ice and snow melter (ARACD 60-T-2).

(3) Evaluation of tractor, cargo, M8A2 (ARACD 60-T-3).

(4) Evaluation of trailer, cargo, transporter, off-road, rough terrain, large wheel, 10-ton capacity.

(5) Evaluation of "snow traveler" (commercial).

(6) Evaluation of tank, fabric, collapsible for petroleum products, 3000-gallon capacity.

3. DISCUSSION. a. Preliminary planning was initiated upon receipt of Department of the Army "Preliminary Program and Budget Guidance (U) FY 1960 for the US Army, Alaska," issued 16 June 1958. This document set forth the following outline of the Exercise:

"The following directed exercise has been scheduled for FY 1960 by Department of the Army: LITTLE BEAR - One battle group from CONUS - based 4th Infantry Division will participate (not to exceed 1600 personnel). The Exercise will consist of three phases:

(1) NCO cadre training (minimum of 3 weeks).

(2) Individual and unit training in cold weather operations (minimum of 3 weeks).

(3) Field exercise, of two weeks duration, for the entire battle group.

USARAL participation should consist of providing a minimum sized Aggressor Force, and combat and combat support troops to conduct preliminary training and exercises. USCONARC will provide a minimum number of winterized combat vehicles. USARAL will therefore be requested to provide the balance of the vehicles required to support the Exercise, as well as to provide special items of clothing and other equipment."

b. Pre-exercise planning included two conference:

(1) On 14 and 15 April 1959 at Fort Lewis, Washington with the following headquarters being represented: DA (DCSOPS and DCSLOG), USCONARC, Sixth US Army, USARAL, 4th Infantry Division (to include 1st Battle Group, 12th Infantry), MATS, Oversea Supply Agency, and Headquarters, Fort Lewis. During this preliminary meeting the following subjects were discussed and agreed upon: WHR equipment, airlift, CONUS troop limit (which was raised from 1600 to 1800), TAC support, logistical support, organizational requirements, training and the budget.

(2) On 10 through 14 August 1959 at Fort Richardson, Alaska with the representatives of USARAL; 4th Infantry Division; 1st Battle Group, 12th Infantry; 1st Battle Group, 23d Infantry (umpires); US Army Supply and Maintenance Center, Alaska; USASA, Alaska; US Army Cold Weather and Mountain School; and Headquarters, Fort Richardson. During this meeting detailed plans were discussed and agreed upon, establishing a sound basis for final planning and preparations to be effected prior to the Exercise. Also, the representatives of the 1st Battle Group, 12th Infantry were given an opportunity to inspect the housing facilities in Camp Denali area reserved for the CONUS contingent, to conduct an aerial reconnaissance of the training and maneuver areas, and to visit US Army Cold Weather and Mountain School at Fort Greely.

c. Based upon DA Preliminary Program and Budget Guidance, FY 1960 for USARAL, the budget was initially prepared for $800,000. However, raised troop participation as indicated in 3b, above, resulted in an increase of the budget from $800,000 to $900,000. The increase was approved by Department of the Army in the Revised Program and Budget Guidance, FY 1960 for USARAL, issued 10 February 1959. Due to USARAL requirements for the purchase of POL handling equipment and Head skis for testing purposes, this budget was reduced by $12,500 and finally adjusted to $887,500.

d. Pre-exercise planning further included the submission of an Initial Maneuver Plan, Exercise LITTLE BEAR (ARAGT 268, Headquarters, USARAL, dated 17 July 1959) and conduct of War Game 22 through 25 September 1959. The purpose of the War Game was to determine and establish the following:

(1) Tactical solutions that may be adopted in accomplishing assigned missions by both forces.

(2) Probable utilization of terrain within the maneuver area.

(3) Coordination between umpire groups and the Main Command Post, Headquarters, USARAL (Maneuver Director Headquarters).

(4) Possible problem areas and solutions that may arise during the field exercise itself.

e. The Final Plan, Exercise LITTLE BEAR (ARAGT 268, Headquarters, USARAL) was submitted to Department of the Army on 9 November 1959.

f. The troops that participated in Exercise LITTLE BEAR are listed below:

PARTICIPATING TROOPS	TOE	ORIGIN	STRENGTH
(1) US Force (Task Force Warrior).			
UNIT			
1st BG, 12th Inf (A-E)	7-11D	CONUS	1253
Co B, 4th Engr Bn (C), w/TADM	5-17D	CONUS	112
Btry A, 2d How Bn, 1st Arty Det FA Msl Btry, HJ Rocket (CHOPPER JOHN)	6-214D	CONUS	5
2d Area Spt Plat (+), Co B, 124th Sig Bn	11-8D	CONUS	35
Team VIJ, 317th USASA Bn	Prov	CONUS/USARAL	29
2d DS Plat (+), Co A, 704th Ord Bn	9-27D	CONUS	23
Combat Spt Sec (Flight B) DS Plat 4th Avn Co	1-7D	CONUS	4
80th Trans Co (Lt Hel)(H-21)(-)	55-57C	USARAL	113
334th Trans Det (Cgo Hel, FM)	55-500R	USARAL	55
C&E Pers, 4th QM Co	10-17D	CONUS	3
Team FA-22, 77th SF Gp	33-510R	CONUS	8
4th MI Det	30-600C	CONUS	5
Team FB, Interrogator, 319th MI Bn	30-600C	CONUS	3
Team CIC, 467th CIC Det	Prov	USARAL	2
Rifle Sqd, US Med Res Lab	Prov	CONUS	10
HUMRRO Detail	Prov	CONUS	3
		TOTAL:	1791

(2) Aggressor Force (Task Force Manchu).

UNIT	TOE	ORIGIN	STRENGTH
1st BG, 9th Inf	7-11T	USARAL	1271
Btry B, 15th Arty	6-317C	USARAL	113
559th Engr Co (C), w/TADM	5-17T	USARAL	135
Co A, 40th Armor Bn (-)	17-17R	USARAL	77
47th Trans Co (Armd Carr)	55-78T	USARAL	121
Plat, 136th Ord Spt Co	9-7D	USARAL	21
Clr Plat, 514th Med Co (Clr Sep)	8-28R	USARAL	27

UNIT	TOE	ORIGIN	STRENGTH
HA Amb Det, Yukon Comd, USARAL	8-500R	USARAL	14
Prov Regt Area Sig Spt Plat, Yukon Comd, USARAL	Prov	USARAL	61
Spt Det, USASA, Alaska	Prov	USARAL/Marine	29
Team FA-24, 77th SF Gp	33-510R	CONUS	8
Team FB, Interrogator, 319th MI Bn	30-600C	CONUS	3
Team CIC, 467th CIC Det	Prov	USARAL	2
		TOTAL:	1882

(3) Umpire Organization.

UNIT	TOE	ORIGIN	STRENGTH
Umpire personnel	N/A	USARAL	54
Asst umpires, radio oper, drivers & admin personnel			175
		TOTAL:	229

(4) Maneuver Support.

UNIT	TOE	ORIGIN	STRENGTH
Hq & Hq Det, US RAL	TD17-7100	USARAL	150
USA Sup & Maint Cen, Alaska (Admin Spt Base, US Force)	TD71-1850	USARAL	350
56th Engr Co (Const)(-)	5-317R	USARAL	173
521st Trans Co (Lt Trk)(-)	55-17D	USARAL	72
Yukon Comd, USARAL (Admin Spt Base, Aggressor Force)	TD71-1900	USARAL	270
Fort Richardson	TD71-1800	USARAL	50
80th Trans Co (Lt Hel)(H-21)(Aug)	TD71-0080	USARAL	41
Comp Avn Elm	Prov	USARAL	40
51st Field Hosp Unit (+)	8-510R	CONUS	65
HA Amb Det, Ft Richardson	8-500R	USARAL	14
Det Sig Co, USARAL	TD71-1704	USARAL	120
Spt Det, USASA, Alaska	Prov	USARAL	4
Team GF, Aerial Photo Interpretation 319th MI Bn	30-600C	CONUS	4
Team GB, Order of Battle, 319th MI Bn	30-600C	CONUS	3
Team CIC, 467th Det	Prov	USARAL	1
		TOTAL:	1357
	GRAND	TOTAL:	5259

g. The significant aspect of the troop organization as indicated in the preceding troop list is that the US Force was provided with a high degree of air-mobility with the attachment of the Light Helicopter Company (-). The Task Force Warrior (US Force) was provided with a minimum number of track vehicles for prime movers, mounting of radio sets, evacuation, and similar

tasks. No armor support was made available to the US Force. The Aggressor Force had a high degree of ground-mobility with the Tank Company and Transportation Company (Armd Carr) attachments, but was furnished a limited number of aircraft. The organization of the two forces was deliberately set up to provide a comparision of capabilities of an air-mobile force as opposed to a ground-mobile, armor-supported force. Full use of helicopters was not made during the early days of the Exercise. Evaluation of capabilities and limitations of the two forces revealed that:

(1) The US Force lacked artillery support and protection from armor during heliborne operations against the enemy lines of communications over extended distances. No effort was made to move the 105mm Howitzers by air, though this is technically possible as outlined in TC 1-9, dated 29 August 1958.

(2) Aerial reconnaissance and surveillance capability of the Aggressor Force were limited. Control of the dispersed elements of the Task Force Manchu, especially when the radio communications were out, was hampered because of the limited number of aircraft available for the Aggressor Force.

h. For ease of reference and to establish a firm planning basis, Exercise LITTLE BEAR was divided into eleven phases:

(1) Phase I (10 through 14 August 1959). Pre-maneuver conference at Headquarters, USARAL, Fort Richardson, Alaska.

(2) Phase II (8 November through 6 December 1959). Cadre training at US Army Cold Weather and Mountain School for 128 students (18 officers and 110 enlisted men) from the 1st Battle Group, 12th Infantry.

(3) Phase III (4 January 1960). Advance party of 522 officers and enlisted men from the CONUS element, scheduled to arrive Fort Richardson, Alaska.

(4) Phase IV (6 through 9 January 1960). Main body of CONUS element scheduled to arrive Fort Richardson, Alaska.

(5) Phase V (11 January through 4 February 1960). Individual and unit training of CONUS troops, aggressor and umpire training.

(6) Phase VI (5 through 9 February 1960). Movement to maneuver area.

(7) Phase VII (10 through 20 February 1960). Field exercise.

(8) Phase VIII (21 through 23 February 1960). Return of troops to base camps.

(9) Phase IX (23 through 26 February 1960). CONUS element close camp (less rear detachment).

(10) Phase X (27 February through 1 March 1960). Main body of CONUS element, 1625 officers and enlisted men, depart Fort Richardson.

(11) Phase XI (14 March 1960). Rear detachment of 4 officers and 16 enlisted men from CONUS element depart Fort Richardson.

i. The following changes were made to the above phases:

	ACTUAL DATE	REASON FOR CHANGE
Phase III	3 through 4 January 1960	Availability of MATS aircraft.
Phase IV	4 through 9 January 1960	Minor delays in schedule caused by weather, maintenance, and crew rest periods.
Phase V	11 through 29 January 1960	Three weeks training instead of four weeks because of drawnout air movements, preparation for the Exercise, and time requirements for movement to the maneuver area (distance of 150 to 215 miles over icy roads).
Phase VI	15 January through 8 February 1960	Requirement for early arrival of advance elements, build-up of Admin Spt Bases, icy road conditions and limited transportation facilities available.
Phase VII	10 through 19 February 1960	Development of the tactical situation, date set for the airlift by USCONARC, short period of time for turn-in of equipment to meet the return date.
Phase VIII	20 through 28 February 1960	Availability of transportation facilities, road conditions and closure of Admin Spt Bases.
Phase XI	5 March 1960	Progress in clearing of property and closing of the base camp.

SECTION II - PERSONNEL AND ADMINISTRATION

Part I - Personnel and Administration

1. GENERAL. There were no peculiar personnel and administrative problems during the pre-maneuver and post-maneuver phases. However, additional planning was devoted to organizing a mobile type command post for the USARAL Main CP. Problems generated during the maneuver phase are discussed below.

2. MISSIONS. a. To provide planning, coordination, and supervision of G1 activities during the pre-maneuver, maneuver, and post-maneuver phases.

b. To provide a mobile type command post for the Maneuver Headquarters during the maneuver phase and for use as the USARAL Main CP during future tactical operations.

c. To determine where the personnel section of a battle group should be located and employed when the battle group is operating independently.

3. DISCUSSION. a. Strengths. (1) During the maneuver phase, the strength of tactical, logistical support, umpire, and Maneuver Headquarters units were reported as shown in part I, Table 1 (Personnel Daily Summary).

(2) For tactical and administrative support units, these strengths reflect both actual and simulated gains and losses, including simulated atomic casualties. For the Maneuver Headquarters units, these strengths reflect actual gains and losses.

(3) As the tactical units moved from their logistical bases under tactical formations, the accuracy and promptness of personnel reports decreased. The lack of road nets; dispersion; isolation of units; communication problems; and an indicated lack of training contributed materially to the personnel reporting problem. During the maneuver phase, units failed to submit requisitions for personnel losses. Although a small number of simulated casualty reports were received from the US Forces, these reports were incorrectly submitted in that the DA Form 1156 (Casualty Feeder Report) was not consolidated on DA Form 1154 (Casualty Report). Additional training in this type of reporting is indicated.

(4) Personnel from the US Forces, transported to Alaska, who were eligible for discharge during the maneuver phase, caused unnecessary administrative work and expenditure of funds. This type of action is deemed unnecessary, since units participating in the maneuver were alerted as to the dates maneuver would be conducted.

b. Replacements. (1) Casualties. After medical processing, simulated casualties were returned to their parent unit as replacements. Actual casualties, after medical processing, were returned through replacement channels to their parent unit by the first available transportation. Equipping these "replacements" with individual equipment presented no major problem as instructions had previously been issued that equipment would not be taken from casual personnel.

(2) Prisoners of War. After administrative retention at Maneuver Headquarters for approximately twenty-four hours, prisoners of war were returned to their parent units as replacements.

(3) Actual Replacements. A small number of recently arrived theater replacements were assigned to and joined the Aggressor Force during the maneuver phase of the exercise. The results indicate the need for a replacement activity to equip and give initial training to newly arrived personnel before joining their tactical unit. The battle group was not prepared to assume the logistic problem of equipping replacements; therefore, the attempt to play actual replacements in the maneuver had to be abandoned.

c. Discipline, Law and Order. (1) One Officer and twenty-five military policemen were attached to the US Forces Administrative Support Base and one NCO and twelve military policemen were attached to the Aggressor Administrative Support Base.

(2) The attachment of military police to the US Forces Administrative Support Base provided the Commander with trained personnel for traffic control and prisoner escort functions. The latter procedure relieved the battle group commander of the requirement for having to provide tactical troops for the evacuation of prisoners and gave him additional flexibility in developing his scheme of maneuver. The absence of an adequate number of military police with the Aggressor Force proved to be a disadvantage as other personnel were required to provide military police functions. A minimum of 12 to 16 men were required for traffic control only.

d. Prisoners of War. (1) A total of forty-four prisoners of war were processed through the collecting points located at the Administrative Support Base. Upon completion of a processing, limited to searching, segregation, recording and feeding, these prisoners were evacuated to Maneuver Headquarters for intelligence debriefing by G2. After retention of approximately twenty-four hours, these personnel were returned to their parent unit as replacements.

(2) An administrative problem concerning the disposition of prisoners' equipment arose in evacuating prisoners since, in many instances, prisoners were separated from their equipment. Personnel items such as bedrolls, weapons, skis, and other small items should be kept by the prisoner during his evacuation.

e. Morale and Personnel Services. (1) Morale. The morale of participating personnel was excellent.

(2) Decorations and Awards. Exercise LITTLE BEAR Certificates of Achievement were awarded as follows:

(a) For Outstanding and Exemplary Achievement - 9.

(b) For Meritorious Achievement - 44.

(3) Army-Air Force Postal Services. (a) Mail for personnel participating in this Exercise was flown to the Maneuver areas twice daily, except Sunday, by US Air Force aircraft. Upon receipt in the APO, Main CP, this mail was appropriately segregated for distribution and delivery.

(b) Initially, mail for the Aggressor Force was delivered by Army courier aircraft to the APU in support of this organization. This procedure was altered in the early days of Phase VII and mail for the Aggressor Force was then delivered to this APU direct from the home station of the Aggressor Forces.

(c) Mail for the US Forces was picked up from the APO, Main CP by the postal clerk of that organization. This portion of the plan soon proved to be inappropriate due to the distance between the APO and the Battle Group Trains area. It appeared probable that this would be further compounded as the exercise progressed. Consequently, resolution to this problem was found in mail delivery, twice daily by Army Courier aircraft, to the Battle Group CP, a system which provided extraordinary mail delivery service under field conditions.

(4) American Red Cross. (a) A Red Cross representative maintained an office at Maneuver Headquarters and one at the US Forces area.

(b) During the maneuver phase the American Red Cross rendered a total of 78 service requests and the following is a breakdown:

1. Aggressor Forces:

Eight emergency leaves.
Four health and welfare requests.
Delivery of two birth messages.

2. US Forces:

Thirty-one emergency leaves requests, 12 went on leaves.

Fifteen health and welfare reports.
Twelve loans made for emergency leaves.
Twenty-two reporting routine information, not of emergency nature, including birth messages, and three counseling with family problems.

(5) Chaplains' Activities. (a) During the planning phase, preparations were taken to insure maximum coverage of Chaplain activities. In addition, normal on post activities including religious services for all faiths were provided.

(b) During the maneuver phase, religious services were held in mess halls, jamesways, and where practical. Numerous visits to units and hospital facilities were made throughout the maneuver.

(c) It is noted that very few problems were brought to the attention of the Chaplains during the exercise. This is a true test of high morale and is indicative of the very fine leadership qualities manifested throughout the maneuver by officers and noncommissioned officers.

(d) Jeeps were found to be adequate for local calls. Otter was utilized to reach all line companies, and helicopter service was used at times for Sunday and Holy Day services. Communion wine, hosts, candles, and other equipment were found to be satisfactory during the cold weather encountered on this exercise.

(6) Post Exchange Services. (a) Maneuver Exchange facilities were established as follows:

1. Tolsona Lake - Maneuver Support Headquarters.

2. Old Man Lake - US Forces (Administrative Support Base).

3. Gulkana (Sourdough) - Aggressor Forces (Administrative Support Base.)

(b) The sales, total sales, and per capita sales are as follows:

Area	Sales	Troop Strength	per Capita Sales
Maneuver Support Headquarters	$ 6,929.06	1,315	$5.27
US Forces	4,250.58	1,800	2.36
Aggressor Forces	4,752.29	2,000	2.38
TOTAL	$15,931.93	5,115	$3.11

(c) Upon becoming operational in the Maneuver areas, it was determined that administrative transportation was necessary for the Maneuver PX Officer. The Maneuver PX Officer was furnished one civilian type station wagon for administrative use and assistance in resupply.

This arrangement was most satisfactory in that it allowed the Maneuver PX Officer full freedom of movement for sales, collections, special orders, resupply and general use, such as visits to the other Branch Exchanges since it was his responsibility to support them.

(7) Special Services. (a) Special Services support during the pre-maneuver and post-maneuver phases, was furnished by Fort Richardson and Fort Greely. This support consisted of on-post use of craftshops, libraries, service clubs, theaters, gymnasium and ski tows. In addition, dayroom facilities were provided at the Camp Denali area, for US Forces.

(b) During the maneuver phase, limited support was provided in the form of books, playing cards, small games, and movies.

4. MISCELLANEOUS. a. Safety. (1) The Safety Division, Headquarters, USARAL, rendered safety services for the exercise under the Staff supervision of G1, Maneuver Director Headquarters.

(2) The USARAL Aircraft Accident Investigation Board investigated the four aircraft accidents which occurred during the exercise. This proved to be unsatisfactory in that several board members were not participating in the exercise, thus delaying the investigation.

(3) Lack of experience in operating from confined areas caused two H-13 helicopter accidents, and loss of directional control while taxiing an L-19 aircraft on skis caused the third.

(4) During the maneuver phase, units failed to adequately investigate and report accidents as they occurred.

(5) Measures taken to minimize personnel losses due to frostbite during the exercise were effective. Of forty-two lost time injuries, four were frostbite cases, as compared to nine burns resulting from use of gasoline as fuel. Burns accounted for twenty-one per cent of the total injuries. Added emphasis must be given to the safety measures when using gasoline for fuel in Yukon stoves.

(6) Accident experience for the exercise is shown on Table II.

b. CP Management. (1) During the maneuver phase the housing for Maneuver Headquarters Main CP was composed of trailers (office space), jamesways (office space/mess halls) and tents for sleeping accomodations.

(2) The use of trailers for operation of the CP Headquarters was considered adequate provided the number of personnel on duty at any one time was kept at a reduced number.

(3) Internal security of the CP during the maneuver was satisfactory and was maintained on a 24-hour basis by personnel from the Headquarters and Headquarters Company, Headquarters Command Security Platoon.

(4) Adequate sanitary facilities such as shower units were not available for use by personnel. Jamesways, however, were erected and steel helmets made available for washing facilities.

TABLES:

1. Personnel Daily Summary - Exercise LITTLE BEAR
2. Accident Experience - Exercise LITTLE BEAR

Table 1 to (Part I) - Section II

PERSONNEL DAILY SUMMARY - EXERCISE LITTLE BEAR
(10 - 19 February 1960)

UNIT	10	11	12	13	14	15	16	17	18	19
1st BG 9th Infantry	1783	1794	1773	1768	1774	1748	1731	1558	1797	1556
Adm Spt Base (Aggressor)	354	354	344	344	346	346	350	350	350	302
1st BG 12th Infantry	1756	1753	1746	1743	1749	1746	1737	1739	1759	1758
Adm Spt Base (US Forces)	691	689	689	705	693	699	681	665	582	536
Visitors' Bureau	26	30	30	30	30	30	30	30	30	30
Hqs Command	712	730	723	721	704	704	704	705	686	675
TOTAL	5322	5350	5305	5294	5296	5273	5233	5060	5204	4857

Table II to (Part I) - Section II

ACCIDENT EXPERIENCE - EXERCISE LITTLE BEAR

	Army Aircraft Accidents		Army Motor Vehicle Accidents		Military Injuries	
	No.	Rate	No.	Rate	No.	Rate
ASSEMBLY	3	815.2	9	1.6	13	14.8
TRAINING MANEUVER	1	80.0	8	2.5	23	45.6
DISASSEMBLY	0	-	10	5.9	6	6.7
TOTAL EXERCISE	4	201.6	27	2.6	42	18.5

Property Damage

	Army Aircraft	Army Motor Vehicle	Army Fire	Other
ASSEMBLY	$ 10,360	$ 1,891	$ 39,816	$ 0
TRAINING MANEUVER	1,981	10,852	1,948	0
DISASSEMBLY	0	4,422	42,700	50
TOTAL EXERCISE	$ 12,341	$ 17,165	$ 84,464	$ 50

SECTION II

Part II - Information

1. GENERAL. In the pursuit of Army information objectives during LITTLE BEAR, priority was given to obtaining public recognition of unit and individual achievements.

2. MISSION. Organization for the information mission was as follows:

a. USARAL Information Office had 8 of a staff of 15 present in the maneuver area. Of the 8, there were 3 officers.

b. One officer was wholly engaged escorting 20th Century Fox cameraman Jack Painter.

c. One officer and one enlisted man were wholly engaged in making film interviews for television (they made 67).

d. The Information Officer, three information specialists, and one still photographer handled press relations and turned out releases.

e. The USARAL Information Office operated from one jamesway hut.

f. USARAL Signal Officer had a 4-man photo team on each side, and a photo laboratory at the command post.

3. DISCUSSION. a. Efforts to attract "outside" newsmen of national media to LITTLE BEAR were made through CINFO DA, CINFO 6th Army, and by the Commanding General's direct correspondence to editors in the Seattle-Tacoma-Olympic areas.

b. Six newsmen visited the maneuver: Bowkett and Darby of ANCHORAGE DAILY TIMES, Rothstein of ANCHORAGE DAILY NEWS, Levesque of FAIRBANKS NEWS MINER, Lawrence Elliott of READERS DIGEST and Jack Painter of 20th CENTURY FOX MOVIETONE NEWS. The average length of stay was two days each.

c. Twenty-five daily news reports of feature length were produced and were sent by night TWX to OCINFO DA, IO 4th Div, IO Yukon Command and IO Fort Richardson (USARAL Rear).

d. About 30 still pictures were turned out by USARAL Information Office and USARAL Photo Laboratory for immediate release. Many additional pictures were not processed because aerial photography had priority.

e. USARAL Information Office advised OCINFO DA by TWX of three motion picture film shipments made to Army Pictorial Center, New York, during maneuver.

f. No participating unit originated news pertaining to their activity. News was extracted by visiting reporters only. Both battle groups were urged to do so, but did not. Neither unit published a newspaper.

g. USARAL Information Office supervised obtaining Anchorage newspapers and news bulletins from Fort Richardson and Yukon Command. News ticker and publishing facilities, however, should have been available. Troops did not receive adequate news in the field.

h. OCINFO was urged by special TWX to exploit LITTLE BEAR dispatches in ARMY TIMES and other service journals. This was done to a fair degree.

i. The use of prepared maneuver area "war maps" proved useful but the use of grease pencil to depict situation should be superseded by more carefully drawn,inked-in situations.

j. "Hometowners" were produced in adequate numbers prior to maneuver for timely release. 67 film interviews were made to include interviews with Major General Louis Truman of 4th Division and Major General A. E. Hintz of Washington-Oregon National Guard. No tape interviews were accomplished because power in the camp would not drive the recorder properly. (Need small durable tape recorder).

k. Two members of the Civilian Advisory Committee to Commanding General, USARAL,visited the maneuver area.

l. Visitors' Bureau contributed to public relations objectives insofar as civilian visitors were concerned.

SECTION II

Part III - Visitors' Bureau

1. GENERAL. A Visitors' Bureau (Rear) was established on 1 December 1959 at Headquarters, USARAL, Fort Richardson, and a Visitors' Bureau (Main) was established on 8 February 1960 at the maneuver area. Both elements were under the operational control of the Secretary of the General Staff, Headquarters, USARAL.

2. MISSION. To receive, billet, mess, equip, transport, brief, escort and deprocess observers and correspondents for the Exercise.

3. DISCUSSION. a. Operation. (1) Representatives from the Visitors' Bureau (Rear) met incoming visitors and completed reception processing consisting of transporting, briefing, billeting, messing, and the issuing of cold weather clothing. On the day following their arrival, visitors were transported to the maneuver area by an Air Force C-47 courier aircraft.

(2) Representatives from the Visitors' Bureau (Main) met incoming visitors arriving in the maneuver area and provided billets, mess, transportation and assistance in the coverage of their areas of interest. Detailed briefings on the current tactical situation were held daily, and special briefings were available upon request.

(3) Escort personnel, from Visitors' Bureau (Main), accompanied the visitors within the maneuver area. Helicopters were used as the primary means of transportation to permit visits to isolated areas, to reduce travel time, and to permit maximum coverage of the maneuver area. Additional escort personnel, equipped with tracked vehicles, were located at each battle group Command Post to provide current briefings and escort to desired areas.

(4) Upon completion of their tours at the maneuver area, visitors were returned to Visitors' Bureau (Rear) for deprocessing and return to their home stations.

b. Transportation. (1) The following transportation was used by the Visitors' Bureau to transport visitors at the maneuver area:

Type	Number
H-21 Helicopter	1
H-13 Helicopter	1
M-59 Armored Personnel Carrier	3
M-29 Weasel	8
Sedan	3

(2) Skis and snowshoes were provided for local off-trail movement.

c. Problem. Some visitors did not confirm expected time of arrival and the name of the aircraft carrier into Alaska.

TABLE:

1. Observers for Exercise LITTLE BEAR.

Table 1 to (Part III) - Section II

OBSERVERS FOR EXERCISE LITTLE BEAR

A. FROM OUTSIDE ALASKA

NAME	GRADE	ORGANIZATION	DATES
Trudeau A.G.	Lt Gen	CRD, DA Washington, D. C.	20-24 Feb 60
Fischer, Harvey H.	Maj Gen	ODCSOPS, DA Washington, D. C.	15-23 Feb 60
Truman, Louis W.	Maj Gen	4th Inf Div Ft. Lewis, Washington	12-16 Feb 60
Hintz, Alfred E.	Maj Gen	41st Inf Div Camp Withycombe, Clackamus, Oregon	9-17 Feb 60
Adams, R. E.	Brig Gen	4th Inf Div Ft. Lewis, Washington	8-12 Jan 60
Atkinson, F. D.	Brig Gen	USATSCH - Ft. Eustis, Virginia	18-22 Feb 60
Blandford, W. O.	Brig Gen	4th Inf Div Ft. Lewis, Washington	1-4 Feb 60
Anderson, Donald M.	Colonel	41st Inf Div Camp Withycomb, Clackamus, Oregon	9-17 Feb 60
Emerich, Rollins S.	Colonel	US Agg Ctr - Ft. Riley, Kansas	16-19 Feb 60
Laughton, R. C.	Colonel	UK Lia Sec Ottawa, Canada	16-22 Feb 60
Rinque, Donald P.	Colonel	ODCSLOG, DA Washington, D. C.	15-23 Feb 60
Worthington, J. M.	Colonel	4th Inf Div, Ft. Lewis, Washington	15-18 Jan 60
Johnson, Earl A. Jr.	Lt Col	CD Sec-CONARC Ft. Monroe, Virginia	9-15 Feb 60
Jones, James T.	Lt Col	ODCSOPS, DA Washington, D. C.	15-23 Feb 60
Lahdenpera, Erkki	Lt Col	USACGSC Ft. Leavenworth, Kansas	6-17 Feb 60
Wear, James H.	Lt Col	ODCSOPS, DA Washington, D. C.	15-23 Feb 60
Browne, Laurence S.	Lt Col	Sp Warfare Ctr, Ft. Bragg, North Carolina	9-18 Feb 60
Howell, Samuel W. Jr.	Lt Col	OACSI, DA Washington, D. C.	15-23 Feb 60
Hungate, William O.	Lt Col	USA Maint Bd, Ft. Knox, Kentucky	9-17 Feb 60
Mueller E. L.	Lt Col	OCRD, DA Washington, D. C.	20-24 Feb 60
McAnulty, Wallace M.	Major	USA Sec Agcy, Washington, D. C.	9- 16 Feb 60
Pretty, Loren J.	Major	Trans Env Opns Gp Ft. Eustis, Virginia	16-22 Feb 60
Smith, A. L.	Major	UK Lia Sec Ottawa, Canada	10-18 Feb 60
Young, James R.	Major	OCRD, Arlington Hall Sta. Arlington 12, Virginia	9-16 Feb 60
Williams, Wm. R. Jr.	Major	US Agg Ctr - Ft. Riley, Kansas	13-19 Feb 60
McClain, John W.	Major	USAIC - Ft. Benning, Georgia	9-18 Feb 60
Fletcher, Paul M.	Major	USA Log Mgt Cen. Ft. Lee, Virginia	8-23 Feb 60
Bauer, Eugene R.	Captain	4th Inf Div Ft. Lewis, Washington	12-16 Feb 60

NAME	GRADE	ORGANIZATION	DATES
Bosak, John B.	Captain	Ord TK & Auto Ctr, Detroit, Michigan	10-17 Feb 60
Walnes, Paul A.	Captain	Med Sec - CONARC Ft. Monroe, Virginia	16-19 Feb 60
Seyer, Erich	1st Lt	Austrian Army, Innsbruck, Austria	8-Jan-24Feb60
Williams, D. R.	1st Lt	4th Inf Div Ft. Lewis, Washington	8-12 Jan 60
Washburne, Norman F(DR)	(GS-14)	HUMRRO, George Washington U, Washington, D. C.	8-Jan-28Feb60
McDonald, David F.	(GS-11)	USARTMC, St. Louis, Missouri	26-Jan-25Feb60
Bell, John	(GS-12)	USA Engr R&D Lab, Ft. Belvoir, Virginia	2-24 Feb 60
Ames, Charles J.	(GS-11)	USA Engr Maint Ctr, Columbus, Ohio	2-25 Feb 60
Landry, Larry H.	Civilian	Anchorage, Alaska - Governor's Rep.	10-13 Feb 60
Ferrains, Oscar J.	(GS-12)	US Geol Survey, Glenallen, Alaska	10-21 Feb 60

OBSERVERS FOR EXERCISE LITTLE BEAR

B. NEWS MEDIA

NAME	GRADE	ORGANIZATION	DATES
Painter, Jack	Civilian	20th Century Fox, Washington, D. C.	4-27 Feb 60
Longuerria, Emanuel	Civilian	20th Century Fox, Washington, D. C.	4-27 Feb 60
Rothstein, Joe	Civilian	News, Anchorage Representative	12-13 Feb 60
Bowkett, Jerry	Civilian	Times (AP) Anchorage Representative	11-13 Feb 60
Darbe, Harris	Civilian	Times, Anchorage Representative	11-14 Feb 60
Elliott, Lawrence	Civilian	Readers Digest	16-17 Feb 60
Porter, Budd - USAF	1st Lt	Ladd "Midnight Sun"	17 Feb 60
Levesgue, Jim	Civilian	Fairbanks News Miner	17 Feb 60
Waugaman, William	Civilian	Member Civ Adv Comm-Fairbanks	17 Feb 60

C. OBSERVERS FOR EXERCISE LITTLE BEAR

NAME	GRADE	DUTY	DATE
Zierath, Frederick	Brig Gen	CofS ALCOM	18-19 Feb 60
Mackown, John L.	Colonel	AAC	-16 Feb 60
Mize, Willard W.	Colonel	NSAAL	-15 Feb 60
Patient, William	Colonel	AAC	-18 Feb 60
Rader, W. R.	Colonel	ALCOM	-16 Feb 60
Thorpe, Charles A.	Colonel, AF	ALCOM	-16 Feb 60
Byrne, R. G.	Lt Col	AICOM	-16 Feb 60
Hurley, W. C.	Lt Col	ALCOM	-17 Feb 60
Ryan, Arthur E.	Lt Col	AAC	-16 Feb 60
Shackelford, G. W.	Lt Col	ALCOM	-17 Feb 60
Frol, A. B.	Major	ALCOM	-17 Feb 60
Channel, Lynn R.	Captain	AAC	-18 Feb 60
Smith, Willard H.	Lt Col	5040 Hosp.	-17 Feb 60
Coen, James J.	Major	5040 Hosp.	-19 Feb 60
Hamilton, Alfred	Lt Col	5040 Hosp.	-18 Feb 60
Daniel, Robert G.	Lt Col	5040 Hosp.	-18 Feb 60
Browning, Levi	Colonel	5040 Hosp.	-17 Feb 60
Roy, J. C.	Captain	5040 Hosp.	-13 Feb 60

SECTION II

Part IV - Claims

1. GENERAL. To facilitate prompt investigation and settlement, the Maneuver Claims Officer and one clerk assistant were located, throughout the maneuver, at Maneuver Director Headquarters.

2. MISSION. The mission of the Maneuver Claims Officer was to make on the spot investigations, and whenever possible, final cash settlement with the claimant. To this end, Unit Maneuver Claims Officers were established and properly instructed in the rudiments of claims investigation in an effort to establish reporting and investigation of all incidents that could possibly give rise to claims. This phase of the operation was considered satisfactory and it is recommended that similar procedure be adopted for subsequent large field maneuvers.

3. DISCUSSION. There have been no maneuver-type claims, resulting from the non-combat activities during Exercise LITTLE BEAR, that would normally be considered within the purview of AR 25-25. The Claims Officer received three maneuver connected claims of the traffic accident type: one in the amount of $4,112.90, which was subsequently forwarded to the Claims Division, Office of The Judge Advocate General, Department of the Army; another in the amount of $32.00 that was settled and paid under the small claims provisions; and a third in an estimated amount of $700.00 that is still pending and will probably not be settled for several months.

SECTION III - INTELLIGENCE.

1. GENERAL. Exercise LITTLE BEAR was a free maneuver in which both of the participating forces were required to develop their own tactical intelligence to accomplish their assigned missions. The intelligence requirements varied because of the difference in the initial US Force and Aggressor Force situations, and the difference in their missions.

2. MISSIONS. The intelligence objectives of the Exercise were:

(1) Training in intelligence information collecting and reporting procedures.

(2) Proper utilization of Air Force tactical air and Army air support for visual reconnaissance and aerial photographic missions.

(3) Employment of personnel in unconventional warfare activity and long range patrols.

(4) Personnel training in all of the elements of combat intelligence.

(5) Training in electronic warfare.

(6) Application of security procedures to include communications security.

(7) Determination of the techniques and equipment the battle groups should employ to establish observation over an extended area.

(8) Determination of the battle groups capability to develop combat intelligence with emphasis on adequate combat surveillance and target acquisition.

(9) Determination of the extent that spot photography would be utilized by the battle groups to assist in developing intelligence and tactical operations.

(10) Determination of the benefits to be derived from the use of specialized air-mobile forces for reconnaissance.

(11) Determination of the techniques and equipment necessary for land navigation in the northern regions where limited landmarks and inaccurate map coverage exist.

3. DISCUSSION. a. Organization:

(1) The USARAL Main CP G2 Section was organized as shown in

(2) The Intelligence Section of the US Forces consisted of two officers and one intelligence operations sergeant. This section was augmented by the attachment of one order of battle specialist, two counter-intelligence specialists, two aerial photo interpreters, and a three-man interrogation of prisoners of war team. An ASA team of 27 members assisted the S2 in assigned missions within the team's capabilities.

(3) The Intelligence Section of the Aggressor Force consisted of the authorized TOE complement composed of two officers and two enlisted men. Attached for specialized support were a three-man interrogation of prisoner of war team and two counter-intelligence specialists. An ASA team of 27 members assisted the S2 in assigned missions within the team's capabilities.

(4) Order of battle and aerial photograph interpretation teams were attached to the USARAL Main CP G2 Section and provided necessary support to both forces.

b. Collection of Intelligence Information. (1) Observation. Ground observation during the exercise was limited to short distances, usually not more than a few hundred yards, because of the forested areas and continuously rolling terrain. With the excellent flying weather prevailing during most of the maneuver period, both forces made extensive use of the assigned fixed and rotary wing (L-19 and H-13) aircraft for aerial observation. Aerial observation proved to be a most reliable and rapid method for both forces to collect and verify intelligence information. However, these light aircraft were extremely vulnerable to attack by ground fire and high performance aircraft. The utilization of high performance visual reconnaissance air sorties in support of battle group operations over an extended area is considered to be of paramount importance.

(2) Tactical Air Support. (a) United States Air Force.

1. Aerial photographic and visual reconnaissance support was furnished by the 154th Tactical Reconnaissance Squadron, Air National Guard, Little Rock, Arkansas. This unit was comprised of 4 RB-57 aircraft and necessary personnel for flight operations, photo processing and printing, and providing a liaison officer at the USARAL Main CP. This unit operated from Elmendorf AFB which is about 170 miles from the center of the LITTLE BEAR maneuver area. Although the reconnaissance aircraft arrived prior to the start of the maneuver, and could have flown complete basic cover of the area before the maneuver commenced, the support equipment which followed more slowly negated this desirable activity. Even so, approximately 70% of the basic cover was completed. Complete basic cover was not taken due primarily to weather conditions early in the maneuver and the subsequent need for tactical photography once the maneuver started.

A total of nine missions was flown from which 1884 negatives and 7272 prints were produced. Insofar as the technical aspects were concerned, the resultant photography ranged from good to excellent. The continuous call for area photography was quickly consuming the available film supply and midway in the exercise visual reconnaissance of an area determined the requirement for photography of tactical interest. Coordination between maneuver headquarters and the air unit was good because of the presence of the Tactical Reconnaissance Squadron Liaison Officer at Maneuver Headquarters. This officer provided the desired coordination direct with the G2 Aerial Photo Interpretation section.

2. Tactical Air photography proved to be a remunerative source of information to both forces. This was a particularly productive source due to ineffective camouflage or concealment attempts by both forces. Also, tracks in the snow revealed mode of travel over the area and engineer effort in building of roads. Location of CP's and of the opposing maneuver force headquarters were easily discernible from aerial photographs and visual aerial reconnaissance. The construction and emplacement of dummy Honest John and Chopper John rockets at times covered by a tarpaulin made location of the actual rockets somewhat difficult to ascertain.

3. A problem which magnified itself the closer the forces came to a meeting engagement was the extensive period of time required to place the Tactical AF produced aerial photo prints in the hands of API personnel after time over target. As a result of the delay in procurement of prints from Tactical AF during the closing days of the maneuver, only visual Tac AF reconnaissance was utilized to gain more timely information. This type of reconnaissance, however, was sketchy and at times inaccurate. It appears that to obtain maximum continuous use of Tac Air reconnaissance support, an administrative aircraft needs to be positioned near the processing base to expedite delivery of aerial photos.

(b) U.S. Army. 1. Available camera equipment for aerial photography from Army aircraft consisted of one KS-6 (70 mm) and two KA-24A cameras. The KA-24A cameras malfunctioned on their first flights. One KA-24A camera, later repaired, completed one mission (131 prints) before again becoming inoperative. This antiquated material remains irreparable. The KS-6 camera proved to be excellent for spot vertical and oblique photography.

2. A total of 140 target areas were covered which resulted in 706 negatives from which 1412 prints were produced. The USARAL Signal Section operated a film processing and printing facility at the USARAL Main CP which enabled speedy delivery of prints to the G2 Section. As a result, the supported units received telephonic spot reports almost immediately. However, the delivery of prints to units was unduly delayed because of lack of adequate delivery means.

3. Army aerial photography proved to be an excellent source of intelligence information when processed by trained photo interpreters. This method of collecting information is fast, accurate, and requires very little effort and coordination to execute. However, in order to realize maximum value from this source, a sound working policy must be established relative to the immediate availability of aircraft and specially trained pilots and photographers familiar with the technical aspects concerning aerial photography.

c. Combat Intelligence. (1) Extended ground reconnaissance was conducted by an Aggressor reinforced rifle company that traversed approximately 35-40 miles by tanks and M-59 armored personnel carriers in attempting a flanking movement of the US Force. This movement was accomplished rapidly, considering the terrain, and was undetected until contact was made with the US Forces. A drawback to this action was lack of communications with the Aggressor Headquarters and provision for resupply. This lack of resupply enabled the US Force to annihilate this unit with a nuclear weapon. The US Forces effectively emplaced extended ground reconnaissance teams in the Aggressor's rear areas. However, lack of communications prevented these teams from reporting collected information until they were picked up for debriefing. As a result, most of the information was too old to be of any tactical value.

(2) Fifteen prisoners were reported captured by the US Forces and fifty-four by the Aggressor. Additional prisoners were captured by both forces during the last two days of the maneuver. They are not included in the above figures, however, because they were not completely processed. Little information of intelligence value was obtained by direct interrogation of prisoners because all appeared to have observed the Code of Conduct and because they were not properly processed by the battle groups. However, during subsequent meetings with the prisoners outside the interrogation tent of both forces, many were duped into revealing personal and tactical information, and many Aggressor prisoners were duped by US Forces IPW team into signing a personal property receipt in four copies, the fourth copy of which was actually a voluntary surrender statement. Since psychological methods of interrogation have been and will certainly continue to be used by a capturing force, further training is required for US personnel in their conduct as a prisoner with primary emphasis on the Code of Conduct. On the other hand, prisoners, when debriefed at USARAL Main CP stated that their captors talked freely in their presence and consequently provided the prisoners with names of personnel, locations and pending movement of the capturing forces. All personnel must be taught to understand that until the "prisoners" are returned to friendly force control, they are prisoners of war and must not indulge in casual conversation with unknown persons. Further, the need exists for maneuver forces to be trained in prisoner "play", the functions of the interrogator personnel, and prisoner of war handling from point of capture to release to higher headquarters control.

(3) Order of Battle played a minor role in this exercise. The US Force cadre training at Fort Greely and the month-long 12th Battle Group training period at Fort Richardson enabled both forces to acquire an almost complete OB of the opposing force prior to the exercise. The OB team attached to USARAL Main CP did develop OB intelligence based on information received from maneuver player forces. In this regard, during the actual maneuver, neither force fully exploited all possible means of collecting OB data and the sparse reports prepared were not timely.

(4) Prior to the maneuver, a representative of the US Geological Survey established 26 stations which were periodically checked for temperatures, snow depth, frost depth and lake ice thickness. From 1 January 1960 to the beginning of the maneuver the maximum temperature was $+42^{0}$ and the minimum temperature was -47^{0}. Snow depth inland measured from 9 to 26 inches and on lakes from 7 to 13 inches. Frost depth measured from 25 to 29 inches and the lake ice thickness was from 21 to 30 inches. In addition, the Military Geology Branch of the US Geological Survey compiled a terrain study of the LITTLE BEAR maneuver area which included maps of cross country movement, surficial deposits and vegetation. Weather service for opposing forces was provided by the 11th Weather Squadron USAF liaison officer attached to USARAL Main CP. Forecasts included expected precipitation, wind speeds and direction, maximum and minimum temperatures expected, dew point, sky condition, etc. The subsequent weather forecasts proved to be most accurate. Both forces compiled weather (temperature and snow depth) data in their areas of operation and forwarded this data to USARAL Main CP. The highest temperature recorded during the period was $+22^{0}$ F. The lowest temperature experienced was -25^{0} F. Snow depth varied from $24\frac{1}{2}$ to 35 inches.

(5) Radiological fallout monitoring and reporting. Radiac instruments were on hand and were used by both sides when they employed nuclear weapons, but neither side made any attempt to determine fallout on their own positions. Reporting on the results of monitoring was spotty by both forces. This indicates a requirement for more radiological training in preparation for future maneuvers.

(6) Counterintelligence. (a) Counterintelligence Corps specialists searched their respective areas and checked on light discipline and passwords. However, closer cooperation between the battle groups S2's and the CIC specialists prior to the outset of the maneuver is necessary to acquaint the S2's fully with the capabilities and duties of CIC personnel in the field. Maps, rosters, complete SOI, and position locations were carried forward of the battle area by US Force reconnaissance elements, and upon capture aided the Aggressor Force materially in spotting locations of outposts and units. Captured US Force SOI enabled the Aggressor to enter the US Force communications net and effectively obstruct and confuse US Force radio communications.

(b) Camouflage. Attempts at camouflage by both forces included the use of white rags, towels, trees and shrubs, and the snow which aided in breaking the outline of tentage and vehicles. Weapons and vehicles were also splotched with white paint. These measures were partially effective from ground observation; however, aerial observation, both visual and photographic, easily indicated the presence of tentage, vehicles and weapons in the snow covered terrain because of the abrupt endings of trails. Trails should be continued past the actual CP location and dummy CPs should be constructed to deceive the enemy.

(7) Army Security Agency activities. (See Annex D (Classified) to Section IV).

d. Behind the lines activity was conducted early in the maneuver by positioning one Special Forces team in the rear of each opposing force. Each team was composed of eight Special Forces personnel and three scouts of the 1st Scout Battalion, Alaska National Guard. The maneuver area, being sparsely settled, afforded these teams no opportunity to organize and use civilians to assist them. The principle missions assigned to the Special Forces were to locate opposing force rockets, command posts, and determine the disposition of their forces. The collected intelligence of both Special Forces teams proved to be of no value because of lack of communications with respective force headquarters. As a result of no communications, one team resorted to using the highway outside the maneuver area, which was illegal, while the other team was "lost" to its unit for five days after positioning. It appears that inadequate preparation and insufficient knowledge of the Special Forces teams capabilities precluded their best utilization in the maneuver. One of the contributing factors for this may have been that the Special Forces personnel attended the Cold Weather and Mountain School at Fort Greely prior to the maneuver and only joined their respective units while intransit to the maneuver area.

e. Patrols. (1) The employment of 12-man extended ground reconnaissance patrol by the US Force early in the maneuver enabled them to gain information pertaining to the Aggressor Support Base and the MSR, which resulted in the destruction of vehicles, supplies, and a bridge. However, lack of communications precluded the reporting of this information which was made available only after the patrol was picked up. However, this late information enabled the US Force to successfully air-land a company-size raiding force in the Aggressor static rear supply area. Had communications been functioning properly, this patrol could have acted as a pathfinder detachment for the raiding company. This patrol operated without detection for a period of six days except for two members who volunteered for capture. The success of the patrol's activity was further enhanced by the use of fake Aggressor identity books which apparently confused the captors. Unfortunately, these prisoners

were not turned over to the attached IPW team for interrogation, and "planted documents" were not given to the Aggressor S2 for possible immediate tactical reaction.

(2) Other than the patrol activity by the Special Forces Teams and the extended ground reconnaissance patrol, forward units used patrols primarily for route reconnaissance and trail breaking.

f. Outposts. The US Forces positioned five outposts early in the maneuver by helicopter. This was an excellent tactical maneuver, however, lack of communications with the unit failed to provide for the transmission of observed intelligence information. Further, the outposts were not withdrawn as the Aggressor approached, thus contributing to the capture of personnel and documents, including an SOI/SSI.

g. Target Acquisition. The five short range and two medium range radars of the Radar Section, Combat Support Co, US Force, were mock-ups, and as such their full capabilities and effectiveness could not be determined. Umpires were not available at the radar positions, and the manual operation of the radars could not be checked, therefore, credit was not given for the pick-up of Aggressor vehicles which came within range of the radars. The search chart submitted with the radar location overlay indicated stationary search areas only, which also contributed to the "no pickup" decision.

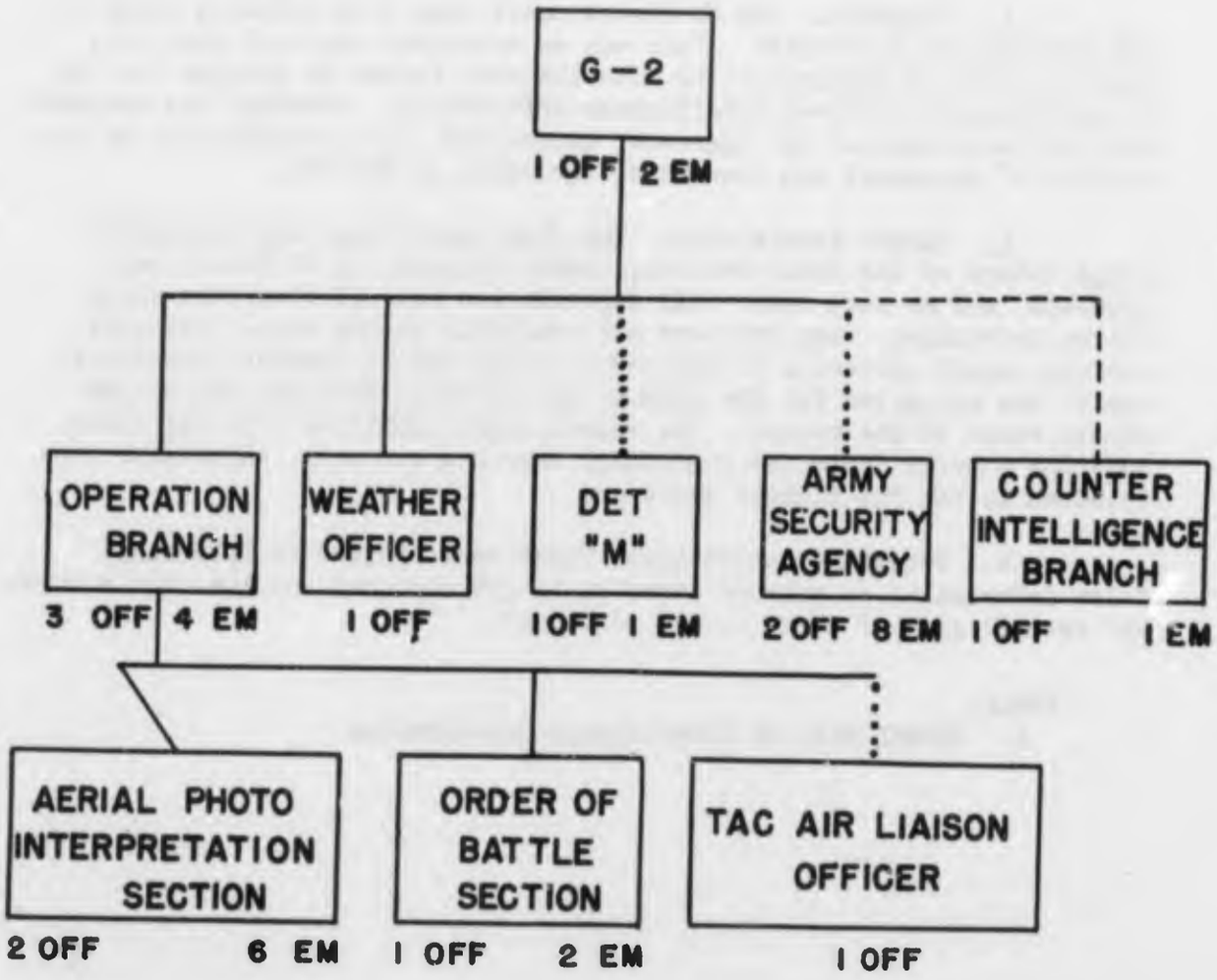
h. Deception Activities. These were limited to "planting" false information on persons directed to get captured and the construction and camouflaging of dummy rocket positions.

TABLE:

1. **USARAL Main CP Intelligence Organization**

TABLE I TO SECTION III

USARAL MAIN CP INTELLIGENCE ORGANIZATION



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Annex A (Weather Data During Exercise) to Section III (Intelligence) to Final Report, Exercise LITTLE BEAR

WEATHER DATA DURING EXERCISE

1. General. Weather data during the period 10 through 20 February 1960 was gathered daily by participating forces in their respective areas of operation, and by an Air Force weather officer, 11th Weather Squadron, Elmendorf Air Force Base, attached to USARAL Main CP located at Tolsona Lake, Alaska.

2. Mission. The weather officer provided the following support:

a. Limited observations to include estimated ceilings and visibility, restrictions to vision, wind speed and direction, temperature, dew point, station pressure for altimeter settings, snowfall and snow depth.

b. Preparation of weather forecasts twice daily.

c. Preparation and presentation of weather briefings to the USARAL Main CP Staff at least twice daily.

3. Discussion. a. Weather during the exercise was mainly influenced by the arctic front which fluctuated back and forth across the Chipper River Basin. Temperatures averaged near normal with no unusual extremes occurring during the period.

b. Upper air winds, to 102,000 feet, were received from Fairbanks, Anchorage, Yakutat, and Whitehorse. These stations are located 150 to 350 miles from the maneuver area and are on the other side of mountain ranges. The mountainous terrain may have affected the accuracy of lower level winds obtained from these stations.

c. A summary of weather conditions at USARAL Main CP, Tolsona Lake area, disseminated to staff sections thereof and to the participating units, follows. The average daily temperatures were maximum of $+15^{0}$, minimum of -9^{0}; the extreme temperatures were maximum of $+22^{0}$, minimum of -22^{0}. Total snow fall amounted to 1 3/4 inches, and the maximum snow depth was 21½ inches.

d. Weather conditions reported in the area of the US Forces were: Average daily temperatures maximum $+12^{0}$, minimum of -11^{0}; extreme maximum of $+22^{0}$, extreme minimum of -25^{0}. Snow depth throughout the area measured 28 to 35 inches.

e. Weather conditions reported in the area of the Aggressor Forces were: Average daily temperatures of maximum 8^{0}, minimum of -16^{0}; extreme maximum 15^{0}, extreme minimum of -22^{0}. Snow depth throughout the area measured 24½ to 33½ inches.

TABLE:
1. Weather Conditions

Table 1 to Annex A to Section III

DATE (Feb)	SKY CONDITION	VISIBILITY	RESTRICTION TO VISION	WIND	TEMPERATURE MAX	TEMPERATURE MIN	SNOW AM'T	SNOW DEPTH
10	Cloudly to Partly Cldy	Poor to good	very light to light snow	light & variable	16	2	½"	21"
11	"	"	very light to light snow, fog	"	10	0	¼"	21½"
12	Partly Cldy to clear	"	very light snow, fog	"	2	-20	trace	21½"
13	Cloudy to clear	"	Fog	SW, 5 knts	9	-22	none	21"
14	Partly cloudy	Good	very light snow	"	17	-6	trace	21"
15	Cloudy to partly cldy	Good	none	light & variable	20	-13	none	20½"
16	"	Poor to good	Very light snow, fog	"	16	-13	trace	20"
17	Partly cldy to clear	"	Fog	"	14	0	none	19½"
18	Clear	Good	None	"	22	-16	none	19"
19	Cloudy to Partly Cldy	Good	very light snow	SSW, 8-12 knts.	17	-15	trace	19"
20	Clear	Good	none	Light & variable		-12	none	19"

SECTION IV - OPERATIONS AND TRAINING

Part I - Premaneuver Training

1. GENERAL. Premaneuver training for the participating troops consisted of:

a. Training at home station prior to arrival of the troops in Alaska.

b. Training of CONUS cadre personnel by the US Army Cold Weather and Mountain School, Fort Greely, Alaska.

c. Individual and unit training of CONUS troops upon their arrival in Alaska.

d. Training of USARAL troops.

e. Umpire training.

2. MISSION. The purpose of premaneuver training was to familiarize individuals and units selected for the Exercise with environmental effects, special equipment, techniques, and tactics applicable to the northern operations under severe climatic conditions. This was considered important for the CONUS element; with only minimum time available, for preparations and specialized training.

3. DISCUSSION. The training objectives of the Exercise were satisfied to an outstanding degree. Yet, several deficiencies were noted in training that should be corrected for future field exercises. The premaneuver training provided was as follows:

a. CONUS Troops. (1) Field training for the designated CONUS troops was as thorough and comprehensive as possible within time available (86 hours at Fort Lewis, Washington; 132 hours at Fort Richardson, Alaska; and 174 hours for cadre personnel at Fort Greely, Alaska).

(2) The Program of Instruction for pre-exercise training at home station is included as Annex A to this section covering the period 27 October to 19 December. This training phase, consisting of formal classroom instruction, basic ski training at Mount Rainier, and land navigation problems, provided a basis for the training in Alaska. Ordnance, Signal and Engineer schools on maintenance and operation of equipment in cold weather were conducted by technical service personnel from USARAL. Prior to the pre-exercise training phase at Fort Lewis, Washington, one officer from Headquarters, USARAL, was assigned for temporary duty with the 1st Battle Group, 12th Infantry, in an advisory capacity in cold weather matters. This officer remained with the battle group until the termination of the field exercise. The assignment of a qualified advisor to the CONUS

unit during the early stage of the Exercise, and the conduct of training in maintenance and operation of special equipment, was profitable. Due to limited time available in Alaska for individual and unit training, several subjects indicated in subparagraph 1b(2)(c), Part IV to Section VII, should have been conducted at the home station. This would have allowed sufficient time for mandatory subjects requiring cold weather training in the theater.

(3) Training for cadre personnel of the CONUS element (18 officers and 110 NCO's) was conducted by the US Army Cold Weather and Mountain School at Fort Greely, Alaska during the period 8 November through 6 December 1959. The Program of Instruction consisted of three weeks formal school training followed by a one-week battle group field exercise. This was accomplished by assigning students to observe the ATT of the 1st Battle Group, 9th Infantry, at Eielson Air Force Base. Since the ATT was conducted under terrain conditions different from that of the actual exercise, it appeared that this assignment of observers had no training value. In retrospect, this assignment of observers is morally objectionable, in that it provided the US Force cadre an opportunity to note the operational characteristics of the unit, which would oppose them later as Aggressor in the Exercise. Further, this additional personnel handicapped the tested unit administratively and tactically in its conduct of the ATT. The time spent as observers could have been more effectively utilized in additional training at the Cold Weather and Mountain School. The capability of the cadre personnel to perform as winter warfare instructors during the individual and unit training phase, and to perform as small unit leaders during the actual Exercise was noteworthy. Knowledge of certain techniques and tactics in northern operations, i.e., skijoring, trailbreaking, land navigation, etc., was lacking. This situation could have been rectified by additional training in these subjects at the Cold Weather and Mountain School. The list of subjects that require additional training are included in subparagraph 1b(2)(e), Part IV to Section VII.

(4) The individual and unit training phase was conducted at Fort Richardson, Alaska during the period 11 through 29 January 1960. The original program of instruction required four weeks of training, but the prolonged air movement from Fort Lewis, Washington, to Alaska, preparation for the Exercise and the extensive highway movement to the maneuver area reduced the actual training time to three weeks. It is felt to effectively employ an airlifted battle group from CONUS in northern operations, a minimum of four weeks of specilized training is required. The specific deficiencies noted during this training phase are indicated below:

(a) The normal range firing program,as conducted, was unprofitable. The time spent in this program could have been better utilized in familiarization firing in deep snow, using various positions and weapon rests.

(b) Cadre personnel, due to limited instruction received, were unable to give adequate training in combat and trailbreaking techniques in deep snow.

Figure 1 (Part I) to Section IV. 4th Inf Div troops'Ski Training at Ft Greely.

Figure 2 (Part II) to Section IV. 4th Inf Div troops Skijoring at Ft Greely.

Figure 3 (Part 1) to Section IV. 4th Inf Div troops pre-Exercise training in Alaska.

Figure 4 (Part 1) to Section IV. 4th Inf Div troops pre-Exercise training in Alaska.

b. USARAL Troops. (1) Premaneuver training for the 1st Battle Group, 9th Infantry, consisted primarily of preparation for and conduct of battle group Army training test (30 November through 3 December 1959), routine cold weather and oversnow training, and instructions to personnel on Aggressor organization and procedures for Exercise LITTLE BEAR. The above training was considered adequate for a battle group that has been stationed in Alaska. Yet, umpire and observer reports of the field exercise indicate that additional training is needed in certain techniques such as land navigation, planning and conduct of cross-country movements, to include route selection, trailbreaking, security on the march, and the establishment of bivouac areas to include security measures.

(2) The same umpire personnel, with minor changes in assignment, were used for umpiring the 2 separate training events prior to Exercise LITTLE BEAR. These were:

(a) The War Game, Exercise LITTLE BEAR (22 through 25 September 1959).

(b) ATT for the 1st Battle Group, 9th Infantry (30 November through 3 December 1959). The ATT provided an excellent opportunity to check organization and equipment, and to rehearse the personnel in their assigned umpire duties.

(c) A short, formal umpire school was conducted prior to above training events as well as on 21 through 23 January 1960 prior to the beginning of Exercise LITTLE BEAR.

SECTION IV

Part II - Operations

1. GENERAL. This part examines in detail the mission for Exercise LITTLE BEAR as promulgated by the Department of the Army directive for the Exercise and as reflected in the day-to-day actions of each side during the maneuver. Conclusions and recommendations are found in Section VII of this report.

2. MISSION. The objectives of the Exercise as outlined in paragraph 2, Section I of this report were satisfied to an outstanding degree.

3. DISCUSSION. a. Air Movement. (1) The movement of the CONUS combat team from Fort Lewis, Washington to Fort Richardson, Alaska by MATS was a smooth operation introducing no particular problem areas.

(2) Nine C-124 (C-type) aircraft flying 32 sorties were required to move a total of 1643 personnel and 431,000 pounds of cargo from the Continental United States to Alaska. Total time elapsed for this movement was 5 days and 21 hours. The advance party consisting of the first 9 flights was on schedule; however, later flights carrying the main body of the combat team were approximately 12 to 18 hours behind the original schedule.

(3) The movement of the battle group from CONUS to Alaska did not provide a realistic picture of movement capabilities in an emergency due to the limited number of aircraft allocated.

(4) Return of the combat team from Fort Richardson, Alaska to Fort Lewis, Washington by MATS aircraft was performed in an excellent manner. The airlift consisted of 27 sorties and required two days and 15 hours. The entire return operation was completed 27 hours earlier than previously scheduled. The reduced number of sorties required for the return movement was a result of:

(a) C-124 (D-type) aircraft were used in lieu of C-124 (C-type) aircraft.

(b) Less fuel was carried by each aircraft because of the location of the alternate airfields along return route. This in turn allowed additional cargo loads on each flight.

(c) Favorable tail wind reduced flying time and gasoline requirements.

b. Guidance. Guidance contained in Headquarters, USCONARC Training Directive, 1 July 1958, and Annex L to this directive, subject: "Standing Operating Procedure for the Conduct of DA and USCONARC directed Field and Command Post Exercises," dated 13 August 1958 as modified by

Figure 1 (Part II) to Section IV. Arrival of CONUS element at Elmendorf Air Force Base.

Letter ATTNG-D&R 461/23, Headquarters, CONARC, 26 Jan 59, subject: "Annex L to USCONARC Training Directive" was followed to the maximum practical extent.

(1) During the actual field exercise, air activity, other than Army Air, was limited to:

(a) Two logistical resupply drops on 14 February 1960; one for US and one for Aggressor Force, consisting of approximately 10,000 pounds of POL and rations each. Two C-123 type aircraft from the 5040th Operations Squadron, Elmendorf Air Force Base performed these drops at DZ's as requested by the Task Force commanders.

(b) Evacuation flights from the 51st Field Hospital at Tolsona Lake to 5040th USAF Hospital at Elmendorf AFB (actual cases only) by the 10th Air Division on an "on call" basis.

(c) Daily courier and mail flights between Elmendorf AFB and Main CP, Headquarters, USARAL, at Tolsona Lake utilizing C-47 type aircraft performed by the 5006th Air Transport Squadron (L), Alaska Air Command.

(d) Nine photographic missions flown by four RB-57 aircraft from the 154th Tactical Reconnaissance Squadron, ANG, Arkansas, using Elmendorf AFB for base of operation during the Exercise. A liaison officer from the same organization was assigned to Main CP, Headquarters, USARAL, throughout the Exercise.

(e) A weather officer from the 11th Weather Squadron, Elmendorf AFB assigned to Main CP, Headquarters, USARAL, providing all interested agencies with daily and special weather forecasts.

(2) Chemical and Biological warfare was only partially implemented.

(a) The radiological aspect of all nuclear bursts were considered and played where appropriate.

(b) Each side was given a toxic chemical attack capability in the form of an ammunition allocation for weapons in the hands of the troops and for which standard ammunition exists.

(c) Both Task Forces were given biological warfare capability. This forced each side to take the necessary protective measures. A detailed summary of chemical and biological warfare play is found in Part IV of Section IV.

(3) Unconventional warfare play was implemented by attaching:

(a) Team FA-22, 77th Special Forces Group to US Force.

(b) Team FA-24, 77th Special Forces Group to Aggressor Force.

(c) Each team was reinforced with three members of the Alaska National Guard. Operational planning and use of the Special Forces teams were left to the discretion of the task force commanders.

(4) The Exercise provided realistic and beneficial training for battle group commanders and staffs.

c. Test and Evaluations. Exercise LITTLE BEAR provided an opportunity for evaluation of human factors in northern operations and for testing of various items of equipment. The agencies responsible and the items tested are listed below.

(1) USA Arctic Test Board, user tests of:

(a) Bag, sleeping, cold-dry.

(b) Canteen, cold weather.

(c) Load carrying system, cold-dry and alpine.

(d) Stove, individual.

(e) Tent, arctic, 10-man (modified).

(f) Towel, paper, cleansing, wet.

(g) Uniform, field, combat, cold-dry.

(2) HUMRRO survey of human factors in military performance in extreme cold weather.

(3) USARAL troop tests and evaluations comprising:

(a) Effectiveness of minefields in cold weather and deep snow (ARACD 60-T-1).

(b) Evaluation of Ice and Snow Melter (ARACD 60-T-2).

(c) Evaluation of Tractor, Cargo, M8A2 (ARACD 60-T-3).

(d) Evaluation of Trailer, Cargo Transporter, Off-Road, Rough Terrain, Large Wheel, 10-ton capacity.

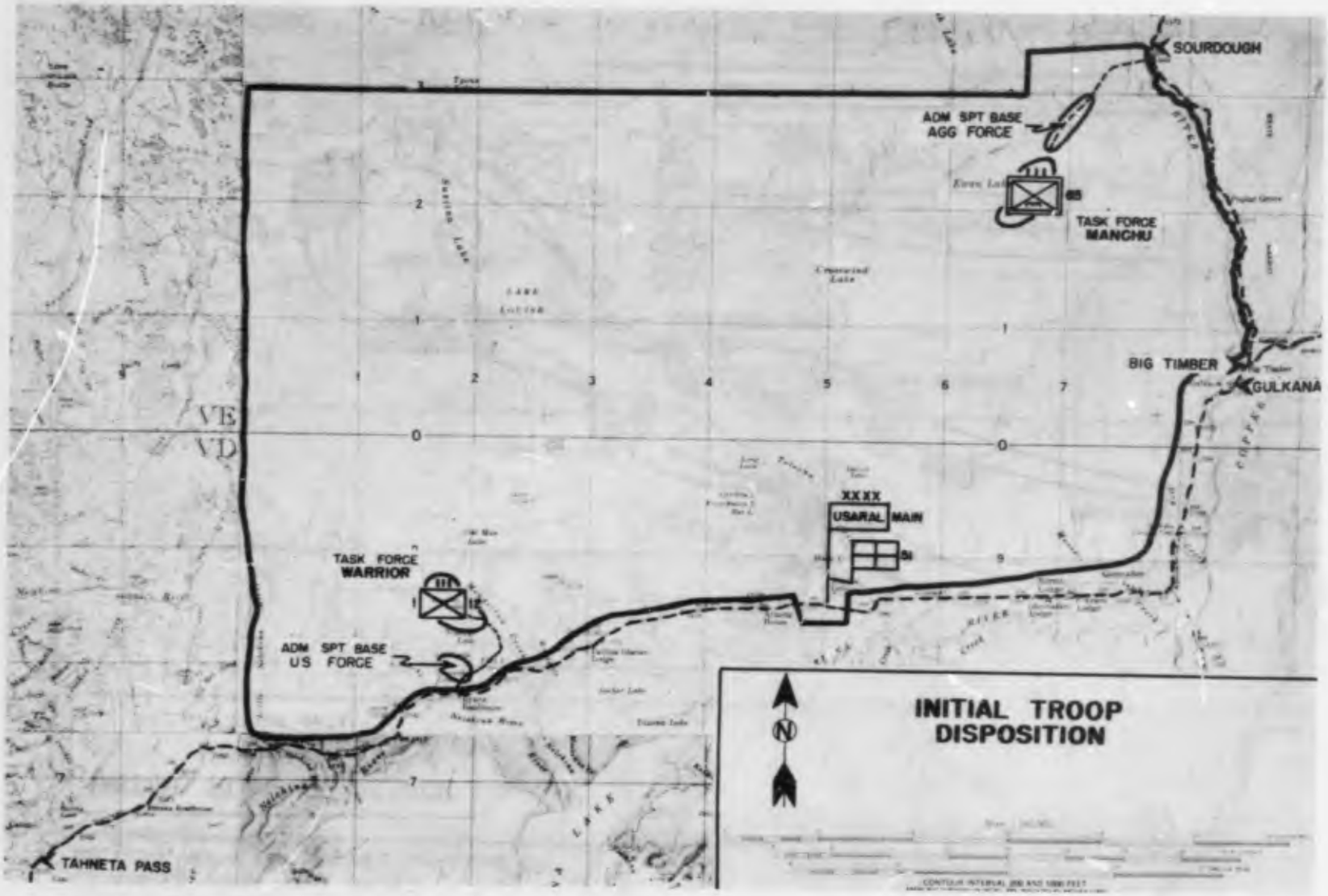


Figure 2 (Part II) to Section IV

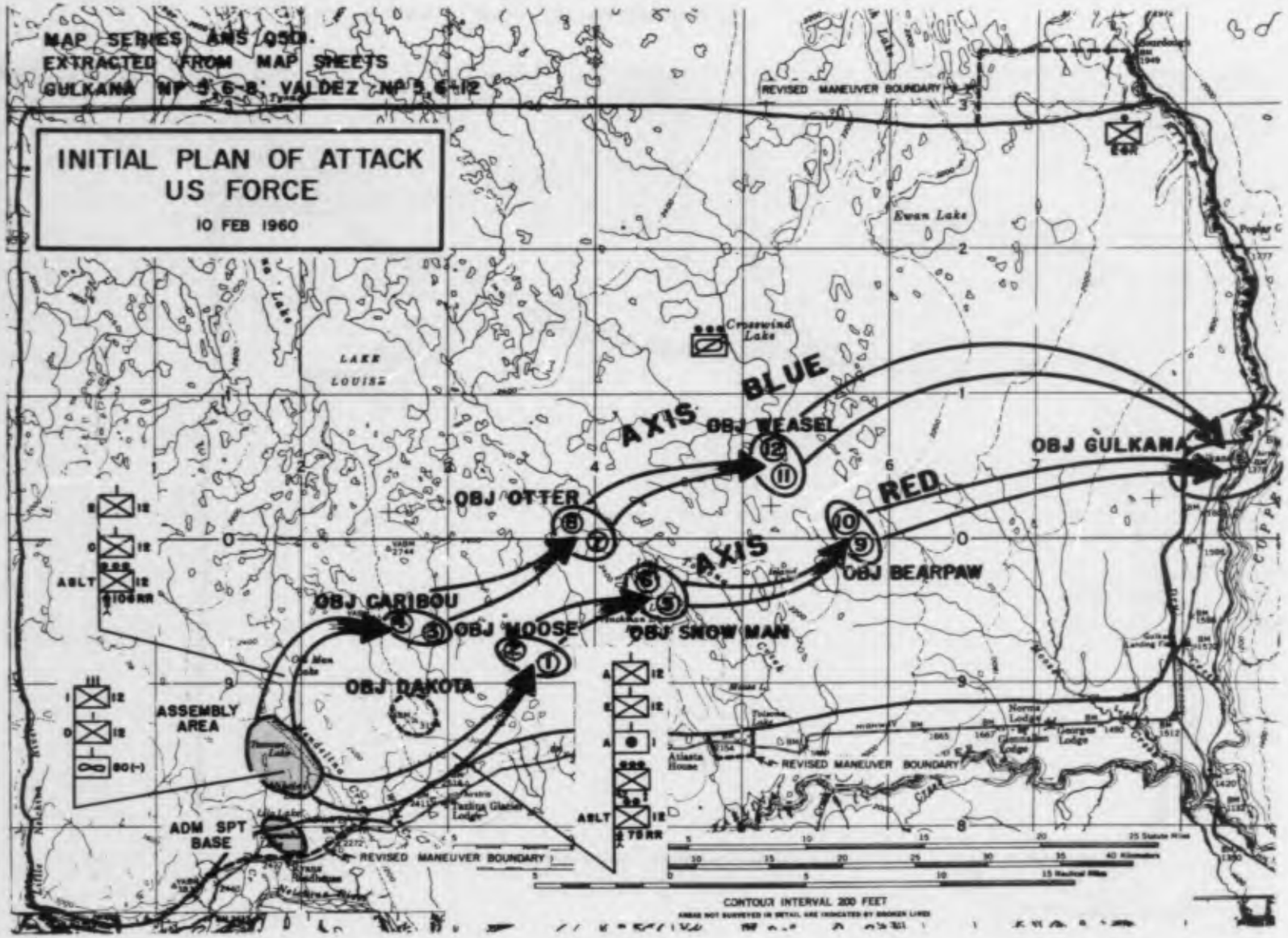


Figure 3 (Part II) to Section IV

(e) Evaluation of "Snow Traveler" (commercial item).

(f) POL Tank, Collapsible, 3000 gallon capacity.

(4) Information on results of several of these tests is developed in more detail in the annexes, to Section VI. Summary of the test reports are inclosed as Section VI to this report.

d. Movement and Planning. (1) Participating troops moved administratively from Fort Richardson and Ladd-Eielson Air Force Bases by highway, and closed into their initial assembly areas, as indicated in Figure 2, by noon 9 February 1960. Battle Group Commanders were provided with appropriate intelligence summaries, situation reports, operation orders and administrative orders to initiate the maneuver.

(2) The "no-fly line" was an arbitrary line established separately for each side beyond which aircraft were prohibited except with individual flight clearance by the Maneuver Director. The establishment of this line was an attempt to artificially provide a limit to aerial observation that would be normally imposed by enemy anti-aircraft fire. This prohibition against unrestricted use of reconnaissance and observation aircraft over enemy lines forced commanders to realistically develop the enemy situation by exploiting all other means available to gather intelligence. During the last phase of the problem the "no-fly line" was abolished and umpires imposed penalties on aircraft that could reasonably be assumed to have been shot down by the enemy.

(3) Both US and Aggressor Forces developed operation plans and published their initial operation orders. In general, the US Force's plan called for an attack 10 February on two axes (Red and Blue), by helicopter, and skis to seize Objective MOOSE and CARIBOU, continue attack 11 February to seize Objectives SNOWMAN and OTTER, and on the succeeding days to seize the objectives as indicated in Figure 3. Generally, the advance of the US Force was intended to parallel the Glenn Highway to Gulkana, the final objective. The concept of the Aggressor plan called for an attack on two axes (north and south) by armor, armored carriers, skis and snowshoes from the initial assembly area on 10 February, as indicated in Figure 4. The main effort was placed on Axis North providing a wide right-hand flanking movement toward Tahneta Pass, the final objective. The purpose of the smaller column on the Axis South was primarily that of a deception-- the only major deceptive effort made during the Exercise. Detailed day-to-day accounts of the Exercise are as follows:

e. Day-to-Day Account of Activities by Each Side.

(1) First Day: Wednesday, 100001 to 102400 February.

(a) Task Force Warrior US Force. Tactical phase of the field exercise commenced at one minute after midnight the morning of 10 February 1960. Task Force Warrior moved out from the initial assembly

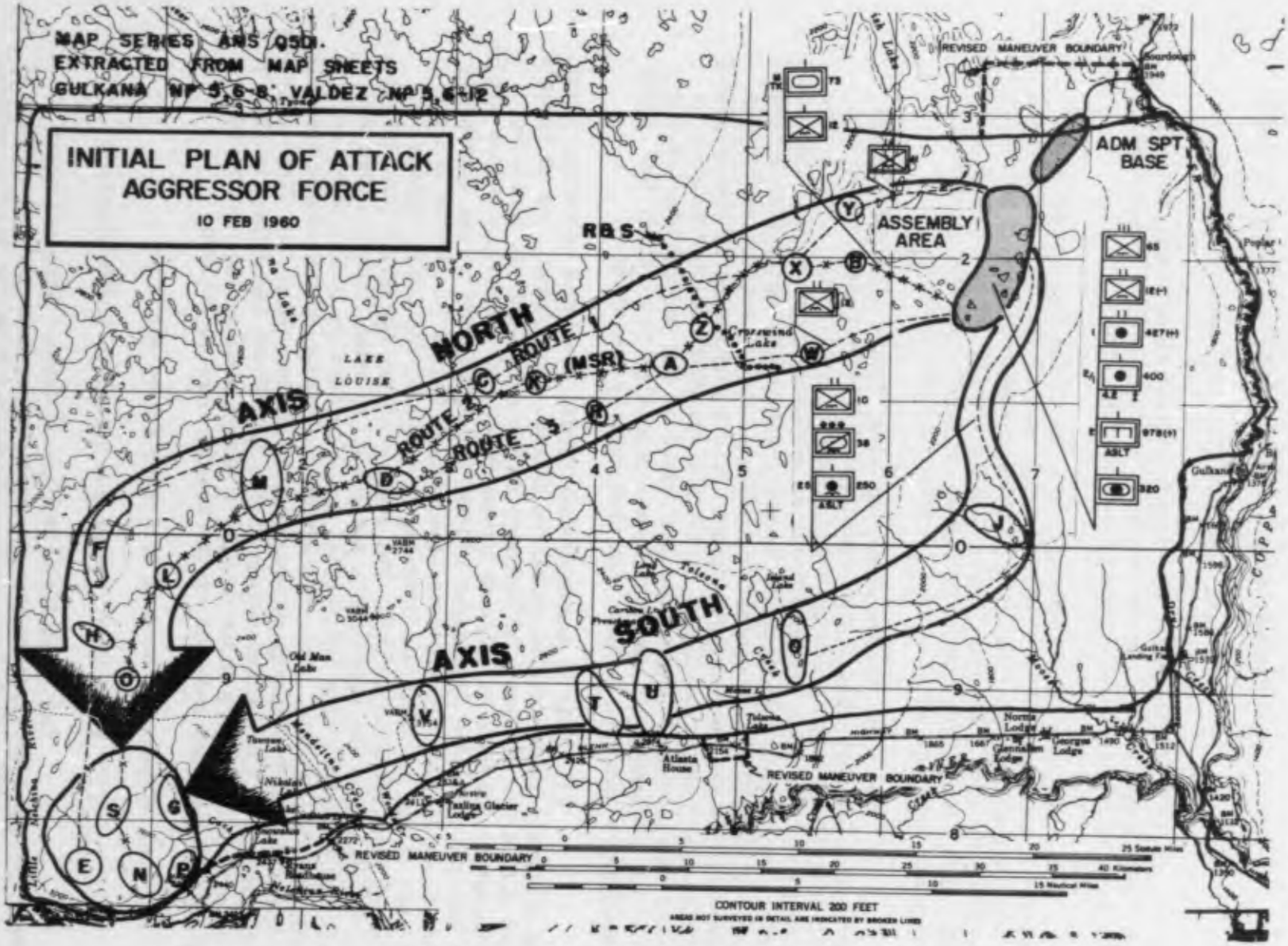


Figure 4 (Part II) to Section IV

area on two axes (Red and Blue), approximately 7 miles apart, and reached the objectives as indicated in Figure 5. Trailbreaking parties were dispatched insufficiently ahead of the main body resulting in the trailbreaking parties being overrun. Due to light snowfall and limited visibility, air movement was curtailed. Only one company (Co D) was airlifted from the assembly area to Objective 1 (12.5 air miles); Co E moved approximately 12 miles on skis and was then lifted for the last 5 miles to Objective 2 by air. The reconnaissance platoon was airlifted and established five outposts on the west side of Crosswind Lake; also, an extended ground reconnaissance (EGR) element of 12 men was landed in Aggressor rear (5 miles southwest of Sourdough). The Engineer Co was given mission of constructing a MSR, on Axis Red. Artillery and Heavy Mortar Platoon were placed in general support.

(b) Task Force Manchu Aggressor Force. Infantry elements moved out from the initial assembly area toward the north end of Crosswind Lake on Axis North; 11th Airborne Parchute Rifle Battalion on skis or snowshoes north of Ewan Lake and 12th and 13th Airborne Parachute Rifle Battalions supported by Tank Co, 320th Motor Sled Transport Co (armored personnel carriers) and Engineer Co south of Ewan Lake. The 10th Airborne Parachute Rifle Battalion (reinf) advanced by skis on Axis South. Artillery was in general support of the Task Force. Armored personnel carriers (APC) were dispatched, but not attached, to various infantry units, primarily to move equipment and supplies. Only 18, out of 56 M59's, were used for transportation of personnel. Tank company as a lead element broke the trail for the following infantry elements. Because of rugged terrain, poor freezing condition of the waterways and excessive weight of tanks and APC's, several of them bogged down. At the end of the first day of operation, only Medium Tank Co, 73d Reconnaissance Squadron had reached, and bypassed, the north end of Crosswind Lake, approximately 10 miles from the initial assembly area. Land navigation was found to be very difficult due to lack of land-marks in heavily wooded areas.

(c) Disposition of US and Aggressor Forces at the end of the first day is indicated in Figure 5.

(2) Second Day: Thursday, 110001 to 112400 February.

(a) Task Force Warrior. Low ceiling prevented heliborne movements until mid-afternoon. Two platoons were dispatched (one from Objective 1 to Objective 6 (Company D), and one from Objective 2 to Objective 7 (Company E) to break ski trails and prepare for Task Force cross-country movement scheduled for the following day. Special Forces team FA-22 was landed on the lake 4 miles east of the southern end of Crosswind Lake (GC 5806). Engineer company continued construction of MSR on Axis Red.

(b) Task Force Manchu. Continued advance in accordance with Operation Plan and reached the following locations: The 10th Airborne Parachute Rifle Battalion (reinf) Moose Creek at GC 6296; the 11th Airborne

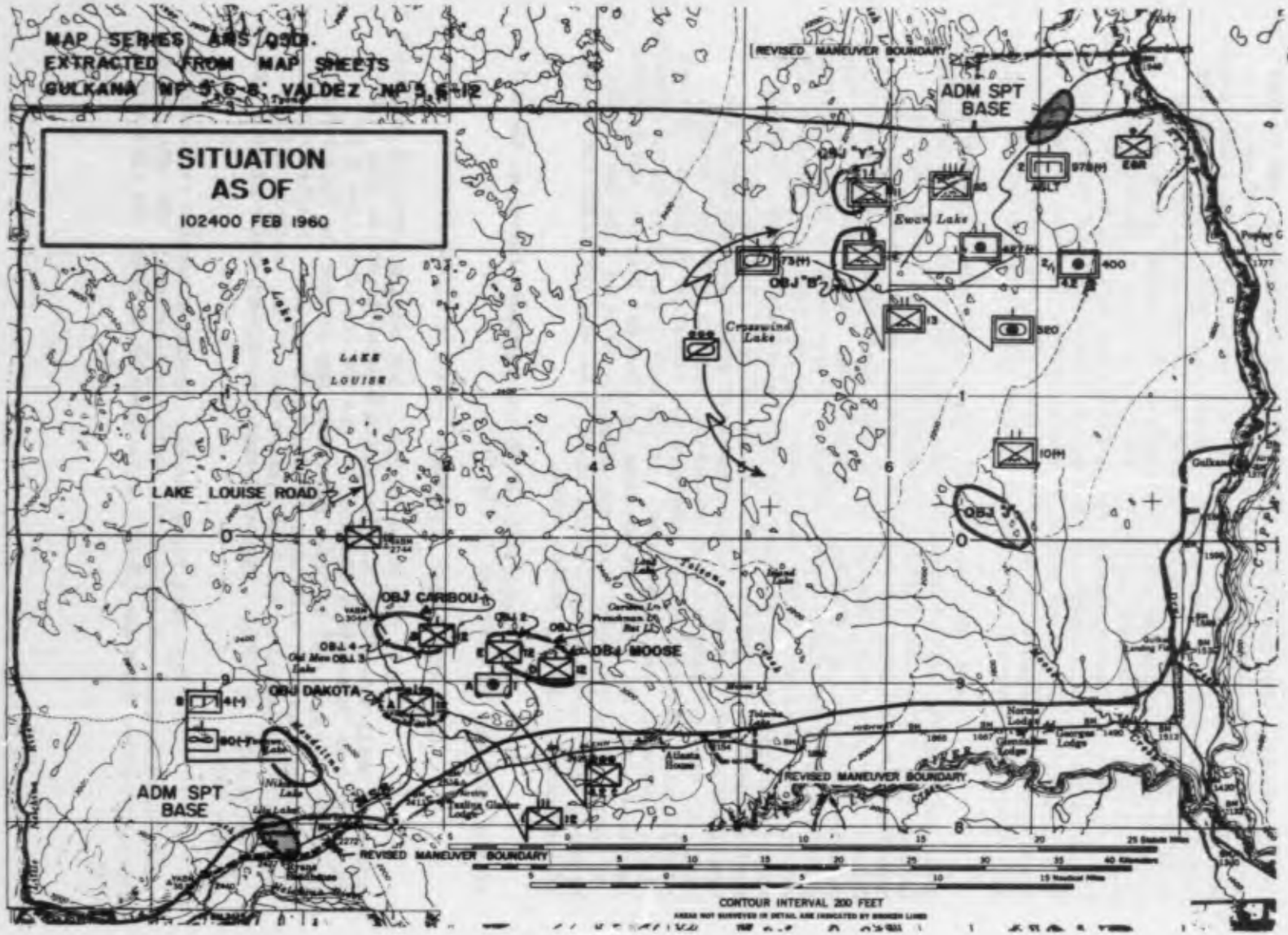


Figure 5 (Part II) to Section IV

Figure 6 (Part II) to Section IV. Cross-country movement on skis.

Figure 7 (Part II) to Section IV. M76 "Otter" on cross-country movement.

Parachute Rifle Battalion west of Crosswind Lake at GC 4615; the 12th Airborne Parachute Rifle Battalion at GC 4213; the 13th Airborne Parachute Rifle Battalion southwest end of Crosswind Lake at GC 4908; and the Medium Tank Co, 73d Reconnaissance Squadron 3 miles west of Crosswind Lake at GC 4212. No enemy contact.

(3) Third Day: Friday, 120001 to 122400 February.

(a) Task Force Warrior. Clear weather conditions permitted a maximum use of Army aircraft. Two rifle companies were heliborne as follows: Co A from Objective DAKOTA to Objective 5 (eastern portion of Objective SNOWMAN), a distance of 11.5 airmiles, and Co B from Objective 3 (CARIBOU) to Objective 9 (western portion of Objective OTTER), a distance of 7.5 airmiles. One platoon of Co B landed 7000 meters beyond Objective OTTER due to navigational error by the pilot. The platoon successfully withdrew to company position when the error was noted. Utilizing ski trails that were broken the previous day, two companies moved unopposed on skis as follows: Co D from Objective 1 to Objective 6 and Co E from Objective 2 to Objective 7. (Distance covered was approximately 7 miles.)

(b) Task Force Manchu. The 10th Airborne Parachute Rifle Battalion (reinf) reached the eastern shore of the lake located at GC 5797 (a distance of 4 airmiles); the 11th Airborne Parachute Rifle Battalion continued its southwesterly drive and moved approximately 6 miles to a location at GC 4209; the 12th Airborne Parachute Rifle Battalion and Medium Tank Co remained in their previous positions; the 13th Airborne Parachute Rifle Battalion moved approximately 4 miles southwest to a new location at GC 4705. Artillery battery to include 1st Battery, 25th Missile Battalion, displaced forward to GC 4715; Mortar battery displaced south along eastern shore of Crosswind Lake and moved into a position at south end of Crosswind Lake.

(4) Fourth Day: Saturday, 130001 to 132400 February.

(a) Task Force Warrior. The displacement of the artillery battery, five miles to GC 3897, marked the only move within the Task Force for the period. Action was limited to patrolling and consolidation of positions. An unsuccessful attempt was made to pick up outposts established by the Reconnaissance Platoon on the west side of Crosswind Lake. Three men out of thirty-two were picked up by helicopter, the remainder of the individuals on outpost were captured by the Aggressor. Artillery fired several missions on a suspected company size infantry unit on Tolsona Creek (10th Airborne Parachute Rifle Battalion).

(b) Task Force Manchu. Elements of the 10th Airborne Parachute Rifle Battalion moved 5 miles southwest and reached Tolsona Creek on Axis South. The 11th and 13th Airborne Parachute Rifle Battalions remained in their present positions. The 13th Airborne Parachute Rifle Battalion captured eleven prisoners and the US Force's SOI. The 12th Airborne Parachute Battalion and the artillery battery moved up 2 to 3 miles on Axis North.

Figure 8 (Part II) Section IV. Loading of aircraft.

Figure 9 (Part II) Section IV. On the way.

(c) The following instructions were issued by the Maneuver Director to US and Aggressor Forces:

1. "Effective 140600 February hold and consolidate on present positions. Establish normal combat outpost and security against attack."

2. "Increasing evidence enemy may use nuclear weapons. Insure dispositions of forces to provide maximum protection against nuclear attack. Anticipate immediate lifting of ban on nuclear weapons if employed by the enemy."

(5) Fifth Day: Sunday, 140001 to 142400 February.

(a) Task Force Warrior. Due to the restrictions on movement, the action consisted primarily of a consolidation and improvement of the Task Force positions. Permission for the following movements was granted by the Maneuver Director: Displacement of Company A by skis from Objective 5 to the west bank of Tolsona Creek at GC 4891 (distance of approximately 4 miles) and the airlift of Company E from Objective 7 to the high ground 2000 meters north of Atlasta House (GC 4387). The extended ground reconnaissance (EGR) element was safely picked up from the vicinity of the Aggressor's Administrative Support Base by air. Aerial resupply drop was requested and completed at 1330 hours to a small lake (GC 3186) near the trains area, along the main supply route, and approximately 9 miles behind the front line units. Artillery fired a toxic mission and caused minor casualties to the Aggressor's 10th Airborne Parachute Rifle Battalion. Engineers continued improvement of main supply route and constructed a minefield at GC 2495. The Aggressor Special Forces team was captured in the Administrative Support Base area. The team leader had a current copy of the Aggressor SOI in his possession. Disposition of Task Force Warrior at the end of 14 February was as indicated in Figure 10.

(b) Task Force Manchu. Infantry elements made only minor movements to consolidate Task Force position. Enemy contact was limited to patrol action. Resupply drop was requested and completed at 1300 hours to the south end of Crosswind Lake (GC 5209), approximately 7 miles from the major troop locations. For disposition of the Aggressor Force, see Figure 10.

(c) Both forces now had each other's SOI.

(d) Full effectiveness was not achieved in use of aerial resupply missions as they were limited a single mission on a predetermined day. The using units could have made better use of this mission by a better selection of drop zones.

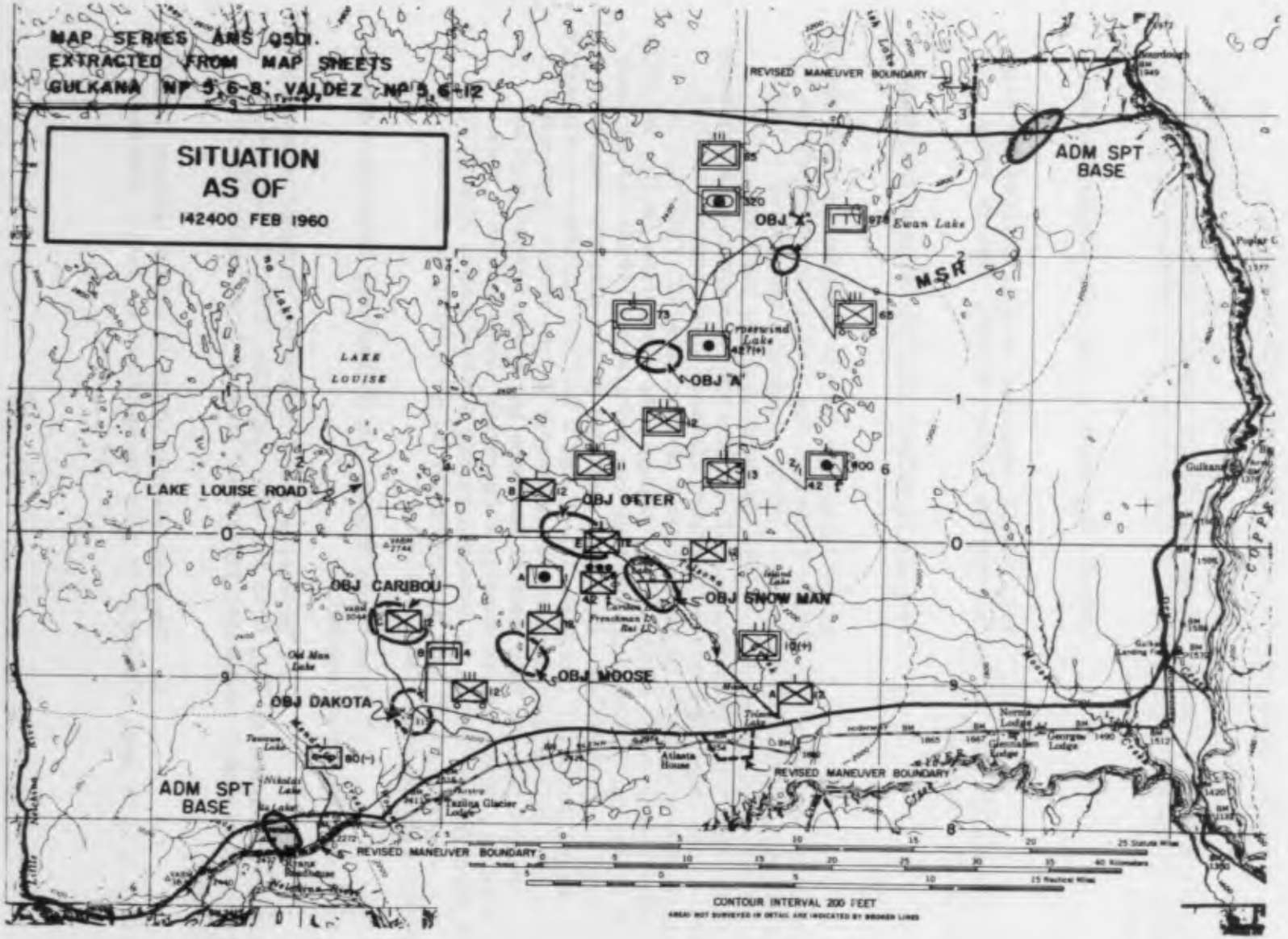


Figure 10 (Part II) to Section IV.

(6) Sixth Day: Monday, 150001 to 152400 February.

(a) Task Force Warrior. The original mission assigned to the Task Force to seize Gulkana and destroy enemy forces in area was changed by the Maneuver Director on the morning of 15 February to read as follows:

1. "Destroy Aggressor in the Lake Louise-Gulkana basin."

2. "Employ well organized raiding parties for deep penetrations in enemy's rear to disrupt communications, reserve units and support elements."

3. "Prepare to seize bridge crossing at Sourdough (GC 7833)."

Action during the period included an unsuccessful night attack conducted by Company A against the 10th Airborne Parachute Rifle Battalion position at Tolsona Creek. Company A was forced to withdraw to its original position. One aggressor tank was destroyed. For the first time since the beginning of the Exercise a company-size heliborne operation was conducted over an extended distance when Company D seized the Aggressor airstrip 3 miles northeast of Ewan Lake (GC 7026) and cut the enemy's main supply route. The company made a surprise landing directly on the airstrip. Eleven aircraft flew two sorties and lifted 150 men over a distance of 25 airmiles. Equipment captured at the airstrip consisted of 3 armored personnel carriers, 1 L-19 and 2 H-13's. Although considerable amounts of supplies were captured or destroyed in the former Aggressor Administrative Support Base most of the base had moved forward earlier that morning. There was no immediate Aggressor counteraction. Task Force Warrior also lifted an extended ground reconnaissance element by air to a location at GC 3611 at 2300 hours in an attempt to destroy Aggressor surface-to-surface missile.

(b) Task Force Manchu. On 14 February Task Force Manchu was given the following message:

1. "Effective 150600 February, continue execution of mission assigned on (Hq, 65th Abn Div) Operation Order 1. Except for patrols, no movement authorized forward of present lines until 150600 February."

2. "Overlay showing plans of attack through 160600 February will be made available to this Headquarters by 141400 February."

The plan was submitted and revised by Operation Order 2 dated 150400 February 1960. The concept of this operation was to launch an attack at dark 15 February 1960 as indicated in Figure 11. Before the attack was launched the 10th Airborne Parachute Rifle Battalion was attacked by US Force at Tolsona Creek. The battalion repulsed the US Force attack but was unable to proceed with its assigned mission of seizing Objective "U" on Axis South due to lack of POL. At 0600 hours the 11th Airborne Parachute Rifle Battalion (-) attacked on snowshoes without opposition and reached the west portion of Objective WHITE (GC 3703) 2 miles away. The 13th Airborne Parachute Battalion, supported by 2d Battery, 400th Mortar Regiment, attacked on skis, also without opposition, and reached the eastern half of Objective WHITE, 2 miles southwest of the battalion's former position. The 12th Airborne Parachute Battalion, as Task Force Reserve, conducted a daylight movement to Objective BLUE, but was brought back to the vicinity of Objective RED during the night 15-16 February by armored personnel carriers. (The distance of this round trip was approximately 9 miles.) Tank Company was directed to attack Objective BUICK, 3000 meters southwest of Objective WHITE, but on the night of 15 February its location was reported to be in the vicinity of GC 3710, northwest of Objective RED. Artillery was in general support; Engineers supported tank company and construction continued on the main supply route.

(c) The request of CO, Task Force Manchu for displacement of Gulkana Administrative Support Base was approved by Maneuver Director, and the base moved into a new location in vicinity of GC 4716. To test the mobility of the Administrative Support Bases, the Old Man Lake Administrative Support Base was also directed to move as rapidly as possible to the vicinity of GC 2786, beginning not later than 160300 February. This movement was later cancelled.

(d) On the night of 15 February Task Force Manchu was directed to launch an attack, not later than first light on 16 February to reopen the main supply route cut by US Forces heliborne attack.

(e) Nuclear play was introduced to Exercise LITTLE BEAR by a message to both forces indicating that home land centers as well as air bases in the local rear areas had been attacked with nuclear weapons. Restrictions on employment as outlined in the Maneuver Plan were placed in effect. For nuclear weapons play see Annex E to Section IV.

(f) Partial control was instituted for the remaining four days.

(7) Seventh Day: Tuesday, 160001 to 162400 February.

(a) Task Force Warrior. Continued to develop their positions and prepared to attack in the direction of Sourdough as directed by the Maneuver Director. Company A attacked Aggressor at 0300 hours at Tolsona Creek, but was again forced to withdraw. Company B withdrew approximately 2 miles south to take advantage of more favorable terrain.

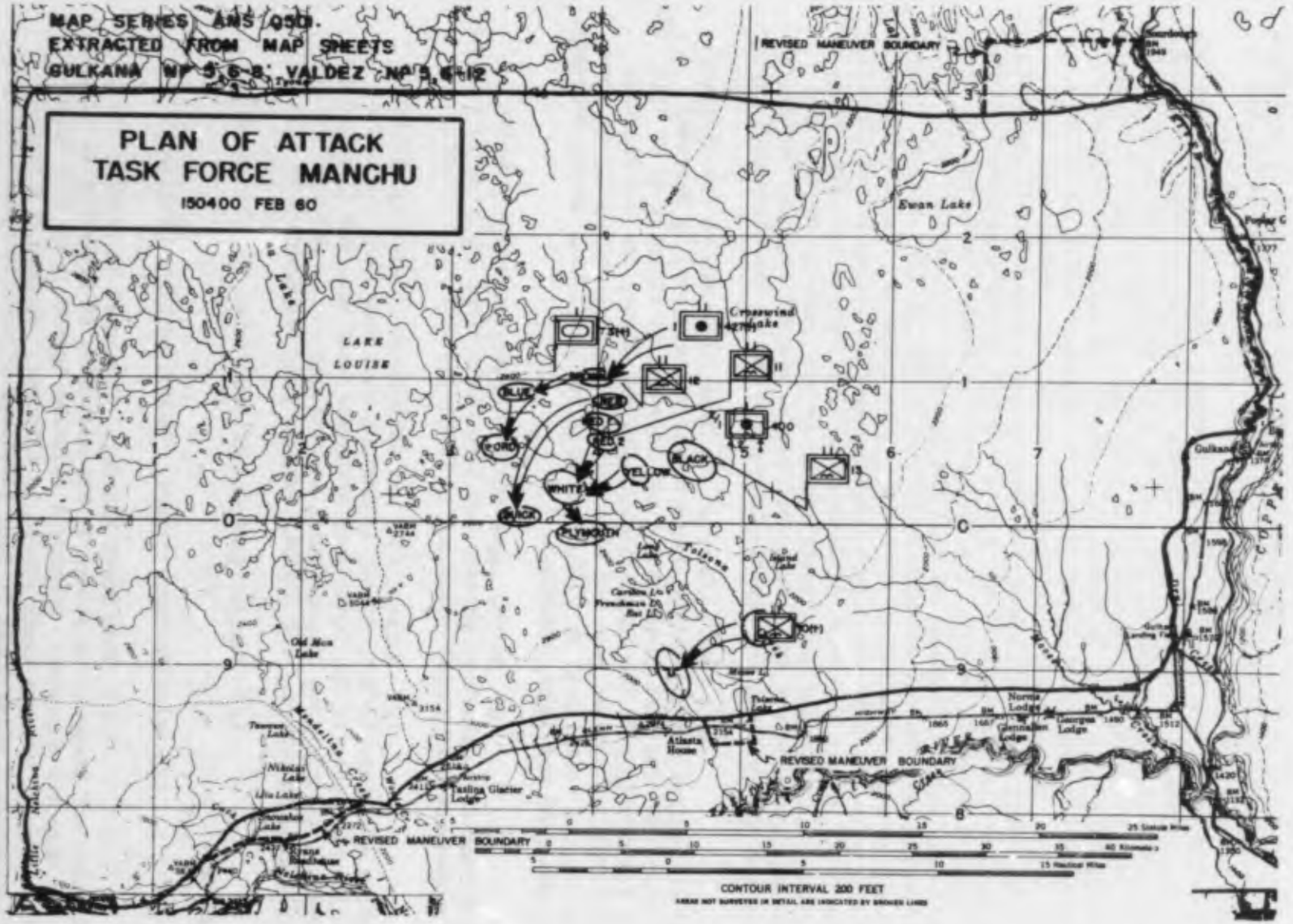


Figure 11 (Part II) to Section IV

Two enemy tanks were destroyed and three other disabled. Company D, after successfully disrupting Aggressor main supply route and rear area, was picked up at 1630 hours by helicopter, and moved from vicinity of Sourdough to Lake Louise Road (GC 2402).

(b) Task Force Manchu. The Aggressor's plan to continue attack toward the south to seize the high ground 3 miles northwest of Atlasta House and destroy US Force in zone developed rapidly during the day. Operation Order 3 outlining concept of the operation was published 160800 February and then revised by Operation Order 4, 162330 February. Meanwhile, 11th, 12th and 13th Airborne Parachute Rifle Battalions and the Medium Tank Co, 73d Reconnaissance Squad, continued their movements to contact with minor skirmishes. The operation of the 10th Airborne Parachute Rifle Battalion was still hampered by shortage of POL. Units consolidated and prepared for a coordinated attack. The concept of attack for 17 February, as outlined in Figure 14, was as follows:

1. Task Force Manchu attacks south 171400 February from present position of Objective WHITE with 11th Airborne Parachute Rifle Battalion (reinf) on the west, and 13th Airborne Parachute Rifle Battalion (reinf) on the east, seizes Objective TANGO, effects link-up with 10th Airborne Parachute Rifle Battalion (reinf), and is prepared to continue the attack to the west, on order, to destroy the enemy and seize Tahneta Pass.

2. Fifteen minute artillery preparation on Objective PLYMOUTH, H -5 minutes to H +10 minutes. Nuclear weapons will be employed upon critical targets acquired prior to and during the attack. 1st Battalion, 427th Howitzer Regiment and Mortar Battery in general support.

3. Medium Tank Co, 73d Reconnaissance Squad, attach one tank platoon to each airborne parachute rifle battalion. (Co (-) in GS.)

4. The 320th Motor Sled Transport Co provides armored personnel carriers for 12th Airborne Parachute Rifle Battalion. (Co (-) in GS.)

5. Task Force Reserve: The 12th Airborne Parachute Rifle Battalion (reinf).

Other activities on 16 February consisted of the capture of an enemy extended ground reconnaissance element of eight men, and the operation conducted by Task Force Adams. Task Force Manchu had been directed to open the main supply route cut by heliborne elements of the US Force. Task Force Adams consisting of 250 men from the 2d Co, 978th Engineer Assault Battalion, and battle group rear elements, was organized for this mission. It moved out 160200 February riding in six M59's and numerous wheeled vehicles, and arrived 0500 hours at former administrative support base which had been raided by Co D, Task Force Warrior, some 17 hours earlier. Without seeing a trace of the US Forces,

Figure 12 (Part II) to Section IV. Landing on the objective.

Figure 13 (Part II) to Section IV. H-34 and H-37 Helicopters.

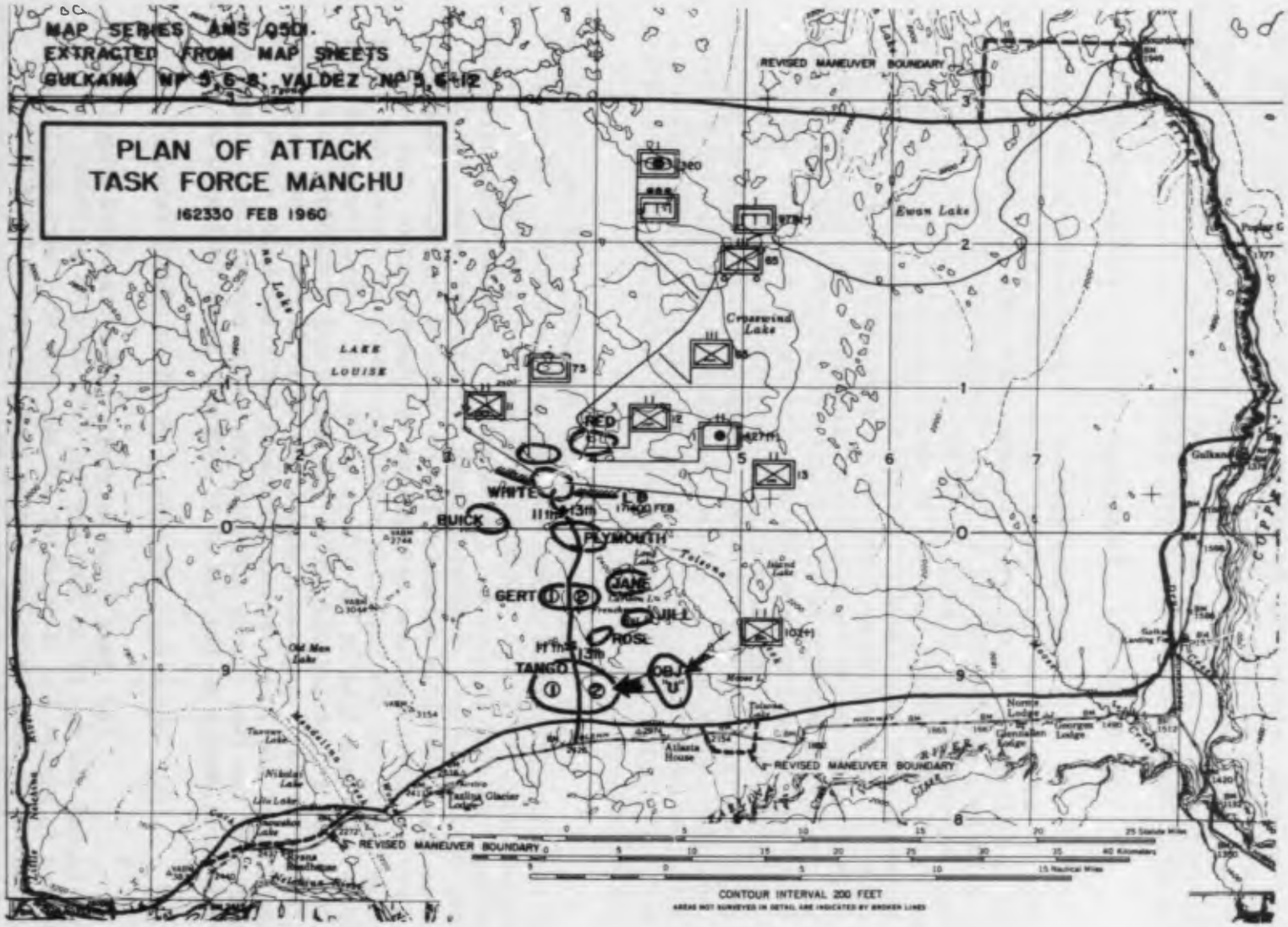


Figure 14 (Part II) to Section IV

Task Force Adams returned to the battle group trains area 161400 February. Due to this hasty decision to return to the trains area, the US Force (Co D) remained along the main supply route in the Aggressor's rear without interference, until picked up at 1630 hours from the vicinity of Sourdough by the 80th Transportation Co (Lt Hel) (H-21).

(8) Eighth Day: Wednesday, 170001 to 172400 February.

(a) Task Force Warrior. Company A was moved a short distance to the rear for troop safety for a nuclear shot. It was then lifted by helicopters to vicinity of Lake Louise road (GC 2689), a distance of 14 airmiles, and later moved by truck to Objective MOOSE. Company B withdrew approximately 3.5 miles southwest to a new position at GC 3693. Remainder of the US Force defended successfully their present positions. The disposition of the troops at the end of 17 February was as indicated in Figure 15. The artillery fired two nuclear missions during the day. The first nuclear strike was made 170040 February on a suspected enemy surface-to-surface missile in the vicinity of GC 3707. The strike missed the target which had displaced earlier. The second strike at 171000 February wiped out an Aggressor unit (10th Airborne Parachute Rifle Battalion) on Tolsona Creek (GC 4992). Company B, 4th Engineer Battalion (C) continued improvement of the main supply route and Task Force area. The unit also emplaced an ADM at GC 3897 to explode at 1620, however, it was declared a dud. For nuclear weapons play during the Exercise, see classified portion of this report.

(b) Task Force Manchu. The 11th, 12th and 13th Airborne Parachute Rifle Battalions, and Medium Tank Company, 73d Reconnaissance Squad, launched a coordinated attack at 171400 February as scheduled. Reinforced 11th and 13th Airborne Parachute Rifle Battalions secured Objective GERT. Following these two combined teams, the 12th Airborne Parachute Rifle Battalion (reinf) secured Objective PLYMOUTH. Artillery and mortar battery were placed in general support and fired missions during the day including a nuclear strike on a suspected enemy surface-to-surface missile and troops at GC 2595. This strike was made at 1730 hours and caused casualties (15 killed and 8 wounded) to Co C, Task Force Warrior. Aggressor casualties on 17 February were heavy due to the loss of the 10th Airborne Parachute Rifle Battalion (reinf). Remainder of the Task Force, suffered only minor casualties. Disposition of Task Force Manchu at the end of 17 February is as indicated in Figure 15.

(9) Ninth Day: Thursday, 180001 to 182400 February.

(a) Task Force Warrior. Rifle companies fought defensively during the day of 18 February and fell back to positions as indicated in Figure 16. A force of 100 men from Co C were airlifted approximately 7 miles from Lake Louise road (Objective CARIBOU) to a location of GC 3697 (NW of Objective GERT) to harass the Aggressor. Later the element moved by skis through Aggressor lines to a position as indicated in Figure 16. Company D moved south along Lake Louise road by foot and

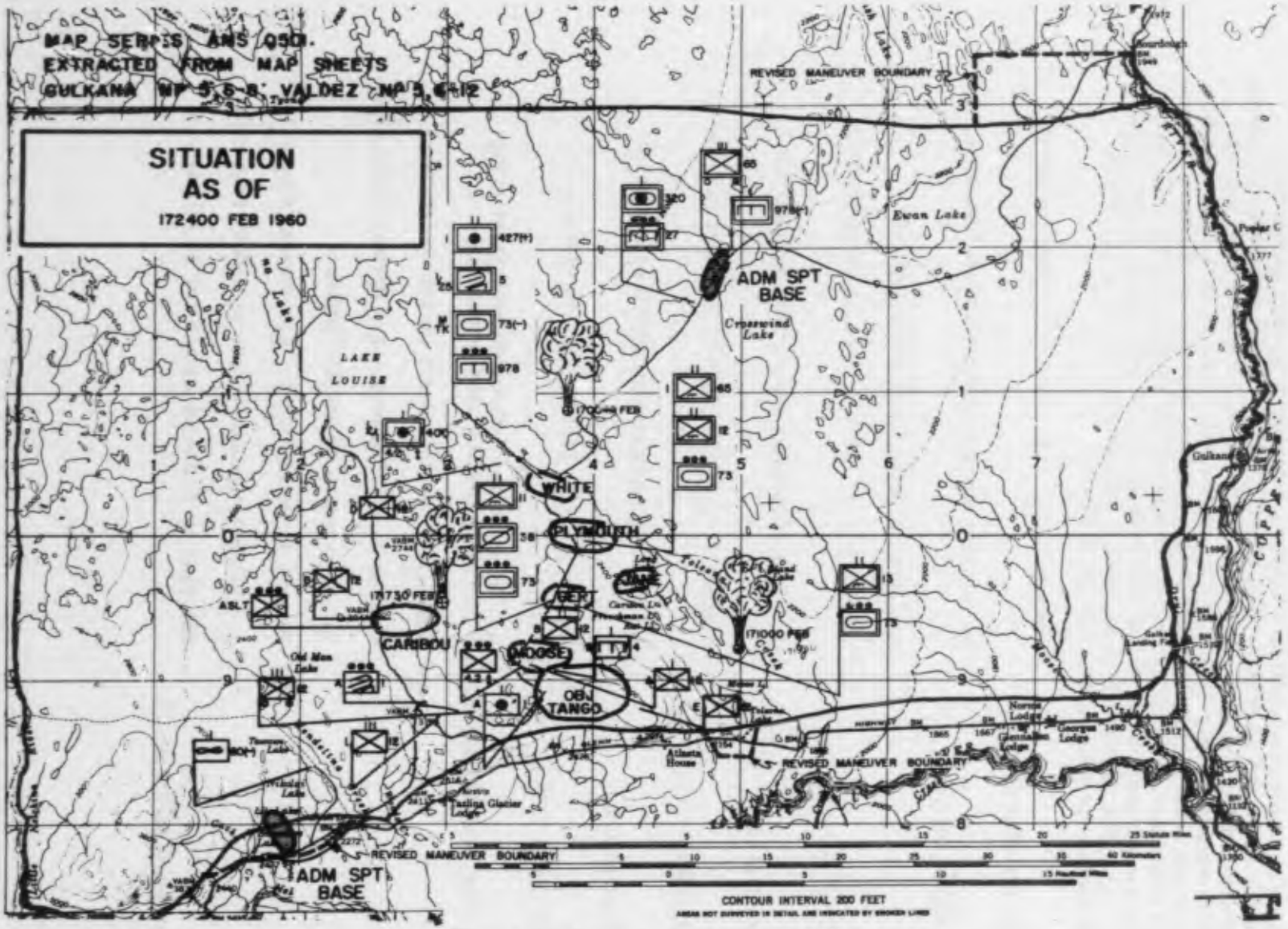


Figure 15 (Part II) to Section IV

skis and closed into Objective CARIBOU. Company E on high ground near Atlasta House had no contact with enemy. Artillery and mortars fired several missions during the day. Commanding Officer, Task Force Warrior and his staff completed their plan of attack to destroy enemy in Lake Louise-Gulkana basin and seize bridge crossing at Sourdough as directed by Maneuver Director on 15 February. The objective was changed on 18 February by the Maneuver Director to require seizure of the high ground on main supply route vicinity GC 7533. The concept of operation for 19 February, based upon maximum utilization of helicopters, was as follows:

1. Company D. a. Lift by H-21 to check point 63 (1st priority for lift).

b. Inflict maximum destruction on logistical installations.

c. Move to check point 94 if repulsed.

2. Company B. a. Lift by H-21 to check point 94 (2d priority for lift).

b. Inflict maximum destruction on logistical installations.

3. Company A. a. Lift by H-21 to check point 94 (3d priority for lift).

b. Inflict maximum destruction on logistical installations.

4. Company E. a. Lift by H-21 to vicinity of grid coord 7334.

b. Secure area, destroy Gulkana River bridge in area, and inflict maximum destruction to Gulkana Support Base.

5. Company C. Exploit north on road by skis.

6. Company B, 4th Engineer. a. Protect rains area.

b. Be prepared to assist Company C.

7. Battery A, 2d Artillery. a. General support.

b. Detonate nuclear weapon at 190605 February.

The plan of US Forces attack for 19 February is indicated in Figure 17.

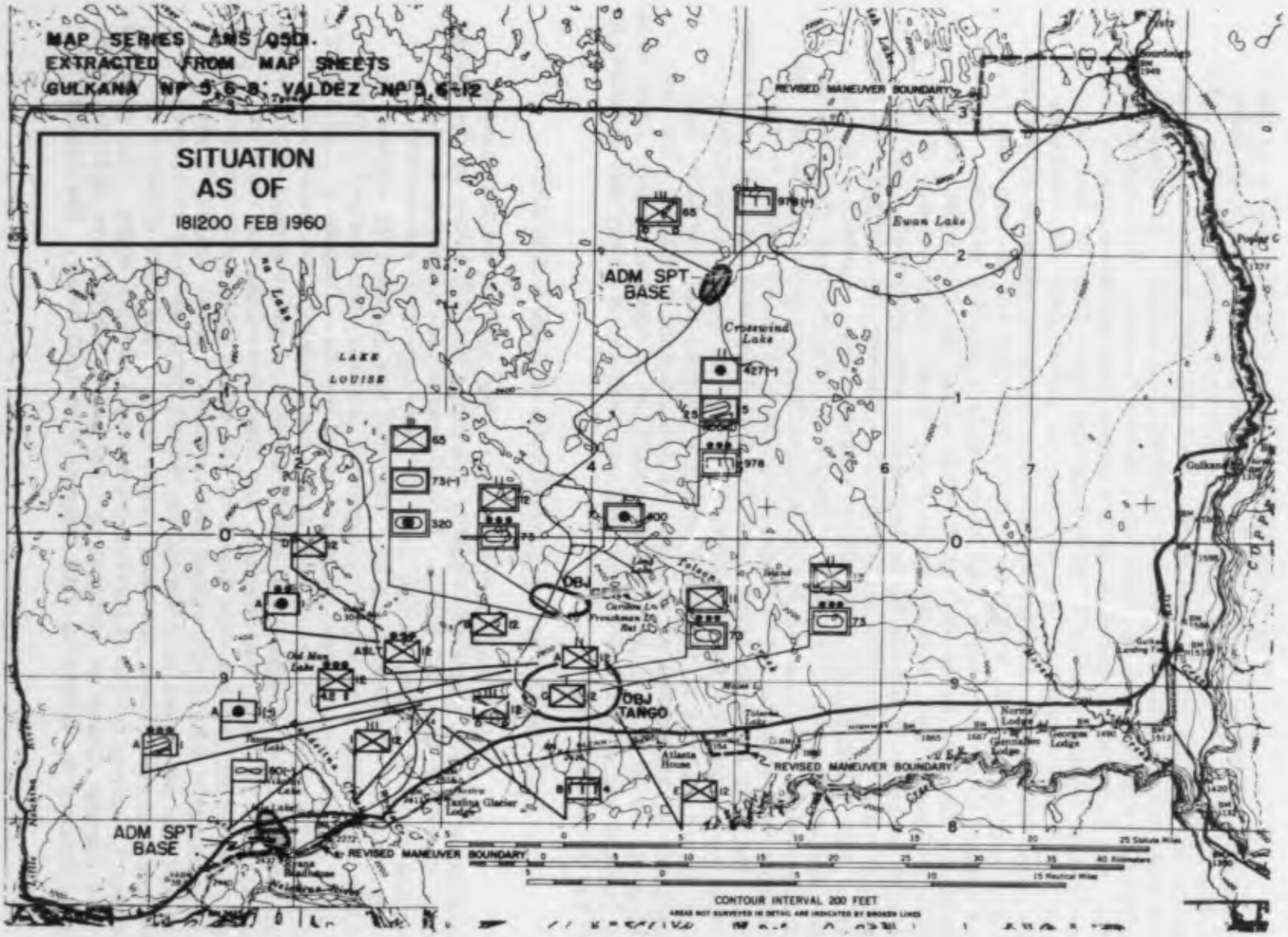


Figure 16 (Part II) to Section IV

(b) Task Force Manchu. Continued the attack at BMNT 18 February, suffered heavy casualties in the assault echelon as enemy was dug in prepared positions, but succeeded in securing Objective TANGO (Figure 16) by 1015 hours. The enemy force that was landed in the Task Force rear (Co C, 12th Inf) failed to hinder the attack. Intelligence information disseminated to Task Force Manchu at noon, 18 February, indicated that a new enemy force of battle group size had been located southeast of Lake Louise capable of attacking the right flank of Task Force Manchu by 181600 February. Due to this new threat from the northwest Task Force Manchu was directed to disengage at once, maintain dispersion against nuclear attack, withdraw to Crosswind Lake and no-name lake in grid square 4113, and insure that main supply route was secured. By nightfall, the Task Force was withdrawing along the main supply route toward Crosswind Lake, battalions on foot, except that one-half of 11th and 13th Airborne Parachute Rifle Battalions were motorized. Due to rugged terrain the movement was difficult. However, by midnight the main body of Task Force Manchu had cleared Tolsona Creek. Contact with the enemy was broken. At 1515 hours, Commanding Officer, Task Force Manchu was directed to displace the Administrative Support Base immediately from Crosswind Lake area to its original location 3 miles northeast of Ewan Lake. The 10th Airborne Parachute Rifle Battalion which had been destroyed earlier by nuclear strike was reintroduced to the play and was placed under direct control of the Administrative Support Base commander upon completion of withdrawal of the base to its original location. The battalion was to be used primarily for protection of the main supply route from the forward Administrative Support Base to maneuver boundary and secondarily for the local security.

(10) Tenth Day: Friday, 190001 to 192145 February.

(a) Task Force Warrior. The planned nuclear strike was delayed several hours and finally detonated at 1245 hours at the north end of Crosswind Lake (GC 5220). A heliborne attack (Company D) was launched at first light, in the face of heavy Aggressor concentrations in the vicinity of Check Point 63. The unit was immediately engaged in a heavy fire fight with superior Aggressor infantry and armored elements. By 1045 hours Company D was declared out of action. Company B closed into LZ (Check Point 94) by air at 0835 hours and Company A two hours later. Task Force Milotta (Companies A and B) moved to Aggressor main supply route and captured 15 POW's, one wrecker, and other miscellaneous vehicles. The Task Force established a road block on the main supply route and severed the Aggressor's supply and communication lines. Later Company B was attacked and destroyed by a strong Aggressor force mounted in armored personnel carriers along the main supply route. The lead elements of Company E, closed on its objective (Sourdough) at 1545 hours. The remainder of the company closed on position by 1700 hours. Task Force Milotta, after losing Company B, linked up with Company E at 1600 hours. The Aggressor's

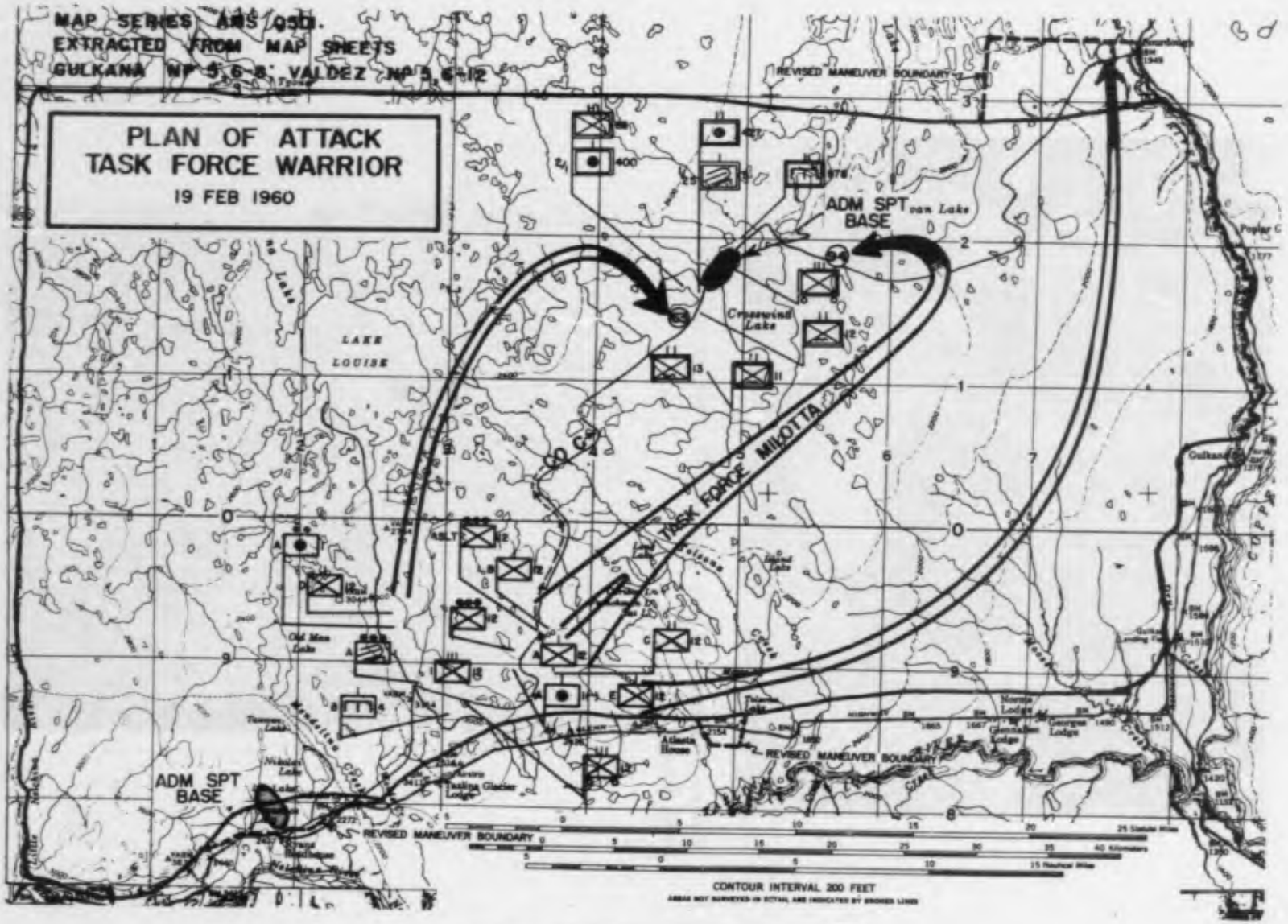


Figure 17 (Part II) to Section IV

Figure 18 (Part II) to Section IV. Machinegun position in deep snow.

Figure 19 (Part II) to Section IV. Under hostile fire.

Figure 20 (Part II) to Section IV. 1 ton and 200 lb capacity sleds on tow.

Figure 21 (Part II) to Section IV. M-41 bogged down in a creek.

attempt to withdraw east from Crosswind Lake resulted in heavy fighting which continued along the main supply route until the termination of the Exercise 192145 February 1960.

(b) Task Force Manchu. The Task Force continued its withdrawal as directed by the 65th Airborne Division. Elements of one airborne parachute rifle battalion tank company, and the 320th Motor Sled Transport Company destroyed or captured one US Force rifle company (Co D) in vicinity of the Task Force Command Post. The 12th Airborne Parachute Rifle Battalion, motorized, engaged elements of Task Force Milotta in rear of the Task Force trains (Check Point 94), and destroyed one US Force rifle company (Co B). This action terminated at 1415 hours. Later in the day, the 12th Airborne Parachute Rifle Battalion was reinforced with one tank company, forcing the withdrawal of Task Force Milotta (Companies A and B) eastward along the main supply route. The detonation of a TADM at 1245 hours, exposed the bulk of Task Force Manchu to nuclear radiation. Due to this fallout, elements of the Task Force were forced to withdraw to the east across Crosswind Lake. Task Force Manchu fired a nuclear weapon at 1500 hours, on the suspected location of the US Force Command Post and rear echelon, however, the burst was approximately 8 miles "short" of the DGZ.

(c) Situation at the end of Exercise LITTLE BEAR is indicated in Figure 22.

f. Return of Troops from the Maneuver Area and Closure of Base Camp. The field exercise terminated 192145 February 1960 and the return to Fort Richardson and Ladd-Eielson Air Force Bases commenced the following morning. First priority of movement was given to the CONUS elements in order to secure maximum time for clean-up, maintenance and turn-in of equipment drawn from WHR stocks. The bulk of the troops returned by wheel transportation; elements of the Main Command Post, Headquarters USARAL were lifted by commercial air from Gulkana to Elmendorf Air Force Base.

(1) The main body of the US Force closed in Camp Denali (Fort Richardson) on or before 23 February 1960. The return of CONUS element to Fort Lewis, Washington, commenced on 27 February 1960 and was completed 1 March 1960. Rear detachment departed for home station on 5 March 1960.

(2) Rifle companies of the 1st Battle Group, 9th Infantry returned to their home station on 21 February 1960. Artillery, tank company, transportation company and other elements with track vehicles returned to Ladd-Eielson Air Force Bases on 23-24 February 1960. The rear party of Aggressor Force closed in on 29 February 1960. The icy road conditions contributed to one traffic accident which resulted in a fatality.

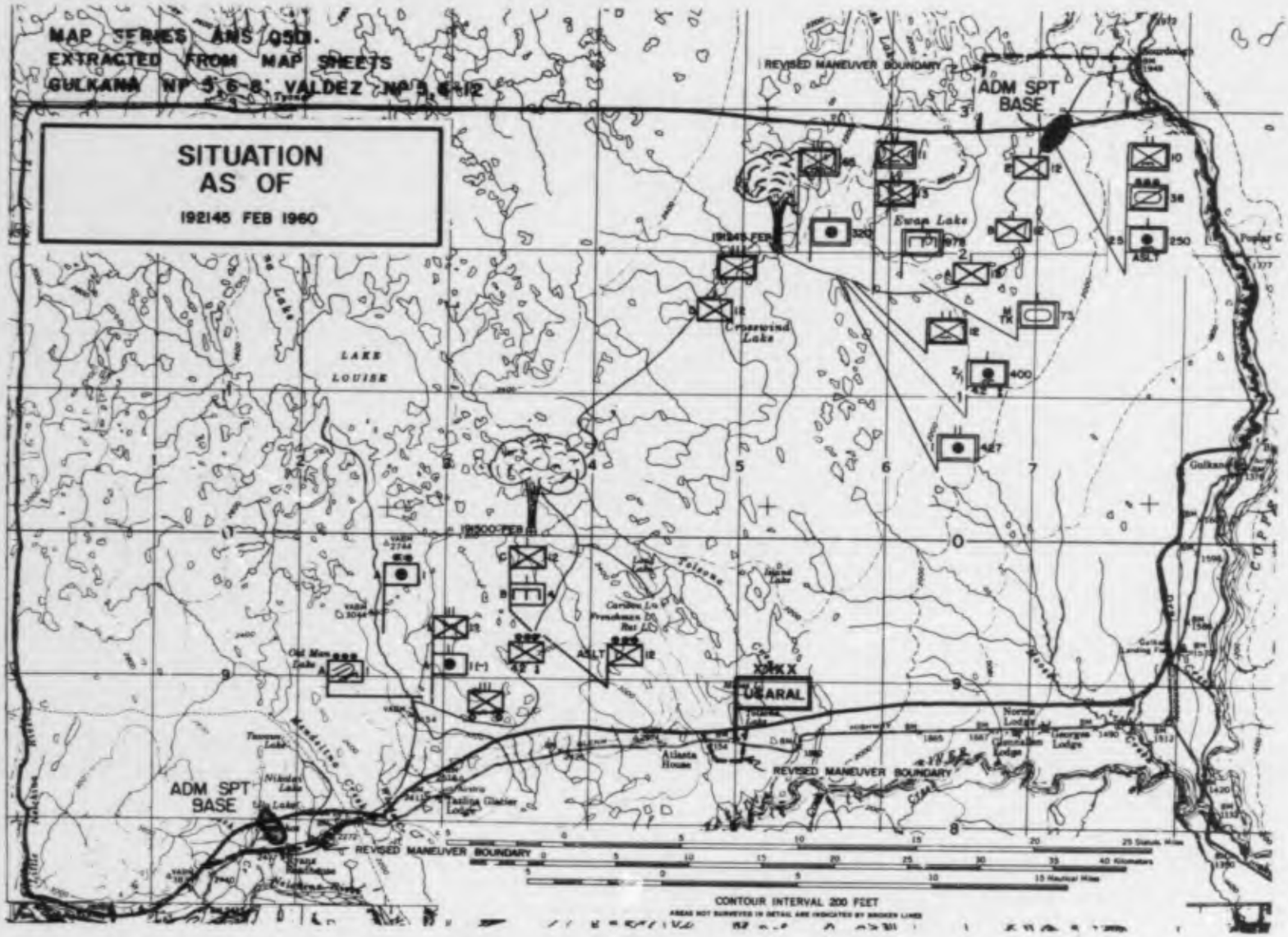


Figure 22 (Part II) to Section IV

SECTION IV

Part III - Aviation

1. GENERAL. a. Aviation participation in the Exercise can be accurately analyzed only if certain pre-exercise actions, preparations, and maneuver actions are considered, to include:

(1) Tactical air support was simulated and did not effect the Army aviation participation in the problem. It would be very unusual if an opposing force did not make maximum use of the power of tactical air.

(2) Periodic maintenance inspections were performed prior to the start of the Exercise. This preparation period averaged 30 days for most of the aircraft. A normal rate of maintenance, therefore, was not accurately illustrated by the Exercise.

(3) The Exercise had an announced starting date and length.

(4) Neither force had air defense weapons larger than .50 caliber machineguns. This was unrealistic, led to a false sense of security and deleted a major problem area from the play of the Exercise that would be exploited by an actual enemy force.

(5) Weather was unseasonally warm during the Exercise and did not adversely affect aviation operations.

b. The above comments are not intended to minimize the accomplishments of Army aviation during the Exercise are considered with these factors in mind.

c. Army aviation elements supported three basic organizations during the maneuver: US Forces, Aggressor Forces and Maneuver Headquarters. The structure of these elements is shown in Table 1. The Maneuver Headquarters, Aviation Element, was a composite unit made up of aircraft and personnel from the Observation and Reconnaissance Platoon of the 80th Transportation Company (Augmentation), Aviation Division Yukon Command and Aviation Section Fort Greely.

(1) US Forces, Army aviation support, consisted of the 80th Transportation Company (Lt Hel) (-) augmented by one H-13 from the 4th Aviation Company, Fort Lewis, Washington and one H-12 and two L-19's from the 80th Transportation Company (Lt Hel) Observation and Reconnaissance Platoon. The 334th Transportation Detachment (CHFM) was in direct support of the 80th Transportation Company.

(2) Army aviation support for the Aggressor Forces consisted of two L-19's and two H-13 aircraft furnished by Yukon Command.

d. General Flight Restrictions. (1) Army aircraft general support and combat support mission were conducted within the boundaries of the designated maneuver area.

(2) Participating aircraft flew below 6,000 feet (indicated altitude) in the maneuver area. (3,000 MSL)

(3) All flights were conducted under visual flight rules.

(4) All flights were conducted at such an altitude so as to not endanger life and property.

(5) Buzzing, strafing and dive-bombing type maneuvers were not authorized.

(6) "No-fly" lines were established periodically to more realistically portray combat conditions.

2. MISSION. a. The mission of Army aviation was to provide tactical, logistical and administrative support to the three primary organizations.

b. USARAL was to document the problems that might be encountered in operation and maintenance of Army aircraft under field conditions in severe cold, winds and deep snow.

c. The 80th Transportation Company (Light Helicopter) provided direct tactical and logistical support to the US Forces. They also tested the air mobility capability of an infantry unit.

3. DISCUSSION. a. Equipment.

(1) Pallets. Forward distribution points were established for each major US Forces air movement. One of the outstanding techniques, was the use of prepared pallets and their transport for resupply by cargo helicopters. The advantages of these pallets include:

(a) The helicopter can hover in ground effect.

(b) Exchange and recovery of cargo nets are not necessary.

(c) Pallets have a toboggan shaped front and can be towed by standard vehicles to other locations for immediate use.

(d) The utilization rate for a limited number of helicopters is greatly increased because of the vastly reduced ground handling and unloading time.

(e) Mines can be palletized and stored for immediate sling load delivery to the destination, and towed on the pallets to the actual mine laying site.

Figure 1 (Part III) to Section IV - Pallet Loading Sequence

The following sequence of photographs illustrates the method of delivering prepared resupply pallets by external sling load with the H-21 helicopter.

Ground crew prepares to attach a pallet as an external load to the H-21 Helicopter

Pallet is sling loaded and ready for take-off
(Note: prepared pallets in the background)

Take-off

H-21 Helicopter with external sling-loaded pallet inflight

H-21 Helicopter approaching delivery site with pallet load
(Note: previously delivered pallets)

Close up of H-21 Helicopter at delivery site ready to release pallet

(f) Pallets greatly facilitiate the rapid helicopter movement of supplies from distribution points to forward locations. (Figure 1)

(2) Rigging procedures and dimensions of the A-22 sled pallet are shown at Tables 2 and 3.

b. Aircraft. (1) The umpire procedure used for ruling on damage to aircraft was dependent upon ground personnel's ability to read the aircraft serial number.

(2) The system of marking US, Aggressor and Maneuver Headquarters was unsatisfactory. Water soluble paint could not be removed in freezing temperatures when it was necessary to change aircraft designations. Regular paint is too expensive and time consuming to apply for a 10-day maneuver.

(3) Participating aircraft were equipped with the following landing gear configurations:

(a) L-19's wheel/ski combination (Figure 2)

(b) L-20's wheel/ski combination (Figure 2)

(c) U-1A wheel/ski combination

(d) L-23 wheels

(e) H-13 skid with plywood snow pads front and rear on both sides (Figure 2)

(f) H-21's wheel with plywood panels on the gear "V" braces (Figure 2)

c. Maintenance. (1) Each of the three aviation elements had their own organizational maintenance sections incorporated into the operating structure. The 334th Transportation Detachment (CHFM) was in direct support of the US Forces Helicopter Company at Nikoli Lake. The Transportation Aviation Field Maintenance Detachment was in general support of all aviation in the maneuver area. The 334th Maintenance Detachment performed the following field maintenance tasks:

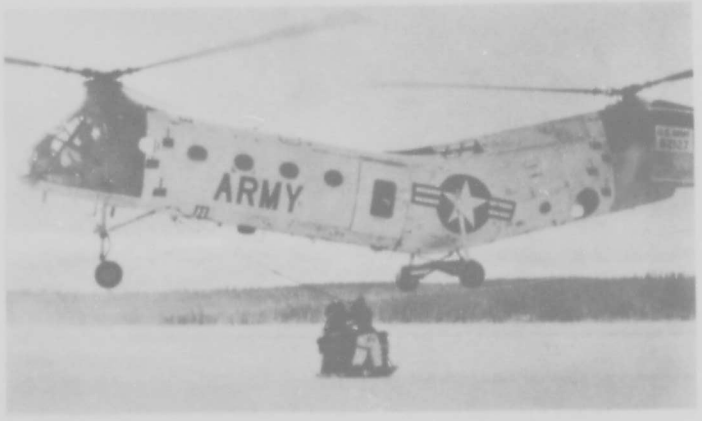
TYPE AIRCRAFT	TASK
H-21	Replace windshield panel
H-13	Replace engine cylinder
H-21	Replace engine
H-13	Evacuate aircraft from field
H-13	Evacuate aircraft from field

Figure 2 (Part III) to Section IV - Wheel/Ski/Pad Configurations

L-19 Aircraft with Wheel/Ski Configuration

L-20 Aircraft with Wheel/Ski Configuration

H-13 Helicopter with the Snow Pad Configuration in flight (Notice passenger's snow shoes lashed to aircraft landing skid for use after reaching destination)



H-21 Helicopter with Plywood Panel on V-Brace

Figure 3 (Part III) to Section IV - U.S. Forces Airstrip

A helicopter landing field and maintenance area was developed on Nicholi Lake for the 80th Transportation Company, (Lt Hel). As Phase VII started, a 3000 foot landing strip suitable for light aircraft also was constructed on this lake. The 56th Engineer Company, (Construction), built both airfields.

Figure 4 (Part III) to Section IV - Ice Airfield

A 4500 feet by 200 feet air strip was developed on Tolsoma Lake for the support of USARAL Headquarters. This was designed to land C-47 aircraft. The field was used for the USARAL Headquarters support flight. The field was operational from 15 January 1960 to 24 February 1960. There were over 1600 landings and take offs of which 24 were C-47's from Elmendorf Air Force Base.

Figure 5 (Part III) to Section IV - Aggressor forces Airstrip

The Aggressor Forces developed a 2000 foot strip on a wooded ridge at their support base. This was eventually extended to 3000 feet. The 559th Engineer Company (Combat) completed the first 2000 feet of the strip in 40 hours elapsed time.

Figure 6 (Part III) to Section IV - Aggressor Airstrip Construction

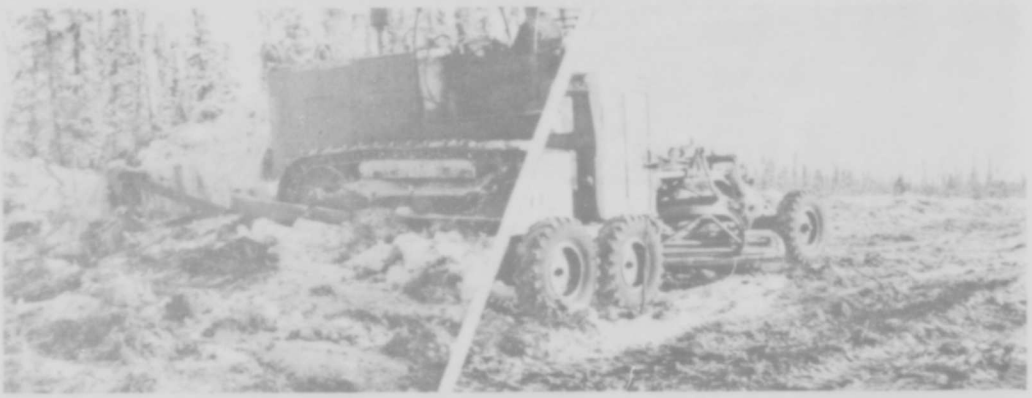


PHOTO #1

PHOTO #2

PHOTO #3

PHOTO #4

PHOTO #5

The above sequence of photographs shows the construction of the Aggressor airstrip. Photo #1 shows a bulldozer pushing the berm back from the strip. Photos #2, 3, 4 and 5 show graders leveling the airstrip.

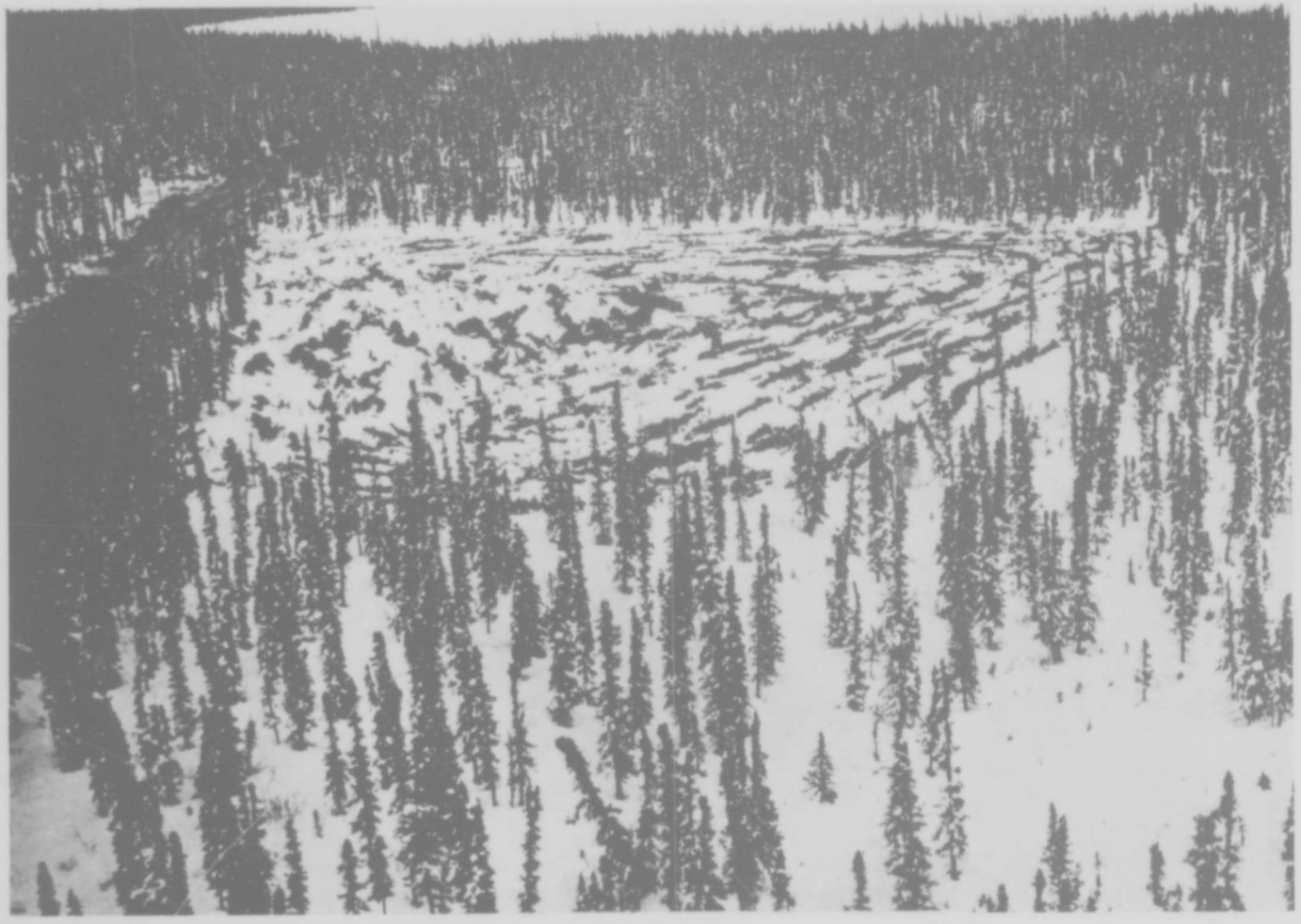


Figure 7 (Part III) to Section IV - Helipad

This is an example of a poor helipad. Much effort was expanded in clearing a large area. The area should have been cleared to the right of the road with approach and departure lanes cleared. The fallen trees should have been cleaned out to provide a safe area for the helicopter to land.

(2) Maintenance shelter problems developed during the maneuver and were similiar to those encountered last year.

(3) The storage and heating of aircraft oil poses a problem in low temperatures. This is usually done by heating oil containers in maintenance tents close to the outlet of a 450,000 BTU heater. This method is inconvenient, messy and uses room in the maintenance tent.

d. Operations. (1) Airfields and Helipads.

(a) Three airfield sites were selected for the initial phase of the operation:

1. US Forces airfield was located on Nikoli Lake in the vicinity of the logistical support base and the initial assembly area (Figure 3).

2. The Maneuver Headquarters airfield was located on the shore of Tolsona Lake adjacent to the Maneuver Headquarters (Figure 4).

3. The Aggressor airstrip was built on high ground in the vicinity of Sourdough, Alaska (Figure 5).

(b) Frozen lakes were selected as airfield sites for the US Forces and the Maneuver Headquarters. These two lakes offered large level areas that were free of obstacles and were prepared with a minimum of engineering effort. Runways were rapidly constructed with road graders and wheeled compacting devices.

(c) Dispersal of aircraft and facilities was dependent upon the available engineer capability, communication, defense capability and time available.

(d) Construction of airfields on high ground required considerable land clearing, leveling and grading (Figure 6).

(e) The defense of airfields varied widely. The lake airfield is harder to defend because of the wider dispersal of unit components. The high ground airstrip can be more easily defended because of the more compact layout and the perimeter defense force can be smaller. In either case, the aviation unit occupying the airfield can not provide its own perimeter defense with its assigned personnel, and still operate and maintain aircraft. In case of penetration, it can augment and back up the perimeter defense force.

The following photograph shows an H-13 Helicopter in a poor helipad. Note how fallen trees present a hazard to the tail rotor.

Figure 9 (Part III) to Section IV - Helipad
This helipad is extra large. More effort should have been spent in clearing approaches and departure routes.

Figure 10 (Part III) to Section IV - Helipad

This is a poor helipad. It should have been constructed at the bend in the road. This would have provided 2 approach and departure routes.

PHOTO #1

PHOTO #2

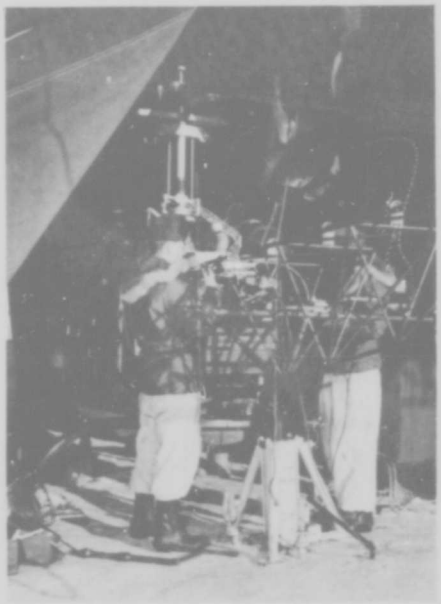


PHOTO #3

PHOTO #4

Figure 11 (Part III) to Section IV - Maintenance

The above sequence of photographs shows the working conditions under which maintenance on aircraft was conducted: Photo #1 shows a mechanic performing maintenance of the H-13 Helicopter in the open, exposed to the elements; Photo #2 shows two mechanics performing maintenance on the H-21 Helicopter without benefit of shelter (notice cumbersome gloves worn by mechanics); Photos #3, 4 show mechanics performing maintenance on the H-13 Helicopter in shelter (tent equipped with heater unit).

PHOTO #1

PHOTO #2

PHOTO #3

PHOTO #4

Figure 12 (Part III) to Section IV - Airlift

The above sequence of photographs shows troops preparing for air-lift: Photo #1 shows personnel arriving in increments and preparing equipment for loading; Photos #2 and 3 show loading of troops and equipment; Photo #4 shows troops loading ahkio and skis into H-21 Helicopter.

Personnel assembled in increments awaiting H-21 Helicopters for airlift.

Touchdown.

Troops with equipment loading on the H-21 Helicopter.

Station time...troops loaded and ready for airlift.

Figure 13 (Part III) to Section IV - H-21 Helicopter Airlift

PHOTO #1

PHOTO #2

PHOTO #3

PHOTO #4

Figure 14 (Part III) to Section IV - H-21 Airlift

The above sequence of photographs show troops unloading after a successful airlift in the H-21 Helicopter. Photos #1, 2 and 3 show troops unloading from the H-21 Helicopter in knee deep snow. Photo #4 shows troops turning away from the downwash of the H-21 Helicopter.

(f) Tolsona Lake airfield was placed under operational control of the Fort Richardson Airfield Operating Detachment. This unit provided aircraft traffic control, flight following services, weather information and POL service. This airfield was able to handle and service aircraft up to the size of a C-47.

(g) Ice Airfields. 1. The problem of constructing an airfield in a short period of time to handle a great volume of traffic at the Maneuver Headquarters was solved by converting Frozen Lake Tolsona into a temporary ice Army Airfield.

2. The Army Engineers cleared the snow from the proposed 4,500 by 200 foot runway to allow the ice to thicken. Snow was then graded back over the ice and compacted. This gave enough surface traction to land and take-off safely. An average of 17 aircraft made 110 take-offs and landings each day on the ice airfield. An ice airstrip on a lake is actually a floating mass and is not connected to the bottom of the lake or shores. Landing aircraft, especially the USAF C-47, tilted the field as much as four inches. Another problem encountered was the varing thickness of the ice, caused by water streams or warm currents under the ice. Ten test holes per day were drilled in the runway to check ice thickness. The ice was normally more than 18 inches thick and usually about 25 inches. Water was used as a very effective repair material for holes or cracks that developed in the runway. Dye marker on the runway and taxi ways assisted pilot depth perception on the flat snow covered surface.

3. Ice thickness criteria used during the maneuver.

TYPE AIRCRAFT	THICKNESS (Inches)
L-19 aircraft	4.3
L-20 aircraft	7.0
L-23 aircraft	7.8
U-1A aircraft	8.0
H-13 aircraft	4.3
H-21 aircraft	11.3
C-47 aircraft	15.6

(h) Numerous helipads were used by both tactical forces and the Maneuver Headquarters. There was extensive flying into and out of these helipads, both by the tactical forces and the administrative aircraft. Small scrub brush and over turned trees caused hazards in most of these helipads (Figures 7 and 8). Some of the helipads had a square shape; when advised that certain helipads were too small, the pad square was enlarged rather than improved by the construction of clear approach and departure routes (Figures 9 and 10).

(2) Aircraft Missions. (a) The maneuver headquarters support flight provided administrative flights such as courier, passenger hauls, photography, messenger, observation, medical evacuation, supply and route studies.

(b) The Aggressor support flight provided patrol missions, observation and fire adjustment missions, reconnaissance, route studies, surveillance, medical evacuation, command and control.

(c) The US Forces Helicopter Company and Support Flight performed the full range of missions with helicopters and fixed-wing aircraft. H-21's were used to airlift the infantry companies to advanced positions, lift them out of position to reserve positions and resupply with rations, gasoline, and ammunition after each move. They were used to position EGR and Special Forces Teams in the Aggressor rear area; resupply these same teams, relocate them and collect information from them; medical evacuation; POW evacuation; and wire laying. Eight miles of continuous wire was laid from the Battle Group CP to the Helicopter Company CP by H-21 helicopter.

(d) H-13 and L-19 missions included: Surveillance, fire adjustment, reconnaissance, intelligence surveys, route study, general observation, messenger, command and control.

(e) Typical H-21 loads included: 1. Ten to fifteen troops with packs, rifles, and loaded ahkios.

2. Skid mounted A-22 aerial delivery container with forty-eight boxes of rations, weight 2,000 pounds (sling load).

3. Skid mounted A-22 aerial delivery container with forty gas cans, weight 1,800 pounds (sling load).

4. Skid mounted A-22 aerial delivery container with four fifty-five gallon POL drums (sling load).

(f) US Forces missions requests were forwarded to 80th Transportation Company Operations from the Battle Group S-3 Air through the Helicopter Company Liaison Officer. The Commanding Officer or Operations Officer of the Helicopter Company would attend the daily battle group briefing at 1900 hours to plan support for the next day's requirements.

(g) Most night aircraft missions were carried out under a full moon condition. Heavy snow on the ground proved to be helpful in picking up ground movement and trails. Later in the problem, obscure sky conditions were used to cover air movement. The overcast sky did not materially reduce the aerial observers ability to locate ground movement at night over open terrain. Ski trails, vehicle trails and moving vehicles could be easily spotted in the moon glow.

Figure 14a (Part III) to Section IV - Airlift

The following photograph shows troops waiting to load into the H-21 Helicopter. Note skis being loaded for airlift.

e. Radio Communication. Air-to-air radio communications were excellent. Air-to-ground radio communications were generally very good when properly used (line of site). The Helicopter Company's ground station was able to net with the battle group command and administrative nets except for short periods of time during the displacement of the battle group.

f. Flying Conditions. Flying conditions were generally excellent. Periods of fog in the lake areas, or on the ridges, and glacial fog from the Tazalina Glacier was experienced throughout the area. Flying could not be conducted on the opening night of the maneuver because of low overcast and icing conditions. A total of eight days of fair to excellent weather was experienced. Most of the poor flying conditions existed during the early morning and evening hours. All fog and low ceiling conditions were accompanied by icing conditions.

(1) Helicopter transported ground units either forgot their load training or need more training. Helicopters arrived at loading sites and were not met by anyone or were met by a mass of unorganized troops awaiting transport. Pre-maneuver cautions were not implemented; such as the proper way to handle a rifle when loading an H-21; damage to the top of fuselage insulation resulted.

(2) Delays experienced at loading sites resulted in aircraft carrying more fuel and fewer passengers to compensate for excessive ground time.

(3) Troops were not separated into flight groups to facilitate loading.

(4) Insufficient notice was given to units to prepare for helicopter movements.

(5) Heliborne flight could be detected by hearing. Low level mass flight that took advantage of terrain elevations were very difficult to detect.

g. Aircraft Statistics. See Table 4.

h. Employment. Whenever possible supply loads should be prepackaged so that ground time can be reduced.

TABLES:

1. Aviation Structure
2. Rigging Procedure
3. Pallet, Sled Type
4. Aircraft Statistics

PHOTO #1

PHOTO #2

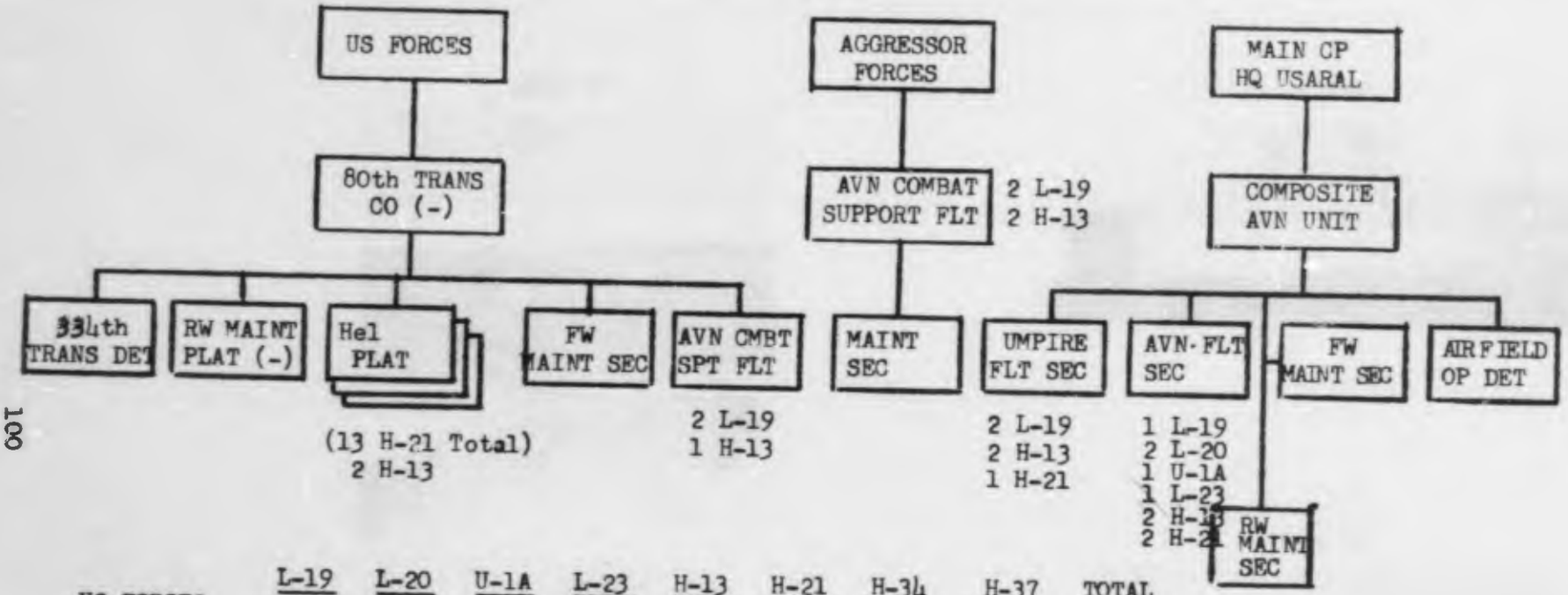
PHOTO #3

PHOTO #4

Figure 15 (Part III) to Section IV - "Chopper John" Lift

The above sequence of photographs snows the technique used for the preparation for movement of the "Chopper John" missile by the H-21 Helicopter: Photo #1 shows the crew preparing the missile for transport by the H-21 Helicopter; Photos #2 and 3 show the H-21 Helicopter picking up the aft section of the missile for air-lift movement; Photo #4 shows the nose section of the missile being hooked up to the H-21 Helicopter.

Table 1 (Part III) to Section IV.



	L-19	L-20	U-1A	L-23	H-13	H-21	H-34	H-37	TOTAL
US FORCES	2	0	0	0	3	13	1*	1*	20
AGRESSOR	2	0	0	0	2	0	0	0	4
MAIN CP, HQ USARAL	3	2	1	1	4	3	0	0	14
TOTAL	7	2	1	1	9	16	1	1	38

*H-34, H-37 aircraft (on call basis) from ATB, Ft Greely; missions were requested 1 day preceding requirement.

Table 2 (Part III) to Section IV

RIGGING PROCEDURE FOR THE A-22 AERIAL DELIVERY CONTAINER SLED PALLET

1. Place Sled Pallet, metal runners down, on level surface or on roller conveyor.

2. Thread a 40" attaching sling through the holes provided in the plow board and the right and left metal runners.

3. Attach a 16'4" tow sling by use of a small clevis (G-13 rigger) to the two loops of the attaching sling that protrudes through the plow boards. Pull attaching sling back through the holes until the clevises are snug to the metal runners. Either rope or webbing of adequate tensile strength may be used for the towing assembly.

4. To continue rigging procedure follow steps as prescribed by TM 10-530, Section III, paragraph 21, subparagraph "b" through "i".

5. Wrap an A-7A strap centered, twice around the attaching strap. Pass each end of the A-7A strap up through and under the webbing of the A-22 sling on the right and left side.

6. Pass an A-7A strap through the hole in the rear of the center metal runner, center the A-7A strap and cross the end to prevent slippage. Pass each end of the A-7A strap up through and under the webbing of the A-22 sling on the right and left side. Attach the running end of each strap to the friction adapter of the other strap.

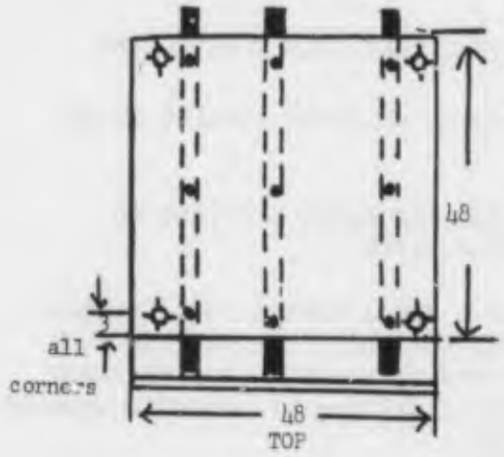
7. Tighten both A-7A straps.

8. To complete rigging procedure follow TM 10-530, Section III, paragraph 21, subparagraph i and paragraph 22.

9. After rigging is completed according fold strap assembly and tie in place with 80-pound tape.

10. During towing of the Sled Pallet, the slack will be taken out of the attaching sling and in turn tighten the A-7A straps holding the load to the Sled Pallet.

Table 3 (Part III) to Section IV



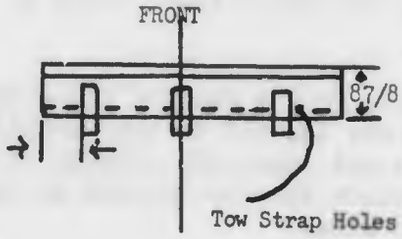
DROP PALLET - SLED TYPE

3/4" Exterior Plywood Construction

Steel runners 2" x 1/4" strap iron

5/16" x 1" bolt attachment of runners to sled body. Bored tie down holes - 1"

½" - 1'



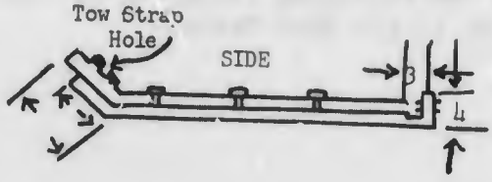


Table 4 (Part III) to Section IV

AIRCRAFT STATISTICS (EXERCISE "LITTLE BEAR") (PHASE VII) (10-19 FEB 60)

IDENT.	TYPE ACFT	No ACFT	HOURS FLOWN	PASS.	PASS. MILES	LBS CARGO	CARGO TON	MSN	FUEL (GALS)	OIL (QTS)	MAINT HRS	POST FLT HRS	AVAIL (%)
U.S.	L-19	2	69.6	25	5,585	-	-	28	501	18	97.1	22.9	90
FORCES	H-13	3	97.7	45	4,905	-	-	45	1,031	65	175.0	2.0	88
	H-21	13	346.2	1,698	43,372	243,530	2,498.50	94	26,136	894	750.0	307.2	95
	SUB TOTAL:	18	513.5	1,768	53,862	243,530	2,498.50	167	27,669	997	1,022.1	332.1	
AGG.	L-19	2	72.3	17	2,937	-	-	30	629	29	86.4	6.0	90
FORCES	H-13	2	79.5	86	3,497	-	-	68	859	165	149.5	96.0	83
	**H-34	1	6.0	1	80	2,400	96.00	3	251	16	-	-	-
	**H-37	1	15.9	31	570	38,235	2,202.30	12	2,074	128	-	-	-
	SUB TOTAL:	6	173.7	134	7,084	40,635	2,298.30	113	3,813	338	235.9	102.0	
MDH &	L-19	2	87.1	36	5,515	-	-	45	472	47	58.5	12.6	75
UMP FLT	L-20	3	79.4	110	12,890	1,120	39.45	55	1,504	64	62.1	10.2	85
	U-1A	1	13.5	23	3,380	500	35.00	8	288	29	22.2	-	100
	L-23	1	12.8	19	3,150	297	20.00	9	355	49	29.3	-	100
	H-13	4	120.3	63	6,298	-	-	68	1,132	85	126.7	50.2	90
	H-21	3	94.4	556	31,060	12,335	668.00	50	6,942	211	86.2	53.0	80
	SUB TOTAL:	14	407.5	807	62,293	14,252	762.45	235	10,693	485	385.0	126.0	
GRAND TOTAL:		38	1,094.7	2,709	123,239	298,417	5,559.25	515	42,174	1,800	1,643.0	560.1	89%
AGGREGATE TOTALS BY AIRCRAFT TYPE:													
	L-19	6	229.0	77	14,137	-	-	103	1,602	94	242.0	41.5	85
	L-20	3	79.4	110	12,890	1,120	39.45	55	1,504	64	62.1	10.2	85
	U-1A	1	13.5	23	3,380	500	35.00	8	288	29	22.2	-	100
	L-23	1	12.8	19	3,150	297	20.00	9	355	49	29.3	-	100
	H-13	9	297.5	194	14,700	-	-	181	3,022	315	451.2	148.2	87
	H-21	16	440.6	2,254	74,432	255,865	3,166.50	144	33,078	1,105	836.2	360.2	88
	**H-34	1	6.0	1	80	2,400	96.00	3	251	16	-	-	-
	**H-37	1	15.9	31	570	38,235	2,202.30	12	2,074	128	-	-	-

POL CONSUMPTION (OCTANE)(gals)

80/87 - 3,394 91/96 - 3,022 100/130 - 33,433 115/145 - 2,325

SECTION IV

Part IV - CBR Operations

1. GENERAL. The maneuver plan made provision for the play of offensive chemical warfare (CW) and radiological warfare (RW) and for defensive play of biological warfare (BW). Under the initial concept of free maneuver, no plans were made to force opposing commanders to use the CW or RW capabilities provided. During pre-maneuver training periods commanders and staffs were urged to seek opportunities to employ and test CBR systems and tactics.

2. MISSIONS. a. The mission for the tactical forces was to test tactical concepts for CBR operations in northern latitudes.

b. The mission of the CBR Section, USARAL TOC, was to determine its capability to:

(1) Provide technical advice and information, normally available at higher headquarters, to both US and Aggressor Forces.

(2) Provide technical advice and assistance to the umpire staff in umpiring CBR play.

3. DISCUSSION. a. Chemical Warfare Play.

(1) The initial maneuver plan permitted each force to have up to 20% of its simulated basic load of 105mm howitzer ammunition in Toxic GB shells. On 9 February each force was queried through umpire channels to determine how much GB ammunition was actually carried in their simulated basic loads. This information was considered essential to prevent confusion as to the amount of toxic and HE on hand at the weapons as the maneuver progressed. On 10 February each force declared that 20% of their basic load of 105mm howitzer ammunition was toxic GB.

(2) Employment of toxics. Simulated toxic chemical fires (105mm GB) were employed on two targets.

(a) The first target was an Aggressor reinforced infantry company. Contradictory information for the assessment of casualties was received. Reports received by the umpire indicated that 10 rounds of GB were fired on an area 1000 meters from the target. Reports received by the USARAL TOC indicated that the entire basic load of GB was fired directly on the target by observed fire techniques using an air OP. The reported amount of GB in the basic load of the US Forces varied from about 60 rounds as recorded by the umpires to over 100 rounds calculated by the TOC. Based on the information furnished them, the umpires assessed 14 casualties on this target. Since the fires were not

marked with tear gas by fire marking teams no information is available on troop response and masking time which is an important consideration in casualty assessment.

(b) The second target on which toxic GB fires were employed was the Aggressor Mortar Battery. On this target the same problems of fire marking and casualty assessment by the umpires were encountered as on the first target. A total of nine casualties were assessed.

(c) It is assumed that all toxic casualties assessed were fatalities since no record exists of the use of the simulated gas casualty tags or contaminated casualty tags provided the umpires.

(3) Toxic fire marking. CN (Tear Gas) grenades for use by umpire fire marking teams were included in the stocks at Old Man Lake Support Base. Unfortunately the fire marking teams dispatched to mark the two toxic fire missions either did not have, or did not carry with them tear gas grenades. To preclude cold injuries from wearing the protective mask at low temperature, it was decided to use tear gas only when the temperature was above minus 15° F. The practicability of this safety consideration could not be evaluated since no tear gas was used.

b. Biological Warfare Play. (1) The BW capability consisted solely of air delivered systems available to both the US and Aggressor Forces.

(2) Since air support play was entirely simulated, aside from taking necessary protective measures to defend against a BW attack, BW was not played by either force.

c. Radiological Warfare Play. (1) Fallout prediction.

(a) The maneuver plan provided for the dissemination of fallout prediction plots to participating forces by courier and the transmission of the basic wind data by TWX. Early in the Exercise it became evident that the transmission of fallout plots by courier was too slow to meet the requirements, and the special weapons officers with each force did not have the time nor space to routinely prepare plots from the basic wind data provided. This deficiency was corrected by transmitting to each force, by TWX, a summary of the current fallout prediction routinely prepared by the TOC, CBR Operations Section.

(b) The fallout prediction summary was based on the actual prediction of fallout from weapons of 2, 10 and 30 KT yield and was extended to include ranges of yield from 1-5 KT, 5-20 KT, and 20-60 KT. For each of the three ranges of yield the following data was posted in the war room and transmitted to each force:

1. Direction of fallout.

2. The angular variability (magnitude of change of direction since the last prediction).

3. The distance downwind that dose rates in excess of 2r/hr were likely to occur.

(c) The summarized fallout information proved adequate for most defensive and offensive planning purposes at the battle group level. Consideration will be given to including this information transmission in the USARAL Tactical SOP.

(d) Ballistic wind data was furnished the USARAL TOC by the Air Weather Service. This data was provided in 6000' increments from surface to 102,000'. The data was predicted data, compiled by AWS at Elmendorf AFB, based on measured data obtained by the US Weather Bureau at Fairbanks, Northway and Anchorage. Radiosonde weather balloons were released at Anchorage and Fairbanks at 0200W and 1400W hours. The wind data was received in the CBR Operations Section six to seven hours later. A major mountain range existed between the maneuver area and each of the weather measuring stations. Since there were no radiosonde stations in or near the maneuver area no evaluation of the accuracy or reliability of this predicted data can be made.

(e) During the last two days of the maneuver, G2 and CBR Operations Section published fictitious fallout wind data. The fictitious wind data was designed to carry fallout in a southwesterly direction so as to create a more favorable environment for the use of surface burst nuclear weapons.

(2) Employment of fallout. Two simulated surface burst nuclear weapons were employed during the exercise. Each burst was of about 2 KT yield and the fallout traveled to the southwest (240°).

(a) The first weapon was detonated at 181305W February 1960 by the US Forces at grid coordinates 523204. This burst produced fallout which would have been lethal to unprotected personnel about 2000 meters downwind providing they were exposed for four hours. By the close of the maneuver no troops were reported to have been in this area and no assessed casualties were reported. Lesser amounts of fallout covered most of the Aggressors troops west of Crosswing Lake. No radiological survey activities by the Aggressor Forces in the fallout area were reported. The US Forces who fired the contaminating burst performed a hasty aerial survey of the contaminated area. The CBR Operations Section provided simulated aerial radiological survey data to support this survey.

(b) The second surface burst nuclear weapon was fired by the Aggressor Forces at 1815W February 1960 with a GZ at grid coordinates 356004. The fallout direction and pattern used for the first surface burst was also used for the second. This second shot was a clear miss. The GZ was so far removed from any US troops that only about 10-20 r/hr

dose rate was produced along the Lake Louise road where some troops were positioned. No casualties were assessed.

(c) CBR Operations Section. The CBR Operations Section of the USARAL TOC was manned by two officers and three enlisted men. This manning level provided for two shift operation leaving one man free for liaison visits and to reinforce the two men on duty during operating peaks.

SECTION IV

Part V - Engineer

1. GENERAL. a. Engineer troop participating in Exercise LITTLE BEAR: see Table 1 (Part V) to Section IV.

b. Three of the five officers of USARAL Engineer Section were Reserve Officers on active duty for training. These officers were assigned the primary mission of observing and reporting on the use of mine fields in cold weather. They also served as representatives of the Engineer for reconnaissance and fire prevention inspectors.

c. There were three civilian Engineer Maintenance Technicians present from USARAL; one permanently assigned to each force, and one working out of the Engineer Section. There was a visitor present from the Engineer Research and Development Laboratories, the Engineer Maintenance Center, and the Military Division of the Geological Survey during the entire Exercise.

d. Engineer support differed in strength between the United States and Aggressor forces in the Support Base Engineers. The Aggressor unit was extended to its maximum capability for the entire Exercise.

e. The following tests of Engineer interest were made by troop units during Exercise LITTLE BEAR:

(1) Ice and snow melters - 25 GPH.

(2) Effectiveness of minefields in cold weather.

(3) Evaluation of tractor cargo M8A2 with bulldozer.

f. The following objectives of the Exercise were of Engineer interest:

(1) Cross-country movement.

(2) Construction of roads, ice crossings, etc.

(3) Construction of field fortifications and barriers in deep snow.

(4) Amount of Engineer effort to support the infantry battle group in cold weather.

(5) Techniques and equipment for land navigation.

2. MISSION. The Engineer mission will be outlined by maneuver phases.

a. Actions by USARAL prior to Phase I.

(1) Acquire real estate.

(2) Procure adequate map coverage.

(3) Reconnaissance of maneuver area and acquire terrain information.

(4) Procurement of Geodetic Control.

(5) Preliminary allocation of troops and equipment.

(6) Development of troop test plans.

(7) Fire Prevention Plans (issued as Tab to Engineer Annex of Maneuver Plan).

b. Phase I. Approved allocation of troops and equipment.

c. Phase II.

(1) Engineer Maintenance Training at CONUS home station.

(2) Development of access routes into the maneuver area. This was continuous until Phase VII.

(3) Collection of local weather records on temperatures, snow, ice and frost.

d. Phase V.

(1) Engineer Equipment and Maintenance Training, Fort Richardson.

(2) Development of Support Facilities in the Maneuver Area.

(3) Issue available maps, control, and terrain information.

(4) Fire prevention instructions, disseminated by Fort Richardson.

e. Phase VI. Provide Engineer support during move to Exercise area.

f. Phase VII. Provide Engineer support to competing maneuver units.

g. Phase VIII. Provide Engineer support during move from maneuver area.

Figure 1 (Part V) to Section IV. 210' Class 40 Bridge across the Gulkana River.

Figure 2 (Part V) to Section IV. Airfield on Tolsona Lake.

3. PREMANEUVER ACTION BY USARAL. a. Requests were made during March 1959 to the Chief of Engineers for geodetic control of the maneuver area and a terrain study. Trig lists were furnished in November, and the terrain studies in December. The terrain studies' cross-country trafficability map opened a new phase of terrain appreciation which was exploited by most commanders concerned.

b. Maneuver permits of 90 days duration were obtained from public and private land holders of the maneuver area. This required a search of the existing land records, contacting owners and obtaining permission by correspondence. Land owned by personnel not able to be contacted or who refused use of their land was indicated as "Off Limits." The built up areas, such as Glenallen, containing many small home sites, were arbitrarily declared "Off Limits." Real estate coverage was obtained for the maneuver area originally outlined by G3, plus an additional belt around the periphery. This extra area was extended to the first terrain barrier, in some cases five miles beyond the maneuver area. This extra area requires little more effort on the part of the real estate clerk when the original research is made. It provides adequate space to extend the maneuver boundary as will invariably be required as the planning develops. Exercise LITTLE BEAR required five boundary changes which were accomplished rapidly and easily using this extra belt of already cleared real estate. The real estate "Off Limits" areas and maneuver boundaries were over-printed on AMS Series Q701, 1/50,000 map sheets. One thousand copies of each of eight sheets were over-printed. A legend was added giving routine restrictions on the use of State and Federal land. These maps were utilized by all tactical forces. Those "Off Limits" areas near the MSR and original assembly areas were marked with "Off Limits" posters during Phase V.

c. The Gulkana River was bridged at Sourdough in September with a 210 foot Class 40 Bailey Bridge. This provided the Aggressor force access into the northeast corner of the maneuver area. The bridge was constructed by the 562d Engineer Company, Combat. The bridge was from operational project stocks stored at Fort Greely. Movement and construction of the bridge from Fort Greely required two weeks. The bridge was dismantled and returned to storage by the 559th Engineer Company, Combat. Dismantling and movement to Fort Greely required two days.

d. A one-time route reconnaissance was made to verify available information and a road map of major limiting points was published. This information is a matter of common knowledge to USARAL units; however, US Forces obtained some information of value.

e. Reconnaissance information was provided to USARAL Command on the selection of a headquarters site. Planning for adequate power supply and distribution equipment for the headquarters camp was accomplished. Individual living tents of the headquarters were provided with electric lights; this is a reduction of fire hazard and should be considered whenever adequate power is available.

Figure 3 (Part V) to Section IV. US Forces Airfield and Heliport.

Figure 4 (Part V) to Section IV. Battle Group Trains, US Forces Water Point is in the Center Background.

Figure 5 (Part V) to Section IV. B Company, 4th Engineer Battalion Water Point Housed in a 10-man Tent.

f. Ninety kilowatts of power supplied by diesel generators were provided to the Signal Company to furnish sustained power. There is no provision in project stocks for these generators, and those used were excess and have since been disposed of.

g. Weekly weather summaries were provided from some twenty stations in the maneuver area, on temperatures, ice, snow and frost depths. These readings were provided by a representative of the Military Division of the Geologic Survey, which was independently planning to collect similar information in the upper Copper River Basin. At USARAL's request he relocated his area of research. These readings were provided from early November until Phase VII, and distributed to all units through intelligence channels. A separate map overlay was published indicating areas of open water as of 1 February 1960 from these reports.

h. Phase II. A USARAL Engineer Equipment Maintenance Team of three men was sent to Fort Lewis for two weeks to provide instruction to Engineer equipment operators and supervisors of the US Forces. This instruction is mandatory at this time rather than in Phase V. Once the forces are in Alaska, many new subjects including skiing, individual cold weather training, etc., require a majority of the training time leaving little if any time for equipment training. After this initial instruction, on-the-job training can be accomplished during Phase V.

i. Phase V.

(1) Maps were issued to all maneuver units. Eight hundred copies were used.

(2) The 56th Engineer Company, Construction, conducted on-the-job training for equipment operators of Company B, 4th Engineer Battalion.

(3) Access routes to the battle group's assembly area were constructed. Ammunition supply points and support base areas were located and cleared. Support base Engineers were utilized for these tasks. This work must be accomplished before the support bases are organized. An action officer for the support base should be available from Phase III onward.

(4) Battle group engineers developed the battle group assembly areas. This work must be scheduled to be accomplished prior to Phase VI. This task consumes three working days provided no unforseen difficulties are encountered. Sufficient time should be allowed in the units' plans.

(5) (a) A 4500' x 200' air strip was developed on Tolsona Lake for the support of USARAL Headquarters. This was designed to land C-47 aircraft. The field was used for the USARAL Headquarters support flight. The field was operational from 15 January 1960 to 24 February 1960.

(b) A helicopter landing field and maintenance area was developed on Nicholi Lake for the 80th Transportation Company (Lt Hel)(H-21).

Figure 6 (Part V) to Section IV. Helicopter Load of Mines being delivered to the Minefield Site.

Figure 7 (Part V) to Section IV. Minefield in Snow.

As Phase VII started, a 3000 foot landing strip suitable for light aircraft also was constructed on this lake. The 56th Engineer Company, Construction, built both airfields. Commendable initiative and ingenuity was exhibited by this company in this task.

(c) Aggressor Forces developed a 2000 foot strip on wooded ridge at their support base. This was eventually extended to 3000 feet. The 559th Engineer Company, Combat, completed the first 2000 feet of the strip in 40 hours elapsed time (see Figure 5 (Part III) to Section IV).

j. Phase VI. Movement to the maneuver areas was supported by the Bureau of Public Roads with a minimum support from Engineer troop units.

k. Phase VII.

(1) US Forces moved on foot to the nigh ground to the east of the Lake Louise road during the first twelve hours of the Exercise. Company B, 4th Engineer Battalion, assisted the battle groups' vehicles over terrain obstacles and constructed a rough trail for vehicles. Advantage was taken of existing seismic survey trails for the initial trace of this road. Battle group trains area was established on hill 3154 and the trail extended to the vicinity of Long Lake and Tolsona Creek. Tactical plans did not extend this route. Several small trails were broken with tractors forward of this line. A water point was established 11 February 1960 at WD 367898. It was destroyed by fire on 13 February 1960. Replacement was made from equipment on-hand in the 562d Engineer Company, Combat. No production figures were available.

(2) The US Forces Engineers emplaced minefields at WD 249956 on 14 February and WD 358927 on 17 February. These were emplaced to delay an Aggressor armored force moving towards the MSR. There was also a well planned ADM mission.

(3) On 19 February the US Forces fired an ADM at WE 522204 emplacing it near the Aggressor MSR, while the Aggressor was with-drawing. Armored units were able to move directly through the fallout area, depending on their speed and armor for protection. No recovery work was required.

(4) Company B, 4th Engineer Battalion was committed in defense of the minefield at WD 358927 on 18 February 1960. They were in position when the problem terminated.

(5) The Old Man Lake Administrative Support Base Engineers, 56th Engineer Company, Construction, improved and widened the trail made by Company B, 4th Engineers. They maintained the road net in the base area and airfield for the 80th Transportation Company (Lt Hel)(H-21). Their water point established at GC 218839 produced over 30,000 gallons of water.

(6) The Aggressor Forces moved their armored vehicles to each objective during darkness. The 559th Combat Engineer Company improved one of

Figure 8 (Part V) to Section IV. The Aggressor MSR follows the path that the tanks made across country.

Figure 9 (Part V) to Section IV. Road Construction with a Bulldozer.

the better track trails into a wheeled vehicle road. The company was prepared to clear minefields with explosives. No breaching was required. A M8A2 with bulldozer blade was used to haul explosives (Snake M1). This vehicle was very effective as a cargo carrier.

(7) Portions of the Combat Engineer Company were employed as part of an infantry task force to clear the MSR on 16 February 1960 when US Forces air landed a company at the Aggressor airfield. No contact was made and the unit returned to Engineer tasks that day.

(8) The battle group water point was established on 11 February 1960 and closed on 14 February 1960. A very small amount of water was issued. Aggressor used four ice and snow melters extensively to furnish water.

(9) The Aggressor Construction Company improved, widened and maintained the MSR to the rear of battle group trains area. A water point for the support base was established on 1 February 1960, moved on 15 February 1960 and on 19 February 1960.

l. Phase VIII. The 559th Engineer Company recovered the Bailey Bridge across the Gulkana River at Sourdough and returned it to Fort Greely. Police and equipment recovery was accomplished by other Engineer units as required.

m. Objectives.

(1) Cross-country movement presented no problem to armored tracked vehicles. However, it should be noted that the trees were small in diameter and there were gentle slopes in the area of the Aggressor movement.

(2) Construction of roads, bridges and ice crossings.

(a) Rough road construction was exceedingly simple, i. e., removing snow and vegetation down to the frozen ground. Road improvement beyond the rough stage required considerable effort and ingenuity by the Engineer units involved. A heavy drag with serrated edges was developed by the 56th Engineer Company, Construction. Similar serrations were employed by the 562d Engineer Company, Combat, in a grader blade, and by the 18th Engineer Company, Construction.

(b) Only one stream required any bridging; Mendeltna Creek. The banks were broken down and the earth spread upon the ice with some corduroy reinforcing.

(c) Ice crossings were not used to any extent by the Aggressor. This was brought about by the disposition of the Aggressor Forces and the speed with which they moved. The pathfinding vehicles were the M41 tanks, which, because of their weight, avoided most ice crossings. In one case, several tanks crossed a small lake in a line. The tank closest to the outlet broke through, the others crossed safely. If they had moved

in column and with adequate interval the crossing would have been successful. The speed required by the column excluded any time consuming route preparation.

(d) There was opportunity to shorten the MSR considerably during its construction if ice crossings had been used. A technical problem exists in the weight of the crawler tractor and its vibrating effect on ice sheets. This is the first equipment available at any site to remove snow. It would generally be necessary to use a grader or roller to improve the ice crossing. If the snow could be removed or compacted promptly, most wheeled traffic could have used any ice crossing in the area within twenty-four hours.

(3) Construction of barriers in snow.

(a) The only field fortifications utilized were mines and individual emplacements. Some emplacements were reinforced with light timber parapets.

(b) The 12th Infantry employed mines with considerable thought and effort. One of the minefields entered into the tactical play although it was not breached. Standard anti-tank mines were demonstrated to be a valuable weapon that can be supported by the logistics system of single, reinforced battle groups. The anti-personnel mine M2 is subject to delays in firing because of the cold and icing over from snow and should be replaced by the M14.

(c) Two ADM missions were planned, one was executed. This was planned to place a barrier on the Aggressor route of withdrawal. The actual location of ground zero was on a shallow lake that produced fallout of high intensity over the MSR. A location that would have produced a crater on the roadway would have provided more of a barrier. ADM are primarily large cratering explosives and their use should be planned as such.

(4) The present logistical system was satisfactory for the US Forces based on Engineer requirements. The Aggressor Forces logistical system developed a scarcity of POL although no shortages occurred in the Engineer units. A new and improved tractor drawn sled train for bulk POL and other cargo is recommended for further test with armored forces in the next exercise.

(5) (a) The basic load of mines for a reinforced battle group can be found in Table II as stated in FM 101-10.

(b) The basic load of explosives for an Engineer Company is given as 2400 pounds in FM 101-10. There is none given in USARAL Circular 203. About 5,000 pounds were consumed by the US Forces during the Exercise.

(c) It is considered that both mines and explosives are required for the basic load.

(6) It was demonstrated that the Engineer effort required to support a battle group is measured in equipment and men. The US Forces had

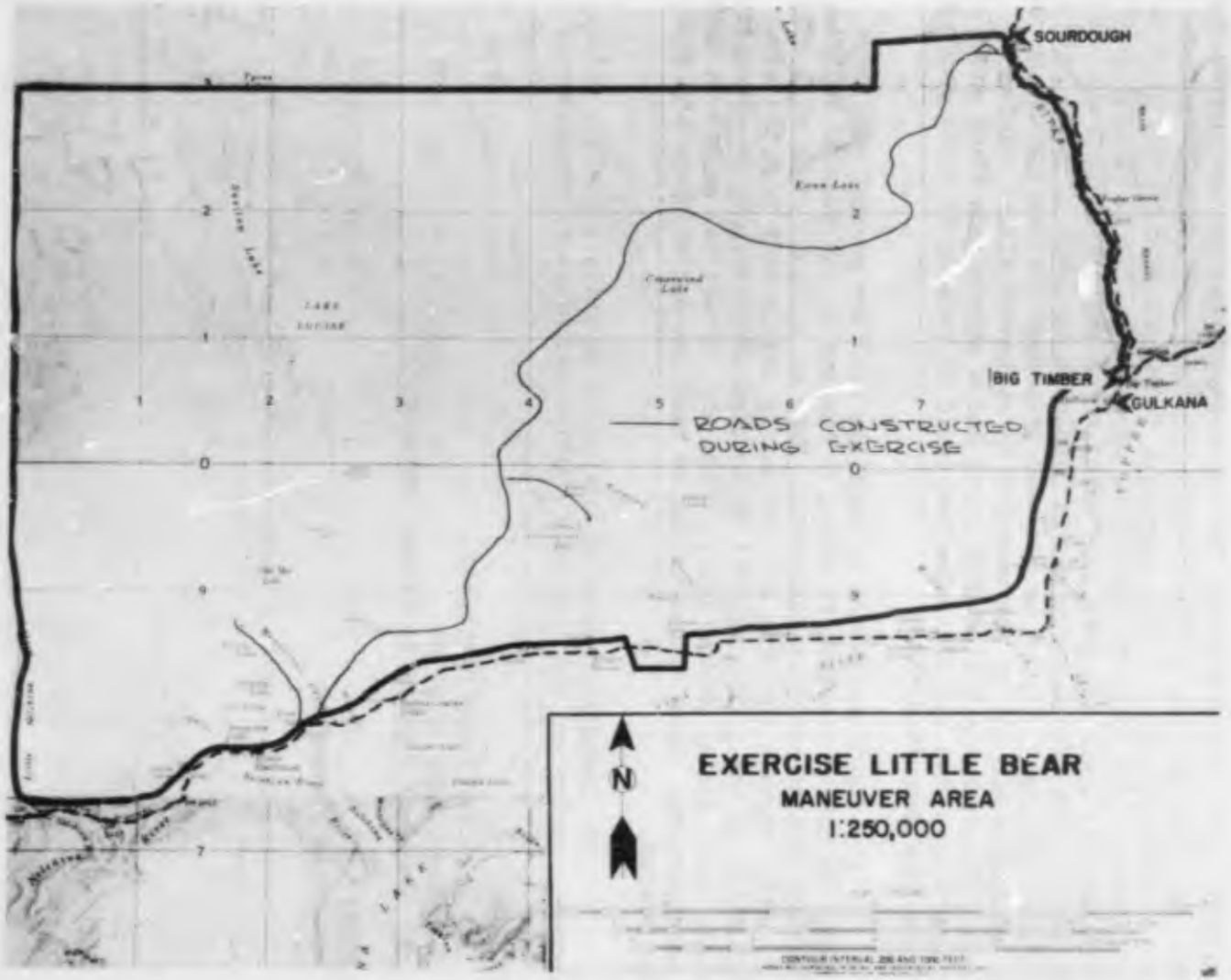


Figure 10 (Part V) to Section IV. Map of Area showing roads constructed during the Exercise.

two companies and eight tractors. The Aggressor Forces had one and one-half companies and nine tractors. The US Engineers were not extended in their support to the battle group. The Aggressor Engineers were operating at maximum effectiveness and were not capable of expansion. The US Forces' effort was influenced by their aircraft capability. The Engineer effort available for the past several field exercises is tabulated in Table 3. This indicates that adequate Engineer support is produced by proper utilization and maintenance of equipment and not by the quantity of equipment alone. Engineer maintenance for Exercise LITTLE BEAR units had a maintenance float stock of eleven tractors. This was excessive and could be reduced to forty percent of the tractors supported.

(7) Land navigation is possible with the present equipment available. It can be improved by use of a compass in the armored vehicles, and odometer type of position equipment. Maps at 1:50,000 scale will only identify major terrain features and are easily usable only from the air. Identification on the ground without major landmarks can only be accomplished with large scale aerial photographs. These are impractical except at battle group headquarters. Dead reckoning can be used but easier operating equipment is desired.

(8) Camouflage material available to units was white paint. With proper training and use this will provide satisfactory concealment.

TABLES:

1. Engineer Troop Strengths
2. Basic Load of Mines
3. Engineer Support to Winter Exercises

ANNEX:

A - Fire Prevention

Table 1 (Part V) to Section IV

ENGINEER TROOP STRENGTHS

UNIT	OFFICERS	EM	TOTAL
Headquarters, USARAL	5	4	9
US Forces			
Company B, 4th Engineer Battalion	3	109	112
Engineer Platoon, 12th Infantry	1	24	25
US Forces Support Base			
56th Engineer Company, Construction	6	134	140
48th Engineer Company FM	2	35	37
Engineer Supply Company	1	6	7
Aggressor Forces			
559th Engineer Company, Combat	6	134	140
Engineer Platoon, 9th Infantry	1	24	25
Aggressor Support Base			
18th Engineer Company, Construction	2	69	71
48th Engineer Detachment FM	1	15	16
Headquarters Command			
562d Engineer Company, Combat	4	107	111

Engineers in the US Forces were: 14% of total strength
Engineers in the Aggressor Force were: 12% of total strength

Table 2 (Part V) to Section IV

BASIC LOAD OF MINES - ROCID BATTLE GROUP

	M7A2	M15	M14	M16
Battle Group	400	100		
Tank Company		70	150	15
Engineer Company	30	100	340	
TOTAL:	430	270	490	15

USARAL Circular 203 authorizes no mines. The 12th Infantry utilized over 800 anti-tank mines during the ten day exercise. The mines were stored in the ASP and moved to the site by aircraft.

Table 3 (Part V) to Section IV

ENGINEER SUPPORT TO WINTER EXERCISES

EXERCISE	TOTAL TROOPS	ENGINEER UNITS	NR OF TRACTORS
MOOSE HORN - 1956	2 BCT	1½ Companies	23
COLD BAY - 1958	2 BG	3 Companies	30
CARIBOU CREEK - 1959	2 BG	4 Companies	27
LITTLE BEAR - 1960	2 BG	3½ Companies	17

Figure 11 (Part V) to Section IV. Location where an ice crossing could have been made.

Figure 12 (Part V) to Section IV. Loose Timber used as Parapet.

Figure 13 (Part V) to Section IV. M8A2 Tractor Cargo Carrier.

Figure 14 (Part V) to Section IV. Finished road, compare to Figure 9.

Figure 15 (Part V) to Section IV. An example of Poor camouflage. These vehicles would be much more concealed if they were at the edge of any of the thick clump of woods.

Figure 16 (Part V) to Section IV. Use of salvage parachutes as tent camouflage and vehicle painting.

Annex A (Fire Prevention) to Part V (Engineer) to Section IV (Operation and Training) to Final Report, Exercise LITTLE BEAR

1. General. Fire hazards are at the maximum during winter exercises. Fires can be prevented by proper training.

2. Mission. Engineer responsibilities are to provide fire fighting equipment, regulations and instruction. Unit commanders implement the regulations.

3. Discussion. a. Fire prevention plans were published as a tab to the Exercise plan, extra copies were made to be used as fire regulations and distributed to all units prior to the Exercise. As much advance information as possible is required.

b. Special fire extinguishing agent, sodium bicarbonate one pound boxes, was issued from Chemical Supply, this is especially effective on oil fires.

c. Special instruction in the use of all heating equipment was conducted during Phase V.

d. The following fires occurred during the Exercise:

FIRE	DOLLAR VALUE	CAUSE
Tent and Water Point	$ 1,355	Lighting Yukon Stove
Armored Carrier and Gasoline Tanker	57,000	Undetermined
Vehicle Flashfire	25	Gas Line Leak
Tent, partially burnt	10	Overheated Yukon Stove
Herman Nelson Heater	10	Refueling with Coleman Lantern
Herman Nelson Heater	732	Open fuel with blow torch nearby
Tent	135	Faulty Yukon Stove

These fires occurred in each instance in the Support Base, in the battle group training area, or on the road back to home station. The major cause of all fires was the heating equipment, either the Yukon Stove or the Herman Nelson Heater. These fires were always fought with some fire extinguishers other than the sodium bicarbonate. In one case five gallons of water was thrown on the fire. One soldier could not unlock the handle of the CTC extinguisher in another. Nine hundred and sixty pounds of sodium bicarbonate was used during the Exercise. There is no information as to how many pounds were used on actual fires.

SECTION IV

Part VI - Signal

1. GENERAL. Communication facilities supporting Exercise LITTLE BEAR were installed on 3 February 1960, and operated until final elements cleared the maneuver area on 26 February 1960.

2. MISSION. To provide signal communications and photographic coverage for major maneuver elements during Exercise LITTLE BEAR.

3. DISCUSSION. a. Communications support for major maneuver elements was provided as follows:

(1) Signal Company, USARAL, supported Maneuver Headquarters.

(2) Signal Company, Yukon Command, USARAL, supported Aggressor Forces.

(3) Area Support Platoon, 124th Signal Battalion, supported US Forces.

(4) Communication Platoon (Provisional), US Army Supply and Maintenance Center, Alaska, supported US Forces Administrative Support Base.

b. Switchboard Facilities. Telephone switchboard facilities were furnished at Fort Richardson and Ladd Air Force Base for interconnection of telephone calls from the Maneuver Headquarters at Tolsona Lake, to the local exchanges and the Alaska Communications System long lines facilities.

c. Summary of Operations. (1) Signal communications support for Maneuver Headquarters was centered at Tolsona Lake, Alaska. The Communications Center and cryptographic facilities were established in two converted house trailers. The Communications Center provided facilities for transmission of traffic to all participating forces and to headquarters outside the maneuver area through the Army Command and Administrative Network.

(2) The Maneuver Headquarters Switchboard (AN/TTC-7), mounted in a six ton van, was centrally located in the CP area. This facilitated installation of local circuits throughout the area.

(3) The organization of the Maneuver Signal Office and communications elements is depicted in Table 1 to Part VI to Section IV.

(4) Radio Relay. (a) VHF radio were the primary means of communication to major maneuver elements. Communications to Fort Richardson and Ladd Air Force Base was by tactical VHF to Glenallen, Alaska, then by Alaska Communications System long line facilities. These facilities are depicted in Table 2 to Part VI to Section IV. The VHF radio (AN/MRC-69), proved very reliable in this maneuver and no circuit outage was experienced due to equipment failure.

(b) Power for VHF radio terminals in the Signal Company operation area was provided by Engineer diesel generators. These diesels provided a reliable source of power with no outage being experienced.

(5) Radio. (a) High frequency radio teletypewriter circuits were installed between Maneuver Headquarters, each of the participating forces, and Fort Richardson to provide backup facilities to the primary means of communications. Radio nets and depicted in Table 3 to Part VI to Section IV. Except for minor outages due to equipment malfunctions, these circuits provided satisfactory backup facilities.

(b) Due to the severity of the terrain, deep snow, and the absence of roads, in the maneuver area, the AN/GRC-26 equipment for use by the battle group was mounted in M59 personnel carriers. This provided the only oversnow capability of communications equipment.

(c) To prevent possible injury to operating personnel, through electrical shock, or physical injury, the high frequency RTT circuits at battle group level were closed down during movement.

(d) Early in the Exercise, difficulty was experienced in maintaining RTT communications. During the hours of darkness, the workable mode. Considerable shifting of frequency was attempted to alleviate this problem, but it failed to improve the situation. Due to the shortage of qualified CW operators, this circuit did not operate as efficiently as it should.

(6) Wire. During the period 10 through 19 February 1960, a total of 43,965 telephone calls was processed by the Maneuver Headquarters switchboard. Telephone traffic diagram is depicted in Table 4 to Part VI to Section IV. Primary wire circuits consisted of two runs of spiral four cable, each of which was approximately 15 miles in length. Locals within the maneuver CP were installed primarily on WD-1 field wire. Interconnecting facilities between switchboard, communications center and the wire head, and from the wire head to VHF and RTT facilities were by spiral four cable.

(7) Messenger Service. Aerial messenger service was provided to major maneuver elements twice daily when aircraft were available. In some instances, flights of a higher priority prevented availability of aircraft to perform messenger runs. Distance and road conditions between the Maneuver Headquarters and other headquarters prevented successful use of motor messengers.

(8) Photographic Services. (a) Photographic coverage of the Exercise was successfully completed with the exception of vertical strip aerial photography. This mission could not be accomplished due to aerial camera failures.

(b) All camera equipment performed well when proper cold weather conditioning and practices were performed, with the exception of the

KA 24-A aerial camera. This camera became inoperative, and no replacement parts were available.

(c) Tracked vehicles with drivers were provided to transport the photographic assignment teams; this arrangement proved very satisfactory in providing coverage to the battle groups.

(9) Miscellaneous. Power from diesel generators in the CP area was utilized by the Communication Center and Switchboard facilities.

d. Problems encountered by Tactical Signal Units. (1) Throughout the maneuver, constant communication by VHF radio was maintained with all major elements except Aggressor Forces. This force moved out of the initial assembly area on skis and tracked vehicles and proceeded cross-country. The VHF radio was mounted on a 2½-ton truck and was unable to accompany the advance CP until such time as a road had been constructed. Consequently, RTT became the only means of communication with this force. Direct support VHF radio terminals mounted on wheel vehicles are unsatisfactory in that they do not have the capability to accompany battle groups on tactical cross-country operations in northern areas.

(2) The antenna for the AN/MRC-69 radio set is unsatisfactory for use in an operation when units displace two or three times daily. These units are too heavy and difficult to erect in frozen terrain; causing the loss of communication between units to be far in excess of the minimum outage that can normally be tolerated without serious consequences.

(3) Direct support wire teams equipped with wheel vehicles were unable to keep up with the battle group in displacement operations.

e. Problems Encountered by battle groups. (1) Radio. (a) With the battle group deployed over an extended area, difficulty was experienced in maintaining internal radio communications.

(b) All wheel mounted radio sets in the battle group were unable to keep up during displacement due to the absence of prepared road nets.

(2) Wire. Battle group switchboards were operated from tents during the Exercise.

(3) Miscellaneous. Operation of vehicular mounted radio sets in sub-zero weather requires almost constant running of the vehicle motor to keep the battery charged. This results in malfunction or breakdown of the vehicle motor.

TABLES:

1. Maneuver Signal Office Organization
2. Radio Relay and Open Wire System
3. Point to Point HF Radio Nets
4. Telephone Traffic Diagram

Table 1 (Part VI) to Section IV

Maneuver Signal Office Organization

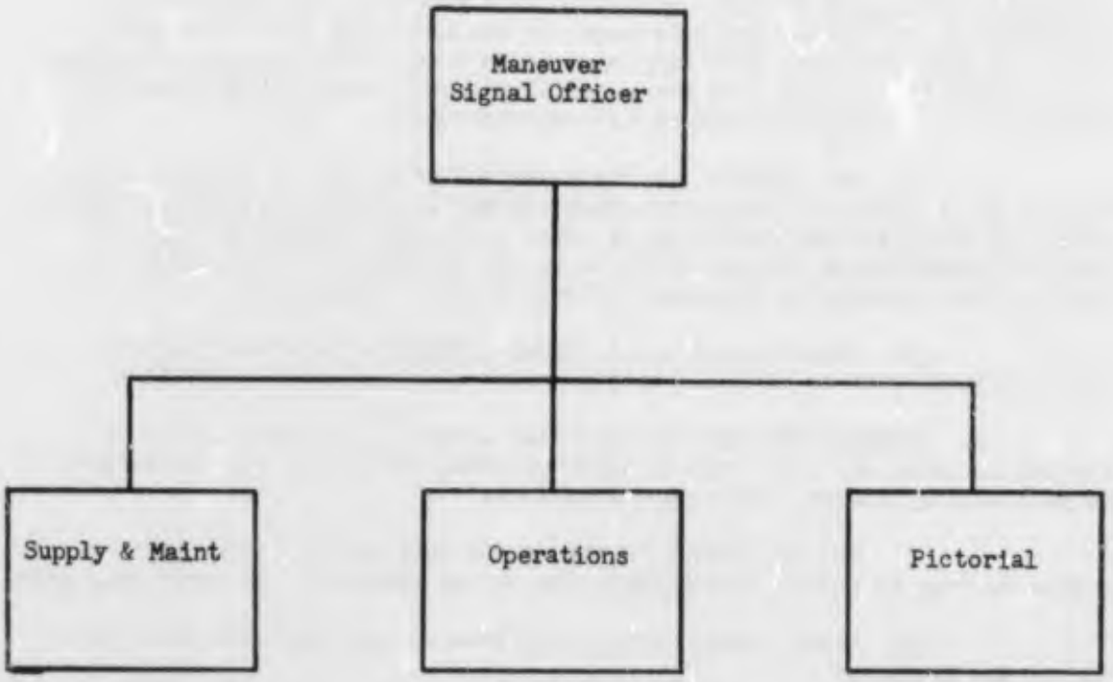


Table 2 (Part VI) to Section IV

Radio Relay and Open Wire System

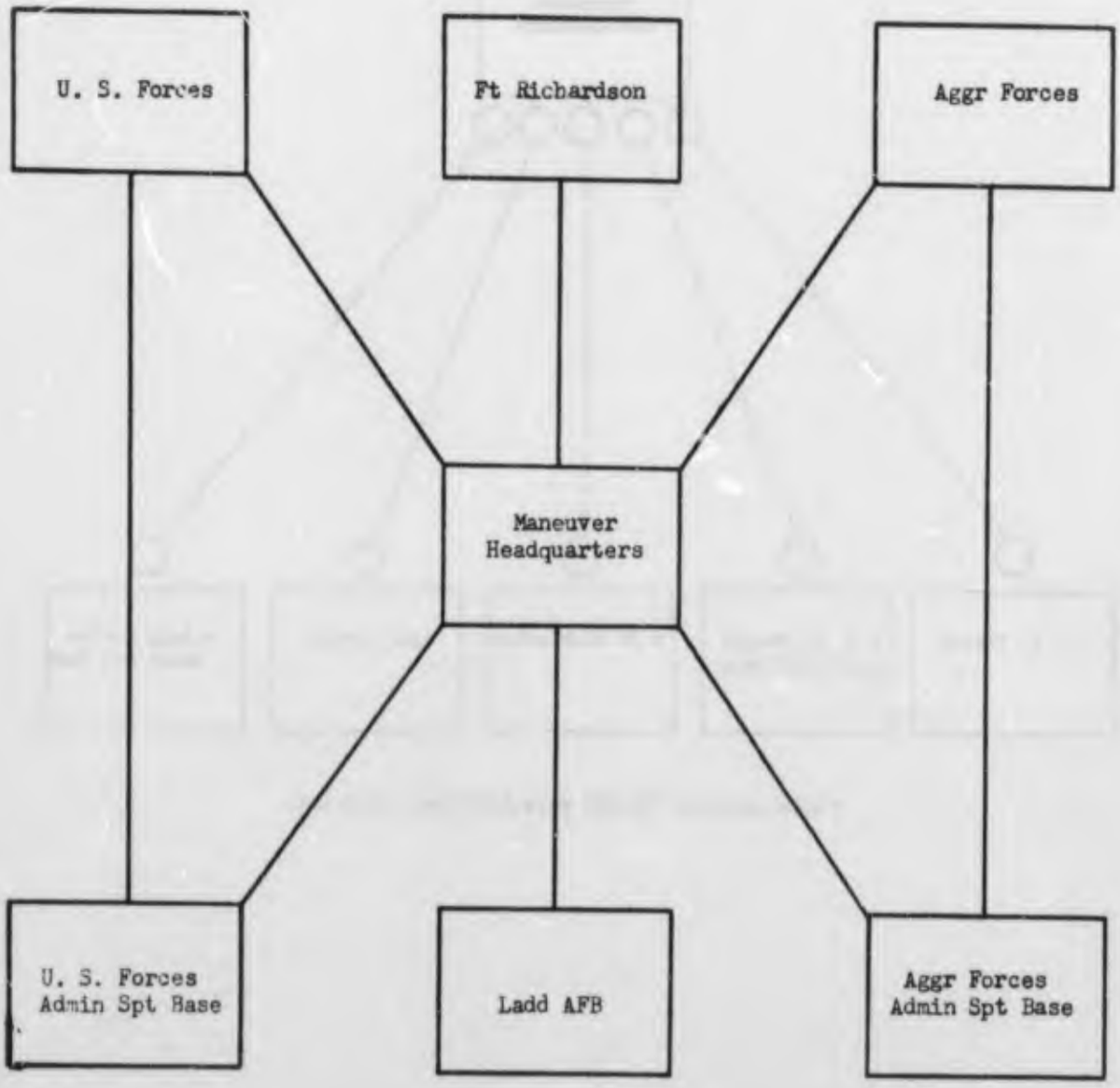
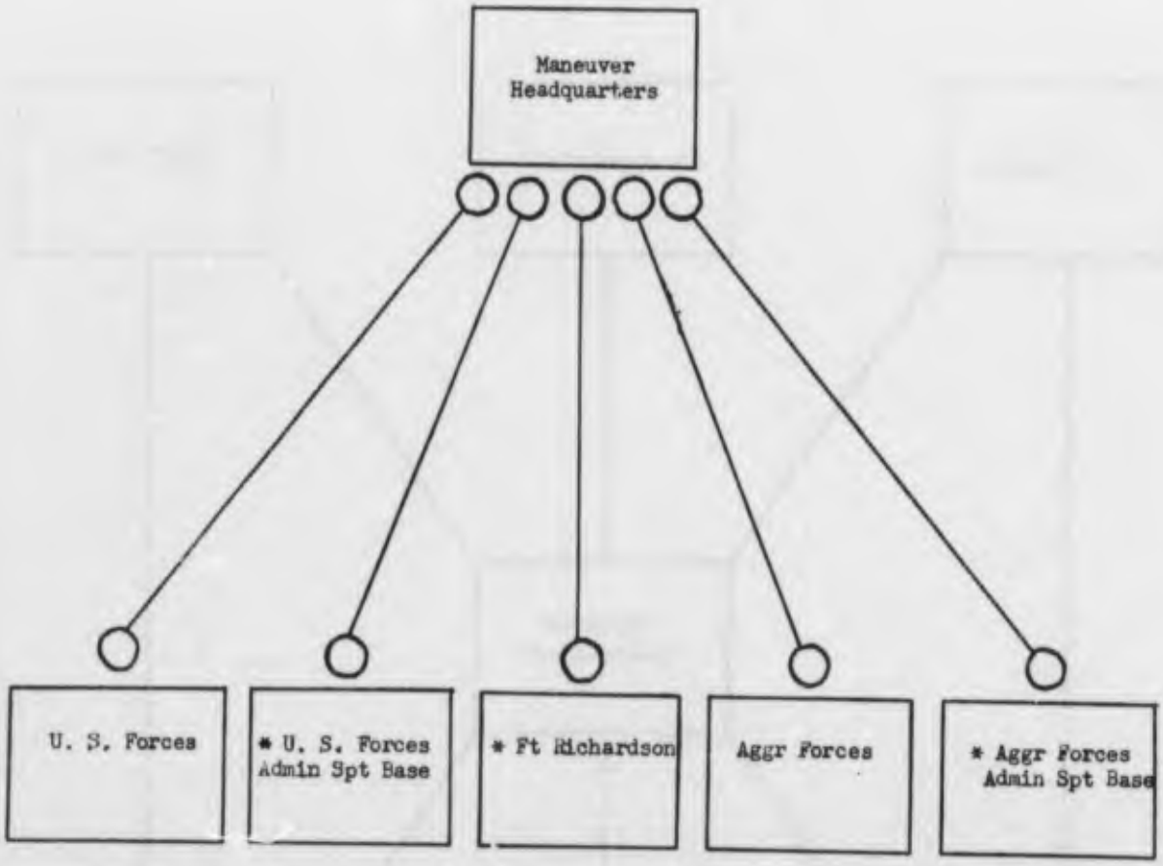


Table 3 (Part VI) to Section IV

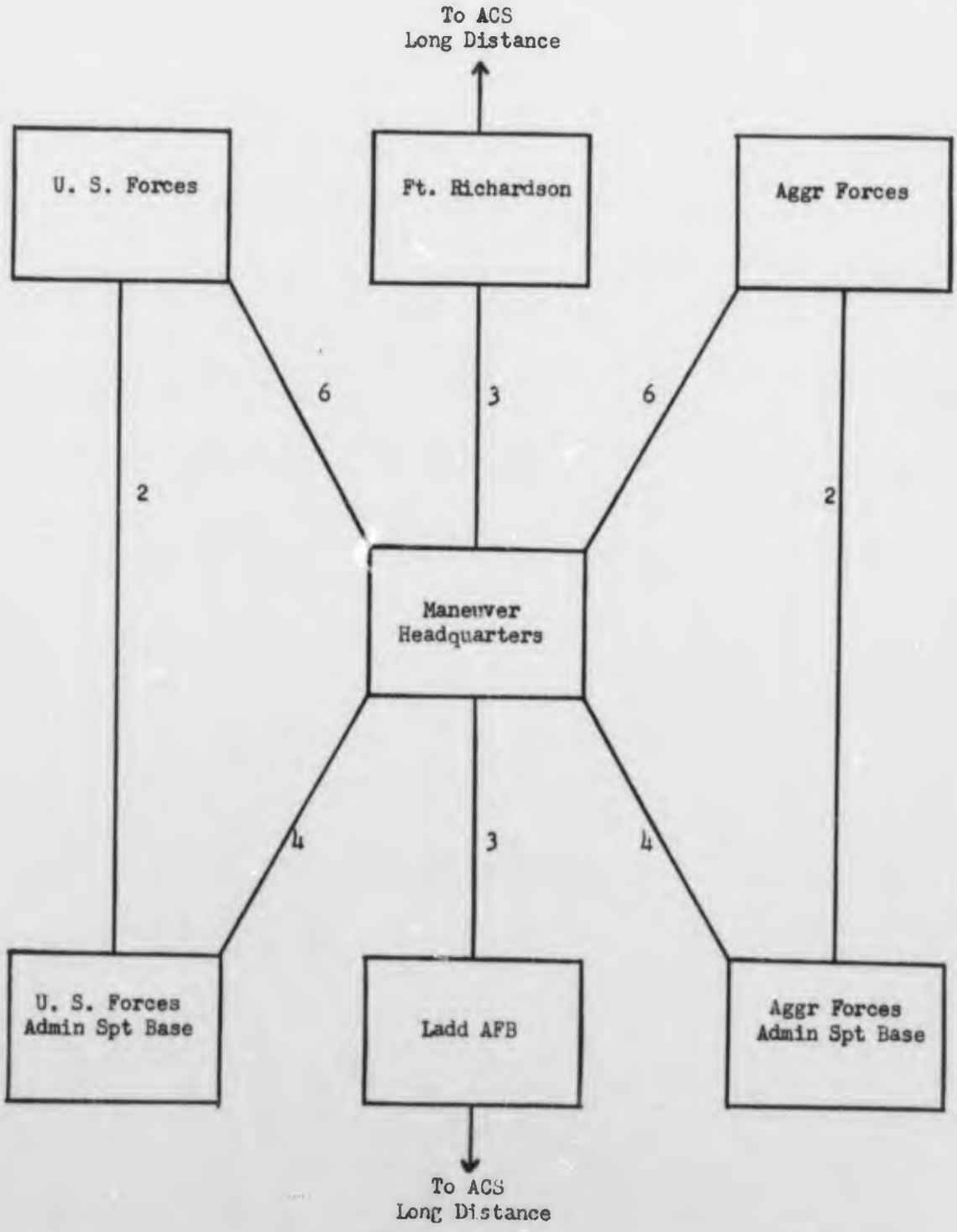
Point to Point HF Radio Nets



* Nets operated FDX RTT with AN/GRC-26 radio set.

Table 4 (Part VI) to Section IV

Telephone Traffic Diagram



SECTION IV

Part VII - Umpire System and Control

1. GENERAL. The Maneuver Director exercised control of the participating forces through the Main Command Post, Headquarters, USARAL. The Main Command Post, Headquarters, USARAL, issued orders and received reports as the 65th Airborne Division for Aggressor Forces and Headquarters, USARAL for US Forces. For additional control the Chief Umpire, on the general staff level of Headquarters, USARAL, commanded the umpire organization which was used as an agency to keep the maneuver director informed as well as to control the activity of opposing forces after they were affected by enemy fire or other activity.

2. MISSION. The umpire system was organized to perform the following overall functions: To keep the Maneuver director informed; to referee tactical engagements in a free maneuver; to evaluate the adequacy of the organization, equipment and tactics of the battle group operating under northern winter conditions with specific reference to the questions posed in subparagraph 2b(3), Section I of this report.

3. DISCUSSION. a. Prior to and during the exercise the Chief Umpire had the following tasks:

(1) Conduct the umpire program of training.

(2) Establish requirements and furnish all vehicles for use by umpires.

(3) Establish requirements and furnish all communication equipment for use by umpires.

(4) Assign umpires to participating units.

(5) Conduct an orientation for participating organizations on the umpire system.

(6) Supervise and coordinate all umpire activity.

(7) Keep the Maneuver Director informed.

b. The Maneuver Plan, Exercise LITTLE BEAR directed that the "umpire organization will comprise a modified area umpire system" and included an organization and distribution chart (see Table 1). The organization differed from the area umpire system discussed in a draft of Appendix V (Area Umpire System) to FM 105-5, Maneuver Control, primarily in that the action teams were not associated with a particular sector of the maneuver area as in the draft appendix. The relation between the resident umpires and the action team umpires was as outlined in the draft appendix, i.e., the principal duty of the resident umpire was to furnish information concerning his unit to the chief umpire and to the action team umpires. The umpire system was divided into three principal sections:

(1) Umpire Headquarters. This included the Chief Umpire and the umpire operations center. This section performed all duties outlined in paragraph 11, FM 105-5, that applied to this exercise. The operation center was established adjacent to the USARAL Tactical Operations Center and there was free intercourse between the two. This was the principal means by which the umpires furnished information to the Maneuver Director.

(2) Resident Umpires. One officer umpire was assigned to Battle Group Headquarters and to each company sized unit. The resident umpires monitored plans and actions of their units, reported these plans and actions to the Chief Umpire, assisted action team and fire marker team umpires in the control of tactical engagements and evaluated the performance of the unit.

(3) Action Team and Fire Marker Umpires. These teams consisted of officers with assistants sent to specific locations to umpire tactical engagements or to mark and evaluate conventional and nuclear fires. The number and sizes of the teams sent were dictated by the size of the units in contact. Since no more than two company sized units were involved in any single action, the battle group action teams were not used to referee any tactical engagements.

c. All umpires were integrated into a communications system comprising six radio nets. The necessity for the use of relay stations had been anticipated. In fact the area was surveyed before the maneuver began to allow the prepositioning of relay stations in the best locations. The air artillery fire markers were also used as radio relay stations. VHF circuits between the operations center and the battle group resident umpires were superior to the FM circuits, but the time required to displace the VHF equipment at the battle group command posts was excessive. The requirement for the battle groups to lay wire from the VHF terminal to the resident umpire was an imposition on the battle group communication section.

d. The location of the Maneuver Director Headquarters along the boundary of the maneuver area opposite the logical point of contact between the opposing forces had distinct advantages both for control and umpire purposes. As contact between the forces became imminent, both means of communications and liaison with the opposing forces CP's noticeably improved. Radio communications were possible without relays and being able to move replacement radios, batteries, etc., rapidly was a distinct asset in maintaining communications.

e. The chief umpire conducted a 3-day training program for all umpires at Fort Richardson. The assignment of operations center personnel was made early enough to permit them to war game, Exercise LITTLE BEAR in October 1959. This war game was valuable as an umpire training aid. The Chief Umpire's request for H-21 Helicopters for aerial reconnaissance by all officer umpires of the maneuver area was not favorably considered. This type reconnaissance should be included in the orientation training of all umpires.

f. An orientation on the umpiring system by the chief umpire and assistants was given selected personnel of the participating units, prior to their departure to the maneuver area.

g. Transportation for umpires was furnished by 1st Battle Group, 23d Infantry. Action teams were given complete oversnow capability and were able to move anywhere in the maneuver area. Isolated action umpires were placed on airborne status as well as having ground oversnow mobility in M-29's. Air fire makers used both fixed wing and rotary wing aircraft. The maneuver plan established a flight section for umpire use of two L-19 aircraft, two H-13 helicopters and one H-21 helicopter. The H-13 allocation was cut to one, and an accident removed an L-19 from the section. The H-21 was used for various other missions including courier and Visitors' Bureau flights. The constant availability of the original allocation, plus one H-21, would have allowed the airlift required by the umpire section in a maneuver of this size. Backup vehicles of all types were kept at the umpire headquarters and were used to replace vehicles that became deadlined, or could not be repaired in place by a contact team. This backup was necessary due to the age and general unreliability of M-29 and M-76 type vehicles.

h. Umpire teams were organized to be self sufficient, able to operate independently of either participating force, except for petroleum, oil and lubricating resupply. The nearest participating unit was to furnish these items as well as rations for resident umpires. Air resupply and an air mobile maintenance team for ordnance and signal equipment was used to keep the teams effective. The umpire operations center, equipped with one H-21 helicopter, could have maintained and supplied all the umpire teams. Participating units should not be required to furnish logistic support to umpire personnel.

i. A battle group action team was prepositioned in the vicinity of each of the participating forces headquarters, each battle group team was augmented by two company action teams. The battle group action team commanders, through contact with both the battle group resident umpire and the chief umpire were able to keep abreast of the situation. Actually the battle group resident umpire was the best source of information, to the battle group action umpire. The best working condition was for the action team umpire to keep up with the situation at the participating force command post. This was especially true in the case of the US force which had the airlift capability and lifted entire companies. Company action teams accompanied airlifted companies when the landing zone was to be near a defended area. In a free maneuver involving only a battle group on each side the battle group action teams are superfluous to the umpire organization. The battle group resident team needs an additional officer to be continuously operational. One company action team and the isolated action teams were kept under control of the chief umpire in a central location. This permitted sending them either by ground or air to the scene of action. Although isolated action team umpires were parachute qualified to be able to jump in with Special Forces teams, this capability was not used in this maneuver.

j. The marking of artillery and nuclear fires remains one of the most difficult tasks in umpiring maneuvers. Since most of the artillery fire missions were at targets of opportunity, the reaction time of a fire marking team moving across snow was usually too slow to permit proper casualty assessment for the mission. The movement of nuclear simulators in M-59's, even though the marking teams were prepositioned near what was usually the most lucrative target, was too slow, to be satisfactory. The marking of nuclear fires, requires close monitoring of plans and the rapid movement of the fire markers to the target areas. The most satisfactory marking of artillery fires was done by air fire marking teams, and the air-lift by H-21 proved most satisfactory means for moving the nuclear fire marking teams.

k. The umpiring of simulated equipment created some problems. The unfamiliarity with AN/TPS 21 and AN/PPS 4 radar capabilities and limitations caused some difficulty. The consensus of umpire opinion is that only actual equipment can be umpired properly.

l. No satisfactory solution to the umpiring of action against aircraft or helicopters was found during this maneuver. The use of the no fly line is only partially effective. Aircraft reported through umpire channels by number as having been shot down could not be grounded until the mission had been completed and there was no adequate method to insure that pilots and passengers who became casualties were not debriefed. Possibly an umpire air observer (artillery fire marker) could escort downed aircraft to the umpire headquarters airstrip.

m. Logistic umpiring, as a specific phase of the control activity, was new for Alaskan maneuvers in LITTLE BEAR, and much of the operation of the umpires was dependent upon individual initiative. The logistic scenario was not employed by Maneuver Director Headquarters to expand the logistic play, but served as a reporting guide for Aggressor Force umpires when certain incidents on the scenario developed out of exercise play. The scenario incidents could have been used to enrich the logistic play of the Old Man Lake ASB. The questionnaire prepared for the logistic umpires was a useful guide in securing definitive comments on test objectives. The effectiveness of the staff logistic umpire could be increased by providing him an NCO and sufficient working space in Umpire Control to assemble and analyze all logistic situation data and to maintain a situation map which would provide the Chief Umpire a complete and current logistical picture. Logistic Umpires should be integrated fully into the umpire system and not allowed to operate independently. They should be provided with radio communications to permit them to be dispatched as required throughout the battle group rear areas. Advantage should be utilized by all umpires, of the the logistic umpires' relatively good access to communications and their location to air operations facilities. The logistic umpire with Aggressor Force, for example, was able to be of considerable assistance in forwarding situation reports of unit umpires in the trains area.

n. A definite procedure for collection of umpire daily reports is desirable. The late receipt of unit situation reports from unit umpires prevented the development of a clear and complete analysis of current unit logistic situations at Umpire Control. A liaison helicopter appears to be the best solution to assure collection of written reports from units.

o. The umpiring of equipment declared out of action was not definitive in LITTLE BEAR. In future maneuvers, it is desirable that equipment holding areas be established, that all out-of-action equipment be moved to these areas, and that release from these areas be under control of logistic umpires based on processing of replacement documentation.

p. The umpiring of personnel declared out of action could be improved by control measures similar to those suggested for equipment.

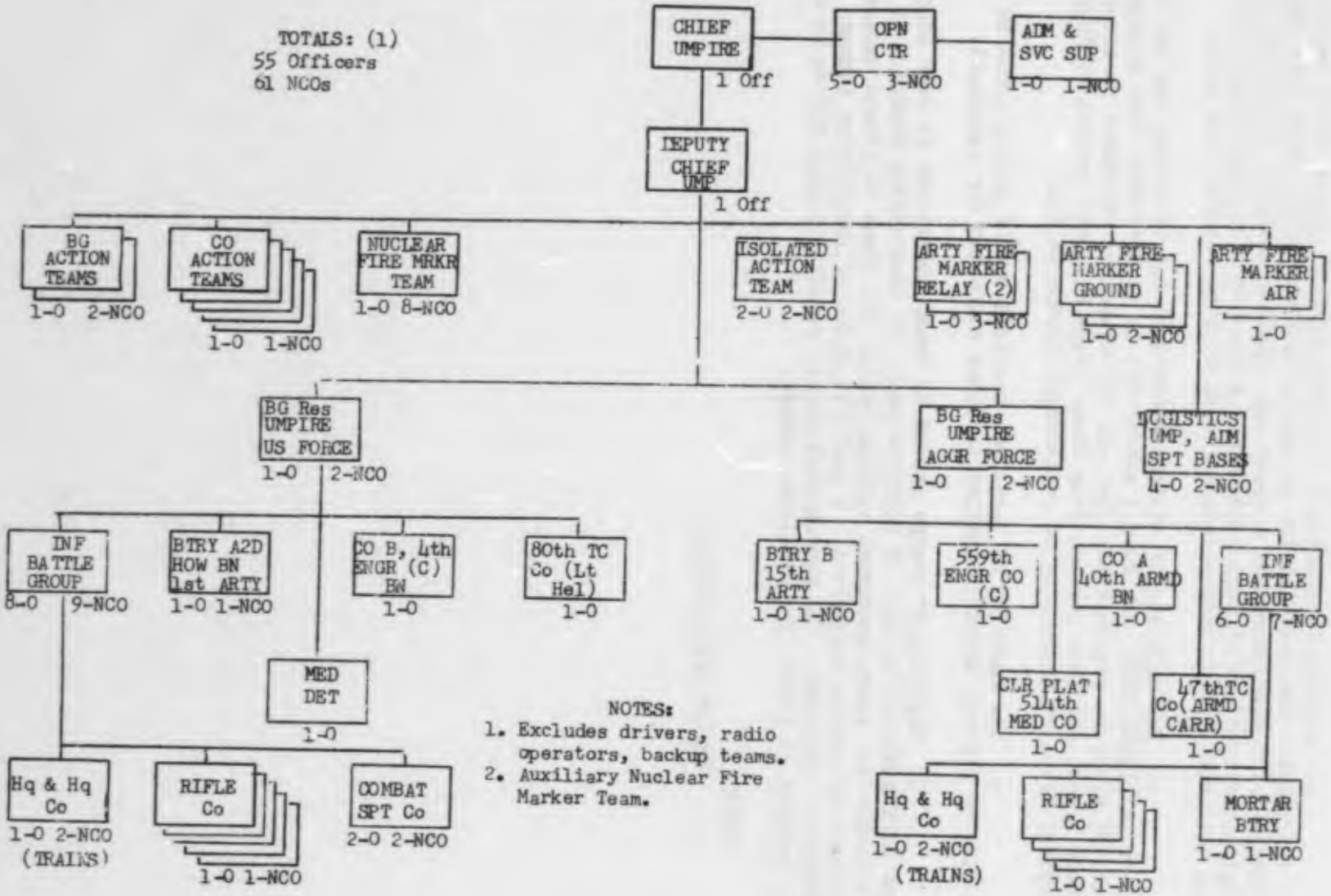
q. Umpiring of damage caused by enemy operations in rear areas was difficult due to lack of positive means of identifying damage. It is difficult for enemy personnel working behind the lines to locate umpires without betraying themselves. A positive means of identifying damage should be provided. The system used should permit friendly forces as well as umpires to detect the simulated damage.

TABLE:

1. Umpire Organization.

Table 1 (Part VII) to Section IV

UMPIRE ORGANIZATION - EXERCISE "LITTLE BEAR"



NOTES:

1. Excludes drivers, radio operators, backup teams.
2. Auxiliary Nuclear Fire Marker Team.

Annex A (Program of Instruction for the 1st Battle Group, 12th Infantry at Fort Lewis) to Section IV (Operations and Training) to Final Report, Exercise LITTLE BEAR

PROGRAM OF INSTRUCTION FOR 1ST BATTLE GROUP, 12TH INFANTRY AT FORT LEWIS

SUBJECT	HOURS
1. All Personnel:	
a. Introduction	1
b. Principles of Cold Weather Clothing	1
c. First Aid, Hygiene and Medical Evacuation in Cold Weather Operations	3
d. CBR Flame and Smoke Warfare in Cold Weather Operations	1
e. Map Reading and Land Navigation	28
f. Weapons Maintenance in Extreme Cold	1
g. Rations, Individual and Small Unit Feeding	1
h. Shelters - 5 and 10-Man Tents	1
i. Fortifications, Mines and Demolitions in Cold Weather Operations	1
j. Use and Care of Special Equipment Used in Cold Weather Operations	1
k. Emergency Procedures Used in Cold Weather Operations	1
l. Skiing on Straw	8
m. Skiing on Snow	32
n. Logistical and Administrative Support in Cold Weather Operations	1
o. SOP, 1st Battle Group, 12th Infantry in Cold Weather Operations	1
p. Trailbreaking Operations	1
q. Cold Weather Problems in Cross Country Marches and Security	1
r. Individual Combat Techniques on Snow Covered Terrain	2
TOTAL HOURS:	86

2. Selected Personnel:

Training conducted on maintenance and operations of special equipment:

a.	Engineer	40 hours
b.	Ordnance	90 hours
c.	Signal	30 hours
	TOTAL HOURS:	160 hours

Annex B (Program of Instruction for the 1st Battle Group, 12th Infantry at Fort Richardson) to Section IV (Operations and Training) to Final Report, Exercise LITTLE BEAR

PROGRAM OF INSTRUCTION
FOR
INDIVIDUAL AND UNIT TRAINING

1st Battle Group, 12th Infantry (reinforced) at Fort Richardson, Alaska
11 through 29 January 1960

Subject	BG Hq	Inf	Engr	Arty	CS Co
Use and Care of 5 and 10-Man Tent	2	3	4	3	3
Winter Road Construction			4		
Winter Mine Warfare		2	12	3	3
Land Navigation and Survey				8	8
Shelters and Bivouacs		8	2	2	2
Fire and Movement		5			
Fighting Techniques		2	2		
Camouflage and Concealment	4	2	2	4	4
Ski Training	10	24	22	20	20
Snowshoe Training	2	2	2	4	2
Skijoring	2	2	2	2	2
Familiarization Firing (Individual crew-served weapons)	8	16	8	8	8
Familiarization Firing (105 Howitzer)				8	
Familiarization Firing (4.2 Mortar)					8
Special Operations for Oversnow Movement			8	8	8
Platoon Field Exercise		20	18	18	18
Company Field Exercise		30*	30*	30*	30*

Subject	BG Hq	Inf	Engr	Arty	CS Co
Field Exercise Training	8				
Battle Group Exercise	60*	60*	60*	60*	60*
Tractor Operation for Selected Personnel			40**		
Utilization of Army Aviation	2	4	4	2	4
TOTAL HOURS:	98	180	180	180	180

NOTES:

* - Indicates training was conducted on a 24-hour basis.

** - USARAL conducted school for selected tractor-dozer operators.

Annex C (Psychological Warfare Leaflets) to Section IV (Operations and Training) to Final Report, Exercise LITTLE BEAR

SAMPLES OF LEAFLETS

1. Aggressor to You the 12th Infantry Soldier
2. US Soldier, Caribou Creek Campaign, 1959
3. Aggressor Special Treatment Certificate
4. Individual Protection in the Arctic
5. The Warriors' Chant

SOME MAN TO MAN TALK ABOUT THE ARCTIC FROM

AGGRESSOR TO YOU THE 12th INF SOLDIER

WHO IS AGGRESSOR?

He is a trained Arctic soldier, a volunteer for operations in extreme cold. He draws overseas pay and hazardous duty Arctic extra pay (which equals flying pay).

HOW IS HE EQUIPPED AND HOW DOES HE OPERATE?

The Agressor command recognizes the soldier is entitled to the benefits of the standard of living of his home country. He rides into Arctic combat in heated armored carriers, dismounting briefly to fight. He is backed up by overwhelming fire power. Kitchens mounted in the same heated carriers feed him hot special Arctic rations regardless of where he goes - in bivouac, the combat soldier sleeps in a heated shelter with no requirement to stand fire guard - The Agressor Security Corps performs that chore. Agressor knows that alcohol is a requirement in the Arctic and has a rum ration daily.

HOW IS AGRESSOR TRAINED?

Most Agressors are selected personnel whose homes are in the Arctic. Added to this natural affinity for extreme cold, he has been especially prepared to protect himself against frostbite, the amputations of fingers and toes and the sterility which often follows after moderate exposure.

IS AGRESSOR REALLY YOUR ENEMY?

Agressor knows that you have been brought to Alaska to fight while the troops in the Anchorage area who should be out with you are back in warm barracks, many with their families. Agressor knows that your chances of losing fingers or toes or becoming sterile or being the victim of a helicopter accident (they are notoriously treacherous machines in the Arctic) are not of your own choosing - or at least you haven't been told all the facts.

You are only the Agressor's enemy if you continue to actively oppose him.

WHAT CAN YOU DO TO SAFEGUARD YOURSELF WHILE IN ALASKA?

The best and most sensible procedure is to get back to heated buildings, hot food and recreation. This may not be easy if you belong to a harsh unit with ambitious officers. Agressor doctors recognize that most men need rest and protection. Yours may not. It may be necessary for you to deceive them to get the care your body needs. (Soap held under your arm will produce a fever. Back pains cannot be found to be false by any examination).

The next best thing is to get over to the Agressor side. Agressor lists all prisoners as having been surrounded and captured. They never divulge that you came over voluntarily. But volunteers are given a choice of working in the food depots at Sourdough or working in the Agressor NCO clubs in Fairbanks. Remember, you are helping your buddies. The more who come over to Agressor, the sooner the fighting ends.

U.S. SOLDIER, CARIBOU CREEK CAMPAIGN, 1959

1. These are photos taken of one of many U.S. Soldiers frostbitten during the 1959 Caribou Creek Campaign. This is an example of inexperienced soldiers fighting in the Arctic. To avoid this happening to you, practice the following:

a. Avoid becoming exhausted.

b. Avoid prolonged standing, long foot or ski marches and avove all getting overheated.

c. Always build fires upon halting, especially at night when the temperature drops.

d. Do not take a deep breath when the temperature is below zero degrees. This will crack and cause other injury to the lungs.

2. It is difficult to explain to your friends and loved ones how or why this happens to you. Avoid embarrassment. Comply with the above and future instructions from the Aggressor. Better still, join the Aggressor Forces; you will be furnished clothing superior to that of the U.S. Forces, receive excellent medical treatment, and be given an inside job in officer or NCO clubs or an easy desk job comparable to your age and grade.

65TH AIRBORNE PARACHUTE REGIMENT

AGGRESSOR

SPECIAL TREATMENT CERTIFICATE

The soldier whose name, rank, serial number and organization is entered below, with this certificate in his possession and filled out before he comes into Aggressor custody will be given preferential treatment and given the privileges which Aggressor reserves for soldiers who voluntarily surrender.

FULL NAME _____ RANK _____ US Serial Nr _____

ORGANIZATION _____
Squad Plat Co Bn or Bat Gp

_____
Signature of US Soldier

INSTRUCTIONS TO AGGRESSOR SOLDIERS TO WHOM THE ABOVE SURRENDERS

If the above is filled out correctly before the individual comes into your custody, he is to be given a hot meal, cigarettes to smoke if he desires, and rest in a warmed place before being evacuated from the battle front. Sign this paper and have the guard carry it with the prisoner to the rear.

CAPTURING AGGRESSOR SOLDIER _____
(Name and ID Book Nr)

AGGRESSOR ARMY
MEDICAL DEPARTMENT

INDIVIDUAL PROTECTION IN THE ARCTIC

The success of the current Agressor drive to the south of Alaska depends to a large degree upon the individual Agressor soldier safeguarding his body against the permanent damages of cold.

1. Avoid exertion which leads to deep breathing. A deep breath at any temperature below 0^{o} can result in freezing and cracking the lungs. Report to your commander without delay any NCO who orders you to do excessively hard work, march or ski at a fast rate.

2. Eat hot food. The fresh vegetables and bread in your daily ration are equally important in giving you protection against disease. Do not give away your daily rum ration.

3. If you are a leader, arrange so that your men all get 8-hours uninterrupted sleep in a heated shelter daily. This is of utmost importance in the Arctic in maintaining body resistance to permanent cold damage.

4. Build warming fires at all halts. (especially at nights when the temperature normally drops).

5. Never remove gloves when out of doors. The special Agressor thermal glove permits you to do even fine work.

6. Do not wear eyeglasses. It is better to see a little less than risk shattering splinters of glass from eyeglasses subjected to temperatures below 0^{o}.

7. Report on sick call immediately if you experience any of the following symptoms which are of special significance in the Arctic:

Coughing when you exert yourself.
Fatigue.
Cold Fingers.
Chills.
Fever.
Swelling.
Stomach Pains.

ALASKAN COMMAND

The Warriors Chant

VOLUME II Number 56 A Newsy Whoop From The Battle Group 12 Feb 1960

WARRIORS MOVE TOWARD VICTORY

The 1st Battle Group 12th Infantry, fighting in the strange and alien terrain to Alaska, are once again proving their right to the name "WARRIORS."

Moved from the comparatively temporate climate of Fort Lewis to the frigid temperatures of Alaska, the Warriors have mastered the techniques of operations in extreme cold and are currently locked in combat with an Aggressor whose natural habitat is the frozen north.

Despite minor early reverses, despite failures of equipment and men, the Warriors are sweeping the battlefield.

The indominatible Warrior spirit is slowly but inexorably carrying our soldiers forward against insurmountable odds. As the Warrior advance overcomes all obstacles, even the "Aggressor" recognizes that they are up against a mighty force.

Neither the snow, the crumbling ice on the lakes, or the privations and hardships can deter the 12th Infantry soldier from giving himself in this crucial test.

WARRIORS SELECTION AS "LITTLE BEAR"OF THE MONTH

EXTRA— WARRIOR CHANT STAFF GOES TO WAR

This may be the last edition of this paper during the present campaign. Just before going to press, your editor and his photographer were ordered, in true Warrior tradition, to lay down pen and camera and take up the rifle for emergency CP defense. This edition will be in fewer copies than our usual distribution and you are urged to pass this copy to your buddies.

A publication from Camp Donali, Alaska, USA

ALASKAN EDITION

The Warriors Chant

Commanding Officer ——— Colonel George C. Fogle
Information Officer ——— 1/Lt Daniel R. Zenk
Editor ——— Pfc Bill W. Mc Coin
Draftsman-Photographer ——— Pfc Harold Staude
Warriors' Chant published on "Exercise Little Bear"

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EDITORIAL

TDY OR PCS FOR WARRIORS ?

Rep John E. Goodwall (D-Alaska) in a wire to the House Armed Services Committee pointed out the substantial savings to be effected by retaining the 12th Infantry in Alaska. He indicated that visits to personnel of the Battle Group at Ft Richardson showed overwhelming sentiment in favor of the move.

Colonel George C. Fogle, Battle Group Commander, answered a recent press inquiry on the subject by indicating his concurrence with the proposal, but pointing out that "much depends upon our performance in the current operation."

The stationing of the 12th Infantry in the Gulkana area as a permanent safeguard to Aggressor invasion from the north has been a topic of interest before the arrival of the 12th Infantry in Alaska.

The inclusion of provision for Gulkana dependent housing in the FY 62 budget has lent credence to the rumors. The recent change in regulations to permit assignment of draftees to the defense forces of Alaska is another indicator that the 49th State may be our new permanent home.

It becomes the duty of each Warrior to prove his right to Alaska as a new home by carrying on the present fight against what appears to be overwhelming odds, and by resisting the temptation to take the easy way out by surrendering to Aggressor.

WEATHER IN LAKE LOUISE AREA

Temperatures in the Warrior area have thus far been 30 degrees above the expected seasonal average. Warnings from the Weather Bureau are for a return to normal within the next few days with nightly lows of -40 to -60 degrees.

SAFETY NOTE

C-rations with a metallic taste may indicate cold weather spoilage and should not be eaten. All cans of meat and beans issued to the Warriors have been found contaminated and should not be eaten.

WARRIOR REST CENTER IN OPERATION

Col George C. Fogle, announced at a cocktail reception for the press that the Warrior Rest Center at Tahneta Lodge is now in full operation.

"Over 20 percent of our front line riflemen have already spent a 24-hour rest period at the Lodge," announced the Battle Group Commander, "and shortly we intend to extend the privilege to our headquarters troops."

Pointing out that the goal of the program was to give each combat Warrior "a steak dinner, a hot shower and a night's rest between clean sheets," the 12th Infantry commander compared the exemplary behaviour of the Warriors at Tahneta Lodge with the reports of drunken revelry and excesses of the Aggressor troops on pass in the Sourdough resort area.

CHAPLAINS CORNER

The conduct of Aggressor troops in the Sourdough resort area presents an important example to us.

We are faced with an enemy who considers releasing his troops to periodic wallowing in the comforts of civilization important to their combat efficiency.

Our fighting forces, with less pay and fewer privileges and comforts than the enemy, have a splendid opportunity to prove that we do not consider hot food, warm surroundings and adequate supply necessary to accomplish our mission.

Your first duty of course is to preserve your personal well being so that you may be of future service to our country. But unless faced with compelling

(Cont'd on Page 3)

H-21s FLY AGAIN

AGGRESSOR MISTREATS PRISONERS

Maj Robert H. Wise, Adjutant of the 12th Infantry in a briefing for observers at the Tahneta Officers Club disclosed that reliable sources have confirmed mistreatment of Warriors captured by Aggressor.

While admitting that Aggressor treatment of prisoners was unexpectedly "soft," Major Wise pointed out that use of captured 12th Infantry soldiers as Kitchen help, table waiters and bartenders in the Aggressor NCO and service clubs in the Sourdough area constituted a violation of accepted procedures.

Major Wise, who has spent considerable time in Alaska prior to the present campaign, stated that we "must never underestimate the cunning of Aggressor," in enticing Warriors to surrender. "It is incumbent on every Warrior," he said "to resist the temptations of soft living as a servant of Aggressor and to carry on our fight against insurmountable odds which face us."

Major Wise bitterly assailed the inferior equipment provided to the 12th Infantry, but denied that the high rate of surrender of 12th Infantry units to Aggressor is an indicator of low morale. He attributed the "defections" to a breakdown in the supply system.

CHAPLAIN (Cont'd fr pg 1)
circumstances that dictate that you honorably give up the fight, this is a splendid opportunity for you to prove that the Warrior can display fortitude in the face of adversity without the comforts that Aggressor provides to his troops.

After two days of emergency field modifications it was announced that the H-21s supporting the Battle Group in LITTLE BEAR can again take the air. Maintenance officers felt certain that the new rotor blades will prevent the low altitude power failures that led some 12th Infantry riflemen to dub the H-21 "the troop mangler."

Emphasizing that all H-21 flights would be under "emergency risk" conditions with only partial troop loads, maintenance experts expressed confidence that the tragic series of crashes of the past few days would not be repeated. All aircraft have been salvaged for parts and arrangements are being made with "Aggressor" for return of the craft which broke through the ice on Crosswind Lake along with the return of the surviving crew members.

THE FORT LEWIS FIRE

12th Infantry Warriors were reassured to learn that no dependents of personnel now in Alaska were identified among the casualties.

Red Cross and local disaster officials announced that emergency shelters had been made available in the Tacoma and Olympia areas to supplement facilities of the field house on post.

The estimated $2,500,000 loss to on-post housing does not include the value of furniture and personal automobiles consumed in the holocaust. Post public information officials stated they believed most individuals carried adequate insurance.

TACTICAL SUGGESTION AWARD

The Warriors, unlike Aggressor, are part of a democratic Army. Whereas Aggressor is led by a dictatorial commander with a ruthless Prussian - type staff and cold blooded company commanders, the Warriors believe that every soldier carries the potential spark of military genius.

Now that the LITTLE BEAR campaign has been underway for several days with unexpected reverses for the Warriors, it is an appropriate time to give the rifleman, the squad leader or the platoon sergeant the opportunity to offer the advice which may turn the tide of battle.

The first 5 adopted entries in 100 words or less on the subject "If I were commanding the Warriors I would _____," will be awarded a full week at the Tahneta Lodge Warrior Rest Camp. If the winning suggestion proves decisive, the individual will in addition be promoted. Address all entries to "Commanding Officer, 1st Battle Group, 12th Infantry, ATTN: Tactical Suggestion Awards Officer."

E CO SELECTED

Echo personnel received the news with mixed emotions that they have been selected as the "rear party" to police the battle area after the present campaign.

COMMANDERS VIEWS ON SURRENDER OR CAPTURE

Scoffing at the reports that he is contemplating "throwing in the towel" the commander of the 1st Battle Group, 12th Infantry provided his troops with this guidance as to when he considers it proper for an individual Warrior or a Warrior unit to surrender to Aggressor:

For an individual: When he is sincerely convinced that his individual well-being would best be preserved by capture, providing he is not on an important courier mission.

For small units: When the unit leader is sincerely convinced that he has resonably done his duty in view of the amount of support rendered by higher headquarters, or when the well-being of the men entrusted to his care so dictates.

While announcing the above policy, the Commander pointed out that although Aggressor's treatment of prisoners was admittedly humane and "soft," he thought few Warriors were ready to give up the struggle against cold and privation as an active combatant for the warm food and shelter of non-combatant prisoner status.

Queried as to whether there would be later reprisals against soldiers and officers who surrendered, the commander replied that, "This is very difficult in view of the Aggressor practice of concealing whether an individual or unit was captured in the heat of combat or voluntarily surrendered."

There is little doubt on the part of all Warriors that Colonel Fogle personally will never surrender.

NIGRA PROPAGANDO DE LA AGRESO

Annex D (US Army Security Agency, Alaska, Support of Exercise LITTLE BEAR) to Section IV (Operations and Training) to Final Report, Exercise LITTLE BEAR. (U)

CLASSIFIED

(Forwarded under seperate cover)

Annex E (Nuclear Play) to Section IV (Operations and Training) to Final Report, Exercise LITTLE BEAR. (U)

CLASSIFIED

(Forwarded under separate cover)

SECTION V - LOGISTICS

1. GENERAL. a. Logistical planning for Exercise LITTLE BEAR was initiated during March 1959 and was based on Department of the Army guidance and USARAL-Sixth Army Agreements as follows:

(1) The 4th Infantry Division at Fort Lewis would furnish one reinforced battle group (1600 personnel) as US Forces during the Exercise. Eighteen hundred troops were provided as directed later by Department of the Army.

(2) Transportation for movement from McChord Air Force Base would be provided by MATS. The return move was accomplished in the same manner.

(3) CONARC budgeted for transportation and costs for issue of special items of clothing and equipment (cold weather items) to CONUS troops prior to departure for Alaska from Fort Lewis, Washington.

(4) USARAL troops (Aggressor Forces and Support Units and/or personnel) would be approximately the same as in FY 59 (one reinforced battle group).

(5) The maneuver would be a two-week, two-sided, free maneuver, affording the commanders an opportunity to employ imaginative tactics. The Exercise was later rescheduled into a twelve-day field exercise.

b. It was envisioned that the different composition of the two forces would provide one unit (Aggressor) with a tracked ground mobility capability and the other (US Forces) with an air-mobility capability. It was anticipated that the force structures would provide an excellent comparison of units possessing different types of mobility, particularly in the logistical area of interest.

c. In general, logistical support was planned as follows:

(1) Field maintenance units for both forces would be furnished by USARAL.

(2) During the Exercise, unit distribution to the battle groups (to LCP) for all classes of supply (except Class V) from Administrative Support Bases would be practiced. Support Bases would be played tactically.

(3) Evacuation and hospitalization for each force would be to a field hospital (51st from Fort Lewis) located in the vicinity of Maneuver Director Headquarters.

d. Logistical objectives of the Exercise were to determine:

(1) Suitability of transportation currently on hand within the command to effect cross-country movements in areas having poorly developed or non-existing road nets and communication lines.

(2) Practicability of utilization of the Transportation Company (Lt Hel)(Aug), for deployment of troops, resupply and evacuation.

(3) Degree to which the Transportation Company (Armd Carr) can be employed successfully in poorly developed areas where inferior roads exist or roads are non-existent.

(4) Degree to which the light tank company can be employed and supported in poorly developed areas where inferior roads exist or where roads are non-existent.

(5) The extent to which resupply to individuals, units, and organizations on independent type missions can be effected and sustained.

(6) Extent to which construction of temporary type roads, to include ice crossing, bridges, and installation of bridging materials suitable for carrying wheeled, tracked, and sled transportation can be properly practiced.

(7) Suitability of troop-test items, including an evaluation of such items of equipment as might be made available for use during the maneuver.

(8) Whether or not the logistical system, techniques, and equipment utilized during the Exercise were capable of functioning, effecting, and providing necessary support to dispersed elements of the battle group operating independently on the nuclear battlefield with limited lines of communications.

(9) Whether or not the prescribed basic load of units is realistic.

(10) Whether or not the recommended required supply rate (RSR) for ammunition expenditures to support a tactical operation of this type is appropriate.

(11) The amount of Engineer effort required to support the infantry battle group when employed in undeveloped terrain under winter conditions.

(12) The capability of battle group radio communications, to include the capabiltiy of radio equipment to provide command control; the adequacy of maintenance facilities; and battery supply implications at battle group, company, platoon and squad levels.

(13) Equipment and techniques necessary for the employment of the medical platoon when the battle group is operating independently.

(14) The effectiveness of a US battle group airlifted into Alaska without its heavy equipment.

(15) The relative merits of supply point versus unit distribution of the various classes of supply.

(16) The optimum organization of a support base for a separate battle group operating in northern latitudes.

2. MISSION. a. The Assistant Chief of Staff, G4, and Technical Service Officers of Headquarters, USARAL, operating from Maneuver Director Headquarters in the field, supervised and directed the logistical efforts of both US and Aggressor Forces.

b. The support troops, other than those supporting the Maneuver Director Headquarters, were organized into two Administrative Support Bases, one in support of each force. Each base was organized to provide logistical support for a reinforced battle group operating independently. Each consisted of a headquarters, storage and issue facilities for all classes of supply, prescribed maintenance facilities and was prepared to accomplish or provide the following during the Exercise:

(1) Classes I, II and IV (selected items including repair parts), III and V (including nuclear weapons).

(2) Unit distribution to supported forces LCP or trains for Classes I through IV.

(3) Supply point distribution for Class V supplies.

(4) Field maintenance support for Engineer, Ordnance, Signal and selected Quartermaster items of equipment.

(5) Maintenance of roads in support base area and assistance to task force commander in the development and maintenance of roads forward of the support base.

(6) Security and fire protection of the support base.

(7) Displacement of support base as required, or upon request of the commander of the task force with approval of the Maneuver Director.

c. In addition to the foregoing, the Commanding Officer of the Support Base for US Forces was responsible for supporting the Maneuver Director Headquarters with Class I and III supplies. The security of the MSR in each task force area was the responsibility of task force commanders.

3. DISCUSSION. a. Logistical play during the Exercise was, as a whole, as realistic as possible. A study of the problems encountered, the techniques tried, and the solutions attempted, has provided USARAL with the basis for organizational doctrine and equipment requirements for military operations in northern latitudes. The basic philosophy that will govern the design of the Army organization for logistics in Alaska in the future will be that which insures support to combat commanders while relieving them of the many logistic matters that detract from their devoting full efforts to tactical operations. It was noted during the Exercise that the major logistic deficiencies, other than lack of organizational doctrine, were in communication and mobility. Inadequate communications proved a second enemy to the commanders of both forces.

b. The Exercise began with the following minimum levels of supply prescribed for support of each force:

(1) Administrative Support Bases. (a) Classes I and III - 3 days.

(b) Selected Classes II and IV - 5 days.

(c) Class V (simulated non-explosive sand filled boxes) - 10 days.

(d) Repair parts - normal as required (in DS units).

(2) In Units. (a) Class I - 2 days.

(b) Classes II and IV - as required.

(c) Class III - that which the unit could carry in its vehicle tanks and organic containers.

(d) Class V - one basic load (simulated and blank).

(e) Repair parts - authorized allowances.

c. The two Administrative Support Bases carried out resupply and maintenance functions as prescribed in the Maneuver Plan, Exercise LITTLE BEAR. There was an imbalance of strength between the two because the Commander, US Army Supply and Maintenance Center, Alaska, and the Commanding General, Yukon Command, USARAL, were given mission assignments only to establish and operate support bases during the Exercise. Each developed an organization according to his own needs and desires, with the Yukon Command effort being the lesser. As a result of experience gained in this area during the Exercise, USARAL will develop an organization (with equipment) for type support bases that will insure sound logistic support of separate battle groups operating in northern latitudes. The new organization will be tested during forthcoming Exercise WILLOW FREEZE.

d. Originally it was planned to require the support bases to displace during the Exercise so as to render more timely and efficient support to each task force. While only one of the bases (Aggressor) moved during the Exercise, it was demonstrated that such an installation, designed with proper consideration for tactical reality, can be displaced rapidly and with relative ease. It is considered that displacement would be facilitated if the support base were divided into direct support and general support echelons and that the direct support echelon not be burdened with an excessive stockage of supplies. In the future it is anticipated that the support base will contain general support units only, with direct support echelons in or near the battle group (LCP) area.

e. Command of the administrative support base by the next higher headquarters as opposed to that of placing the base under the commander of the supported task force was an area of interest. During the Exercise, command remained with the higher headquarters (Maneuver Director), which often resulted in a greater length of time required for response to task force needs. Also, task force commanders did not feel that the support base was in their "family." Separation of general support and direct support functions will make practicable placing the direct support element under control of the battle group commander, thus requiring him to consider the plan for the employment of his logistical requirements concurrently with the planning of his operations. To illustrate the foregoing, the following comments of the Exercise logistical umpires are appropriate:

> "The operations plan of the Aggressor battle group was admirably aggressive, but it did not take into account the limitations of the logistic backup force. The battle group overextended the capability of the backup elements from the outset of the problem long before there was any prospect of contact with the enemy. As a result, by the time contact became imminent, the supporting forces were worn out. The fact that the support base was not under battle group control no doubt encouraged the battle group commanders to assume that the support base, working for a higher headquarters, would somehow manage to support him. But, in fact, higher headquarters had few, if any, resources with which to reinforce the support base, and failure to consider the limitations of the base capability jeopardized the execution of the battle group operations plan. It appeared that if the operation had continued, eventually the support base would have collapsed from simple overwork of the people and equipment. The battle group commander must consider the capabilities of his backup support in his operations planning in the same way that he must consider the capabilities of his own trains."

f. An unrealistic aspect of the Exercise was that of assuming no restriction on supplies and equipment initially available to both forces. In future exercises, available supply rates (ASR's) for Class V supplies, restriction on the use of Class III products, limitations on the number of

hours aircraft may fly, and similar administrative controls should be played to a greater degree in accordance with the provisions of paragraphs 19 and 20 of FM 101-5. During Exercise LITTLE BEAR, more realism and monetary savings were obtained when mid-way during the play of the problem it became necessary to ration Class III supplies, Signal Corps Winter Batteries, and other costly items of equipment. Midway during the Exercise, Class III supplies, Signal Corps Winter Batteries, and other costly items of equipment were rationed, by the G4, through the technical services.

g. Unit distribution versus supply point distribution was tested extensively during the Exercise with a result that unit distribution was determined to be not only the more desirable, but a practical procedure in most tactical and administrative operations in northern latitudes (Class V included). In this connection, however, it was noted that the task force commanders had a tendency to overlook, or ignore, the capabilities of administrative support base commanders when they tried to maintain a steady flow of supplies and other support to the combat elements of the task force. Limited over-the-snow vehicular equipment, the long distance supplies and equipment are to be transported, lack of better communication equipment, and the limited physical endurance of the individual make it very necessary that task force commanders consider the capabilities of their supporting base when planning tactical operations.

h. The major support problem developed during the Exercise was Class III resupply. Since sufficient wheeled or tracked tankage is not available within USARAL to permit military transporting and delivery of Class III supplies to support bases, and then to battle group LCP's, it was necessary to lease "stationary" tankage for both forces from civilian sources. This proved unsatisfactory from the standpoint that such tankage was emplaced before the Exercise started and could not be moved forward or rearward during conduct of the maneuver. Delivery to the tankage area (administrative support bases) by commercial means was satisfactory, however. The need for a bulk Class III storage capability in the battle group trains and the administrative support base was best illustrated by Aggressor Force. This was the "track" heavy force. Here, a real need developed for a better means of distributing Class III supplies forward than by use of 1,200 gallon tank trucks, 5 gallon cans, and 55 gallon drums. The support base, and the battle group Class III section, were hard pressed at times to send minimum supply forward. Rolling fluid transporters, which were not available for the Exercise, might offer a solution to the problem. Also, flexible POL tanks might be a partial solution. The main weakness to the latter may be the fact that they are reported to be unsatisfactory below minus 20 degrees. A tracked tank vehicle is the ideal solution to much of the Class III distributing problem. In this respect, the M8A2 cargo tractor is capable of carrying a load sufficient to allow its conversion into a 2,000 or 2,500 gallon tanker, by means of a skid-mounted rigid tank and pump set which could be lifted into the M8 cargo bed.

i. Analyzing the US Forces logistical effort (the force with the helicopter company attached), the most significant feature was the use of

the helicopter for support of forward combat elements. Using pallets or skidboard with a toboggan front, a helicopter can carry about 1½ days Class K and Class III supplies to a front line company, direct from the support base. The design of the skidboard allowed the pallet/load to be drawn by a Weasel (M29) or other light vehicle from the delivery point to the breakdown point. The helicopter lift saved much handling of supplies since battle group trains never physically received the supplies, and eliminated many hours of vehicles and personnel time for the forward delivery of supplies.

j. Communications between battle group and support base were excellent for the US Force, but consistently unsatisfactory in the Aggressor Force. Since the Aggressor operation was more nearly typical of northern operations than the relatively static situation of the US Force during much of the Exercise, the problems of the Aggressor Force are more significant. Wire communications do not appear to be fully satisfactory for communications over the long distances which may open between support base and battle group trains, particularly when the force is tank or "track" heavy and when enemy elements are operating in the rear area. The best available tactical radio equipment is required for northern operations, and it should be provided to the battle group trains and the administrative support base with the same priority it is given to the combat elements of the battle group.

k. Maintenance during the Exercise was both good and bad, depending upon which force was being considered. With the US Forces, it was particularly good because of the absence of a large number of vehicles and because of little movement by the unit. With Aggressor, the presence of many tracked vehicles, and because of the nature of the operations conducted (considerable tank-infantry action) much greater problems were encountered. Maintenance of Ordnance equipment required all Ordnance maintenance elements to work around the clock throughout the Exercise and a considerable amount of equipment was deadlined in field locations at the conclusion of the problem. Engineer maintenance kept up with the requirement only through commitment of the entire float of dozers to operations.

l. Other significant areas of interest, to include lessons learned, will be found in the separate Technical Service Sections following.

4. CONCLUSIONS. (See Section VII, Part V.)

5. RECOMMENDATIONS. (See Section VII, Part V.)

SECTION V

Part I - Chemical

1. GENERAL. a. Chemical service for the maneuver was provided from the two administrative support bases; US Forces and Maneuver Director Headquarters were supported from the Old Man Lake Base and the Aggressor Forces from the Gulkana Base.

b. Chemical Class II, IV and V supplies were prepositioned in the support bases with necessary resupply planned from the US Army Supply and Maintenance Center, Fort Richardson, Alaska.

c. The maintenance effort was comprised of a float of protective masks, issued on a direct exchange basis, with damaged masks returned to the US Army Supply and Maintenance Center for repair.

2. MISSION. To provide Chemical service to participating forces in all phases of the Exercise.

3. DISCUSSION. a. Chemical supply activity during the maneuver was limited due to the fact that many of the participating units drew approximately 14 days of supply while in garrison, and transported same to the field in unit trains.

b. Of the items stocked in the support bases, amounting to about 3 days of supply for participants, approximately 60 percent was issued.

c. At the Gulkana Base, denatured alcohol, utilized for the protection of vehicle fuel systems, was placed in the Class III supply points and issued to units with the gasoline. In the Old Man Lake Base the alcohol was issued directly to units from the Chemical Class II and IV supply point.

d. Issues of stock-funded Chemical items, during all phases of the Exercise, amounted to $3183 as compared with a programmed figure of $3166.

SECTION V

Part II - Engineer

1. GENERAL. Engineer construction companies, Engineer field maintenance detachments and Engineer supply troops were assigned to each administrative support base to provide the Engineer effort necessary to support each battle group (see Table 1). The difference in size between the support bases was the perogative of the commanders. It provided an excellent comparison in the effectiveness of the two forces. There was no Engineer Command, except USARAL, between the support base and the battle group engineers. Engineer operations under this structure was basically dependent upon cooperation between units. The organization's efficiency is in direct relationship to the experience of the commanders concerned.

2. MISSION. The Engineer mission was to provide Engineer supplies, equipment and maintenance throughout all phases of the Exercise. The first Engineer supplies for Exercise LITTLE BEAR were issued in September 1959; the last issue will be in April 1960. Engineer Maintenance support was provided to participating units from Phase V to Phase IX. Construction prior to these phases is not reported in this part of the report.

3. DISCUSSION. a. Engineer Construction. (1) Engineer Construction support in Phase VII was limited to improvement of the initial MSR that had been located by the Combat Engineer units. The road was widened and improved into a two-way road with all possible speed. The Aggressor built 57 miles of one-way road and improved 37 miles into two-way road. The US Forces built 38 miles of two-way road. US Forces used a heavy drag to considerable effect on the frozen ground, the alternate equipment is a grader which makes undesirable use of this equipment. Ice blades for all graders and drags were used. Gravel is necessary for efficient winter road construction, i. e., filling of irregularities that exist in the frozen surface. Explosives were used by US Forces to open a gravel pit. Other explosives were not used except for some equipment recovery. Road work was conducted by the US Forces in daylight as much as possible. The Aggressor Forces operated day and night. Blackout operations are uneconomical. Working in timbered areas can be dangerous to the operator.

(2) Table 2 compares hours of tractor operation of all units.

(3) Both forces stuck one tractor in a thin ice section early in the Exercise and abandoned it, to recover it after the Exercise. During Exercise CARIBOU CREEK tractors averaged 8.65 hours per day. In Exercise LITTLE BEAR the average was 13.7 hours per day.

(4) Table 3 indicates the Engineer effort expended per mile of wheeled vehicle road. The initial time for a passable wheeled vehicle trail is from one to two hours per mile. This chart indicates that this effort did not produce a road of any length that would stand military traffic without continuous maintenance. There is an indication that the personnel strength

Figure 1 (Part II) to Section V. US Forces Tractor near Long Lake.

Figure 2 (Part II) to Section V. Aggressor Tractor.

of the supporting Engineer unit developes a maximum capacity for utilization of equipment, i. e., extra tractors for a given unit will not increase the unit's productivity in the same proportion. Improved equipment is required for working frozen ground.

(5) Table 4 compares the operation of tractors by each unit with a 100 percent operation factor of 20 hours per day. It is noteworthy that there was an average of ten hours and fifty-six minutes of daylight each day. Any planning that can reduce lost time during daylight is desirable, i. e., two shifts, so that no equipment time is lost at the noon hour.

b. Engineer Maintenance. (1) Engineer units operated in the area with basically their TOE equipment. Past exercises have employed excessive quantities of equipment. This has given false information on maintenance support requirements, and established unrealistic requirements in commanders plans for Engineer support. It was planned that the maintenance units have sufficient float equipment to keep the operating units equipment working without any excessive down time. This proved effective and enabled the Exercise to operate at a minimum expense. Thirty-five percent of the tractors in the Exercise required replacements. This percentage is large, but it permitted all units to operate continuously at full equipment strength. Eleven percent of the generators were replaced.

(2) Engineer maintenance units were small detachments from the existing maintenance units: US Forces, 37 men and Aggressor Forces, 19 men. The US Forces supported the Maneuver Headquarters in addition to the 12th Infantry Battle Group. Both maintenance detachments were able to provide sufficient Engineer maintenance support. The US Forces operated on two shifts for 24-hour operation. The Aggressor Force did not. Contact teams were employed by both sides. It is estimated that fifty percent of the repairs were eliminated by the contact team inspections and technical advice to the operators. Sixty percent of the repairs were made by the contact team on the spot. One hundred and twenty job orders were accomplished. Generators were sixty percent of these job orders.

(3) Unit preventive maintenance has improved. This is attributed to the Phase II training at the home station. Problems at the unit level were:

(a) A mobile unit contact team to assist the operator in his maintenance on the job site is required.

(b) Ordnance and Engineer instruction differ in a few details that are confusing to the user. One example is the use of Arctic lubricating oil (OES).

(c) Fuel contamination at the user level caused about fifteen percent of the equipment break-downs.

Figure 3 (Part II) to Section V. Canvas Heating Inclosure for Tractor Cabs.

(4) The tractors that were operated during darkness in the wooded areas had occasional snags enter the operator's compartment. This is hazardous to the operator.

(5) Each side had one tractor sink through an unfrozen spot on the ice; recovery was a major effort, and was delayed until after the Exercise. This is a problem that must be expected.

c. Engineer Supply. (1) Major items of Engineer supply were miscellaneous construction material and bridging. Little lumber or bridging was utilized during the Exercise. The major dollar value issued was in spare parts.

(2) Funding requirements for items of an operational nature, i. e., bridge, float tractors, etc. was cumbersome. The spare parts funding was more efficient.

(3) Class IV supplies were over estimated in several items, however, this over estimation is indigenous in this method of planning since all possible courses of action must be planned for.

(4) Issue of spare parts requires paper work that is an extra burden to the user.

TABLES:

1. Engineer Troop Strength in Support Bases
2. Tractor Hours of Operation
3. Tractor Hours per Mile of Road
4. Tractor Utilization

Table 1 (Part II) to Section V

ENGINEER TROOP STRENGTH IN SUPPORT BASES

	OFF	WO	EM	TOTAL
US Forces	7	3	174	184
Aggressor Forces	4	1	92	97

Table 2 (Part II) to Section V

TRACTOR HOURS OF OPERATION

US FORCES	TRACTORS	HOURS	AGGRESSOR FORCES	TRACTORS	HOURS
Co B, 4th Engr Bn	4	432	559th Engr Co	5	518
56th Engr Co	4	533	18th Engr Co	4	280
Float Tractors	3	211	Float Tractors	5	348
	TOTAL:	1176		TOTAL:	1146

Table 3 (Part II) to Section V

TRACTOR HOURS PER MILE OF ROAD

US Forces

One-way Road	643/38 = 16.8 hours per mile
Two-way Road	533/38 = 14.1 hours per mile
	TOTAL: 30.9

Aggressor Forces

One-way Road	656/50 = 13.1 hours per mile
Two-way Road	490/37 = 13.2 hours per mile
	TOTAL: 26.3

Table 4 (Part II) to Section V

TRACTOR UTILIZATION

	NR OF TRACTORS	TOTAL HRS	POSSIBLE UTILIZATION	PERCENT UTILIZATION
Co B, 4th Engr Bn	4	642	800	80.4
56th Engr Co (Construction)	4	533	800	66.8
559th Engr Co (Combat)	5	656	1000	65.6
18th Engr Co, (Construction)	4	490	800	61.3

SECTION V

Part III - Medical

1. GENERAL. In addition to providing medical service for the maneuver participants, several areas of patient care which were not previously tried or available in other maneuvers were proposed and tried. These were:

a. Complete definite patient care to be performed by a field hospital unit.

b. A Dental officer to be assigned to the hospital.

c. Jamesways to be used to house a portion of the hospital. No particular echelon of the Medical Service was selected to be tested specifically, however each was viewed in its relation to another and an evaluation made of the overall medical requirements in northern operations.

2. MISSION. The mission of the Medical Service was to provide for the care and treatment of all types of diseases and injuries incurred or contracted within the maneuver area. The medical units participating in the various levels of medical care were:

Medical Platoon, 1st Battle Group, 12th Infantry
Medical Platoon, 1st Battle Group, 9th Infantry
514th Medical Company (Clr)(Sep)
3d Platoon with HA Ambulance Detachment
3d Hospitalization Unit, 51st Field Hospital
HA Ambulance Detachment attached to the field hospital

The field hospital unit and attached ambulances were premanently positioned close to the airstrip in the Maneuver Director's area. All units were mobile and free to move in accordance with the tactical play of the problem. No attempt was made by the Maneuver Surgeon to move any medical unit.

3. DISCUSSION. a. Operations. (1) Tactical Unit Medical Units. The battle group aid stations moved with the battle group CP in echelon. This kept the support close to the front. The clearing platoon moved only once and was kept to the rear of the aid station to provide adequate support.

(2) Evacuation. Actual patients were evacuated to the field hospital by all types of military aircraft and by 3/4-ton field ambulance. Evacuation from the company areas to the aid stations presented a problem. Over-the-snow mobility of the Medical Service was inadequate. Evacuation of patients from the maneuver area was minimal because of the definitive care provided by the hospital unit. Near the end of the maneuver 15 patients were evacuated to the 5040th USAF Hospital via the C-47 carrier. No difficulty in obtaining space for patients was experienced after the Maneuver G1 began controlling the space on the aircraft.

(3) Communications. As in previous maneuvers, communications were inadequate. It was almost impossible to contact the aid station of the 1st Battle Group, 9th Infantry. Telephones to other facilities were fair. The clearing platoon has no communication, either telephone or radio, with the battle group it was supporting.

(4) Logistics. (a) General Supply. General supply presented no problem. The units in the aggressor area were restricted in the use of gasoline, both in fuel for stoves and vehicles. Medical supply was available from either a supply point or via air courier from Fort Richardson. The laundry equipment for the field hospital was not adequate to clean the minimum amount of laundry generated.

(b) Simulated Casualties. Simulated casualties were not played extensively by either side. The evacuation distances were so great that is was doubted that many casualties could have been processed. Less than 30 casualties found their way into medical channels.

(c) Actual Patients. Actual patients were treated as follows:

12th Infantry - 159 with 53 evacuated
9th Infantry - 182 with 42 evacuated
514th Medical Company - 111 with 23 evacuated
51st Field Hospital - 101 inpatients, 324 outpatients and 15 evacuated to 5040th USAF Hospital

(d) There were only 15 cold injuries of which only 4 were serious enough to require hospitalization. This is attributed to the cold weather discipline control exercised by commanders at all echelons.

SECTION V

Part IV - Ordnance

1. GENERAL. a. Objectives.

(1) To determine a suitable spare parts load for organizational maintenance; to determine basic load and troop requirements and capabilities for direct support Ordnance units.

(2) Evaluate capabilities and limitations of new equipment being tested.

(3) Further determine the reliability of present equipment and critical mortality rates of vital components and assemblies.

b. Mission. The mission of USARAL Ordnance Section (three officers and four enlisted personnel) was to serve as an Army Ordnance Section for both the US Forces and the Aggressor. In this capacity, staff supervision was exercised over all supply, Class II, IV and V (including special weapons), and maintenance operations. In accomplishing this, the Ordnance staff formulated plans, programs and policies for implementation on matters pertaining to maintenance, issue and control of major items and ammunition, and prepared recommendations on evacuation, and disposal of Ordnance materiel.

2. DISCUSSION. a. Supply.

(1) Class II and IV. (a) Two different concepts of supply support were utilized at both organizational field maintenance (DS levels).

(b) CONUS troops and support used the following concept: Organizational (2d echelon) carried only 42 lines of fast moving common items, while the Direct Support Company (2d echelon) carried a normal load of spare parts.

(c) USARAL Aggressor Forces organizations carried a full basic load of spare parts, and the Direct Support Unit carried a modified basic load computed on the number of major items to be supported for the duration of the Exercise. Items for which increased demand was expected were increased above normal computed rates, and items for which little or no requirement was expected were reduced.

(d) Effectiveness of each system must be evaluated separately, depending on the tactical situation. Method 1b, above, has certain advantages to the combat unit commander in that he is not burdened with a stock of spare parts to store, maintain and transport. This gives him greater mobility and flexibility by releasing vehicles, normally required to transport spare parts, for other purposes. Also, duplicate stocks at both unit and field maintenance levels are eliminated. The prime requisite for this method is that the supporting and supported units not be separated by any great distances.

(e) No particular difficulty was experienced in receiving resupply on a timely basis. One area in which considerable impact was felt was the quantity of GMC 302 engines and Hydramatic transmissions replaced. A total of 68 engines and 83 transmissions were consumed. These assemblies were utilized on 289 2½ ton trucks and 112 M59 personnel carriers. A total of 401 vehicles. Engines were replaced on 17% of the vehicles and transmissions were replaced on 20%. Although exact mileage figures are not readily available for all units, sufficient representative mileage figures have been reviewed to indicate that accumulation per capita should not have been a contributing factor for this abnormally high mortality rate.

(2) Class V. (a) Simulated ammunition basic loads. The purpose of issuing sand-filled ammunition boxes to units is sound and provides realism to the logistics of the maneuver. It was noted, however, that the 12th Infantry did not transport their entire basic load on organic vehicles and did not move the entire basic load into the maneuver area. Accordingly, a proper evaluation of the units capability to transport the prescribed basic load is not feasible. This condition should be corrected during normal training exercises between maneuvers. It is recommended that all units develop a loading plan and that USARAL Memorandum 203 be revised commensurate with each using unit's capability to transport the basic load of Ordnance Class V supplies authorized.

(b) Available Supply Rate (ASR). An available supply rate was not published or implemented during the Exercise. As a result, certain staff members and members of the using units were of the erroneous opinion that unlimited quantities of Class V supplies would be available and/or could be shipped in. It is recommended that an ASR be established and implemented for training in future exercises.

(c) Allocations. The quantity and types of ammunition and explosives requested by the using units were within established authorizations of the Table of Allowances. However, the quantities were generally excessive (see Table 1) which indicates the type and quantity allocated and expended. It is recommended that future requirements be established by the units concerned, in lieu of higher headquarters staff members, in order to develop a more realistic estimate of requirements.

(d) Ammunition Supply Points (ASP's). The ASP's were established as elements of each support command stocked with ten days of supply, consisting entirely of simulated (sand-filled boxes) ammunition and explosives. The demands for resupply from the ASP's were unrealistic, and considerably less than normal activity. Approximately seventy percent of the stockage at Old Man Lake ASP was not utilized. The stockage at the Gulkana ASP, not utilized, was as high if not higher. This condition can only be attributed to the lack of interest on the part of the participating units. It is considered that an Umpire force cannot monitor ammunition resupply as it extends to all units. Therefore, if resupply of Class V supplies is to be successful during an exercise, it must be fully implemented by all participating units. Based upon the lesson

learned during this Exercise, it is considered that a revision is necessary insofar as distribution of blank ammunition and explosives is concerned. Heretofore, these items have been issued to all forces, including umpires, prior to movement into the maneuver area. It is recommended that, in the future, all blank ammunition and explosives be stocked in the ASP's and issued on a controlled basis as required daily. This change should preclude excessive issues with the attendant problem of damage which results when ammunition and explosives are issued, packing opened/destroyed and then not fired or expended. The ASP's did not move forward as the supported units advanced. Generally speaking, the ASP's should be moved when the distance exceeds fifteen miles. This criteria is particularly true under the conditions encountered, i.e., sub-standard MSR's and communications. In order to correct this condition, future ASP's must be assigned as Army units and placed under the operational control of the Army Ordnance Officer. Considerable confusion existed, at Headquarters, Gulkana Administrative Support Base, in regards to the responsibility of using units. The commanders of all using units are responsible for the supply of ammunition within their respective commands. Normally, the S4 in each battalion or battle group is the ammunition officer. He must supervise and coordinate ammunition supply within his command. Ammunition requests (transportation orders) are signed by the unit commander or his ammunition officer. In the case of a division, by the division ammunition officer. The practice of removing the Ordnance ammunition supply officer (GASB) from the ASP to act as a DAO was unsound and resulted in the serious condition of having a critical supply point operating without immediate supervision and command. Explosive safety requirements alone necessitate future revisions.

(e) Simulated TADM/Honest John Rockets. The using units were not familiar with normal allocation, security and handling procedures for these items. The TADM and HJ Rockets stocked in the ASP's for resupply were not played during the Exercise. Recommend new items of this type be eliminated from future exercises until such time as units of the command possesses actual training items.

(f) Explosive Safety. An excellent record was maintained during the exercise. It was observed however, that serious violations of explosive safety standards existed in the using units, particularly as pertained to storage compatibility of blank ammunition and explosives carried as basic load. All commanders placed emphasis upon explosive safety criteria in all future exercises.

b. Maintenance. (1) US Forces, 1st Battle Group, 12th Infantry.

(a) The initial training provided this unit in maintenance and operation of equipment in northern latitudes paid great dividends. This fact was well established by the very low deadline rate experienced throughout the Exercise and by virtue of the fact that this unit was able to drive all their vehicles back to Fort Richardson after the maneuver. Obviously, the 12th Infantry is to receive high praise for their outstanding accomplishments. Also noteworthy is the relative ease with which this equipment was issued and turn-in accomplished.

(b) The fact that this unit was able to effectively resupply itself illustrates the point that wheel vehicles can be used to satisfactorily accomplish the logistical task, provided the engineer effort is available to establish a reasonalbe MSR.

(2) Aggressor Force. (a) The 1st Battle Group, 9th Infantry, employing armor, was able to satisfactorily keep their equipment in operation, however, the maintenance manhour requirement was considerably higher than that of the US Forces. Of note here is the fact that within this Battle Group the wheel vehicles required approximately the same maintenance time as did the track vehicles. This is true even though the wheel vehicles were operated less than the track vehicles; monetarily speaking, however, the cost of track components consumed a greater portion of the Ordnance maneuver funds. Also noteworthy is the fact that the armor was used for trailbreaking operations. The overall operational and maintenance record established by the armor of the 9th Infantry reflects great credit on the part of the personnel of this unit.

(b) Recovery operations within this unit were hampered by the lack of a suitable track recovery vehicle, however, all such operations were successfully accomplished even though the time required was excessive in some instances. The M8A2 cargo tractor, with its 45,000 lb winch, the D7 tractor, and the M59 APC were used in extricating vehicles from lakes. In several instances, the DS contact teams, which were operating in forward areas, accomplished relatively heavy maintenance jobs under forward battlefield conditions in order to place tanks back in operation. Again, these jobs were seriously complicated by the lack of a full track recovery-wrecker type vehicle, which is sorely needed in the accomplishment of these tasks in forward battle areas. (Reference - long thrust made by A Company, 40th Armor, 1st Battle Group, 9th Infantry.)

(c) As is always the case with present day armor, high gasoline consumption rates created one of the most serious problems, insofar as mobility and logistical resupply is concerned. The M8 cargo tractor was utilized very effectively in transporting Class III supplies to forward areas. Additionally, the M8 tractor was utilized throughout as a forward area logistical carrier. This item of equipment, essentially a light tank vehicle automotivewise, was able to stay abreast of all armor movements. Due to mechanical failures the GOER test vehicle did not arrive during Exercise LITTLE BEAR for evaluation.

(d) In considering the overall operation of armor under these conditions, due cognizance must be made of the fact that the M41 tanks were able to make relatively long thrusts without the engineer effort on MSR's which was required by the opposing forces.

(e) In providing Ordnance direct support to an independent battle group it was learned that a DS Ordnance Company (-1) platoon is a minimum requirement for operations of this scope.

(3) General. (a) As noted in paragraph 2a(1)(e), above, the mortality rates experienced on 302 cubic inch engines and hydramatic transmissions, employed in M-211 2½ ton trucks, and M-59 APC's were excessive for both forces. US Forces consumed more transmissions and less engines, however, the differences are so small that for all practical purposes the problem could be considered as general. This is not a new problem area, it had been increasing in intensity before Exercise LITTLE BEAR, and was greatly accelerated during the Exercise. Previously, USARAL Ordnance has given considerable attention to this particular problem area. Several studies have been made and a number of directives issued as a result. Among these are included such things as: laboratory analysis of engine oil; governor settings, seals, etc; proper operation and maintenance practices for hydramatic transmissions; etc. This office is making the assumption that these concentrated efforts have been reasonable effective. However, there are indications where driver and organizational maintenance practices could be improved upon. This was especially true of wheel vehicles of all units except the 12th Infantry. It can be noted on the oil samplings (for CONUS forces only; Aggressor report not yet available) that transmission,as well as engine mortality, is being caused by pure neglect. On the other side of the ledger, it can also be noted that the de-idling program has been effective. With this assumption in mind, plus the fact that all M211, 2½ ton trucks utilized by CONUS troops were inspected by Ordnance prior to issue and from the relatively low mileage these items of equipment were operated, it appears that this particular power train (GMC 302 engine driving through a hydramatic type transmission device) is unsuitable for operations under these conditions. In summation, these vehicles, the M211 and the M59, presently comprise the backbone of USARAL transportation. The vehicles themselves are fairly reliable, however, every effort must be made to accomplish the maintenance as required and specified, and most important, to operate these items of equipment in accordance with instructions contained in pertinent publications. A good example of the latter is the improper operation of the transmission on the M211 truck. The instructions call for the shift lever to be placed in F2 position when operating in undulating terrain. If the driver does not do this the transmission will shift unnecessarily, depending on speed and load,and undue wear occurs. Finally, this particular power-package, even with proper care and operation, will continue to be a vital component that fails at a relatively high rate when operated under conditions experienced during this exercise.

(b) Over-snow vehicles. As noted in previous exercises the M-29 and the M-76 vehicles are unsatisfactory. They are old, obsolete and require an undue amount of maintenance, and even with such maintenance and care their logistical value is marginal.

c. Reports. Equipment Status and Deadline Report, Department of The Army Form 2148, Reference Tab A, Appendix 2, Annex J, page J-2-A-1 Maneuver Plan Exercise LITTLE BEAR.

This report was to be submitted as of 1800 hours daily to reach Assistant Chief of Staff, G4, through (Ordnance) respective technical services, by 2000 hours daily. Report was to be initially submitted on 9 February 1960, with changes submitted by telephone, TWX, or direct courier. This system was ineffective inasmuch as communications from forward areas to rear echelons had to be vacated many times for higher priority messages. Further, this was hampered considerably by reporting units lack of coordination. This was especially true in the Aggressor forward echelons. Some reports were 24 to 48 hours old by the time they reached the Ordnance Section and had lost their value as far as being a help to the tactical commander.

Table 1 (Part IV) to Section V

CLASS V SUPPORT FOR EXERCISE "LITTLE BEAR" PHASE V 12TH INFANTRY
and
PHASE VII, US FORCES AND AGGRESSOR FORCE AND UMPIRES

DOD	NOMENCLATURE	ALLOCATED	QTR REQN FROM CONUS	QTY EXPENDED	QTY NOT EXPENDED
1305-A182	Ctg. Cal..30 carbine ball	5,796	0	7,200	
1305-A184	Ctg. Cal..30 carbine trac	1,035	0	0	1,035
1305-A212	Ctg. Cal..30 ball M2 (ctns)	1,840	0	2,080	
1305-A216	Ctg. Cal..30 ball 8rd clip	28,275	0	28,416	
1305-A218	Ctg. Cal..30 4 ball 1 trac link	6,588	0	6,000	
1305-A230	Ctg. Cal..30 trac (ctns)	828	0	0	828
1305-A234	Ctg. Cal..30 trac 8rd clip	5,655	0	0	5,655
1305-A475	Ctg. Cal..45 ball M1911	5,345	0	6,000	
1305-A557	Ctg. Cal..50 4 ball 1 trac link	672	0	0	672
1305-A574	Ctg. Cal..50 spotter trac M48A1	400	400	220	180
1305-A222	Ctg. Cal..30 blank (ctn)	90,000	0	57,760	32,240
1305-A224	Ctg. Cal..30 blank 8rd clip	488,000	450,000	295,360	192,640
1305-A225	Ctg. Cal..30 blank link	280,000	270,000	135,000	145,000
1315-C051	Ctg. 75mm HE w/f PD	90	90	90	
1315-C056	Ctg. 75mm smoke WP	12	12	12	
1315-C131	Ctg. 76mm blank	1,020	693	780	240
1315-C225	Ctg. 81mm HE w/f PD	800	800	800	
1315-C226	Ctg. 81mm illum	160	160	159	
1315-C230	Ctg. 81mm smoke WP	240	240	240	
1315-C440	Ctg. 105mm blank	692	692	216	476
1315-C443	Ctg. 105mm HE w/f MTSQ	90	0	90	

DOD	NOMENCLATURE	QTY ALLOCATED	QTY REQN FROM CONUS	QTY EXPENDED	QTY NOT EXPENDED
1315-C444	Ctg. 105mm HE w/f PD	90	0	90	
1315-C650	Ctg. 106mm HEAT w/f PIBD	60	60	60	
1315-C704	Ctg. 4.2" mortar HE w/f PD	300	0	300	
1315-C706	Ctg. 4.2" mortar illum	120	120	120	
1315-C706	Ctg. 4.2" mortar smoke FS	34	0	34	
1315-C708	Ctg. 4.2" mortar smoke WP	180	0	180	
1330-G915	Grenade hand practice	300	0	0	300
1330-H000	Grenade rifle smk green streamer	75	0	0	75
1330-H040	Grenade rifle smk yellow streamer	65	0	0	65
1330-H015	Grenade rifle smk red streamer	65	0	0	65
1340-H600	Rocket HE 3.5"	504	0	504	
1340-H601	Rocket practice 3.5"	504	0	0	504
1345-K051	Fuze mine AT practice	700	0	55	645
1345-K055	Fuze mine comb M10	700	700	0	700
1345-K105	Mine AP practice M8	1,500	0	36	1,464
1345-K230	Mine, AT practice hvy M12	900	0	107	793
1370-L326	Sig. illum gnd red streamer prcht	15	0	0	15
1370-L315	Sig. illum gnd red star cluster	35	0	0	35
1370-L232	Sig. illum AC single star yellow	130	0	117	38
1370-L316	Sig. illum gnd cluster white star	10	0	0	10
1370-L314	Sig. illum prcht green star	40	40	0	40
1370-L327	Sig. illum gnd prcht white star	155	155	109	46

DOD	NOMENCLATURE	QTY ALLOCATED	QTY REQN FROM CONUS	QTY EXPENDED	QTY NOT EXPENDED
1370-L366	Simulator proj airburst M74	1,700	0	620	1,080
1370-L378	Firecracker M80	8,250	8,250	2,500	5,750
1370-L494	Flare trip prcht M48	425	0	0	425
1370-L596	Simulator flash arty M110	2,700	0	0	2,700
1370-L597	Simulator proj gnd burst M115	2,150	2,150	200	1,950
1370-L598	Simulator booby trap flash M117	1,000	0	161	839
1370-L599	Simulator booby trap illum M118	200	0	135	65
1370-L600	Simulator booby trap whistle M119	200	0	177	23
1370-L395	Flare trip M49	425	0	0	425
1375-M031	Charge demo block TNT ½ lb	8,500	4,500	4,900	3,600
1375-M035	Charge demo chain M1	50	0	50	
1375-M420	Charge demo shaped 15 lb	40	40	39	1
1375-M039	Charge demo cratering 40 lb	30	0	15	15
1375-M130	Cap blasting elec	300	0	300	
1375-M131	Cap blasting non-elec	200	0	200	
1340-M299	Jato unit	4	4	0	4
1375-M455	Cord detonation	4,500	0	4,500	
1375-M670	Fuse blasting time	2,000	0	2,000	
1375-M766	Igniter blasting fuze	200	0	200	
1375-M445	Demo kit proj charge M1	4	4	0	4
1375-M540	Detonator kit concussion M1	100	100	0	100
1375-M431	Charge demo liner	256	256	2	254
1375-M660	Fuze bullet impact M1	4	4	0	4
1375-M831	Non-explosive components for demo kit M2A1	2	2	0	2
NSN	Simulator atomic explosion device	10	0	5	5

SECTION V

Part V - Quartermaster

1. GENERAL. Quartermaster support and services to units and participants during Exercise LITTLE BEAR was organized and functioned as follows:

a. The Office of the Maneuver Quartermaster located at Maneuver Director Headquarters (MDH) in the Tolsona Lake area. This office coordinated and directed Quartermaster supply and service activities and furnished food service supervision for all participants.

b. The Old Man Lake Administrative Support Base (OMLASB). This base provided Quartermaster support for US Forces and support troops, MDH and Visitors' Bureau and provided certain support for the Aggressor support base.

c. The Gulkana Administrative Support Base (GASB). This base provided Quartermaster support for Aggressor Forces and support troops.

2. MISSIONS. a. US Army Supply and Maintenance Center, Alaska:

(1) To establish Quartermaster facilities in OMLASB.

(2) To effect daily Class I, Class III, Class II and IV supply by air and ground means for the US Forces.

(3) To provide limited field maintenance for all units for Quartermaster equipment (Herman Nelson heaters).

(4) To provide limited quantities of "A" rations for Aggressor Forces.

(5) To provide Quartermaster support to MDH, Visitors' Bureau and US Forces support units as required. Quartermaster laundry and bath service was not furnished since no field laundry and bath units exist in USARAL.

b. Yukon Command: (1) To establish Quartermaster facilities in GASB.

(2) To provide daily Class I, Class III, Class II and IV supply by ground means to Aggressor Forces and supporting troops.

(3) To evaluate fuel tank, collapsible, 3,000 gallon.

3. DISCUSSIONS. a. Movement of Quartermaster activities into the two administrative support bases began during Phase VI of the Maneuver. Prepositioning of subsistence and POL stocks was accomplished in each support base.

Minimum selected quantities of Class II and IV items were stocked at the OMLASB as well as a maintenance float of five Herman Nelson heaters for direct exchange. A maintenance tent was erected at OMLASB for field maintenance of Herman Nelson heaters.

b. POL transportation to maneuver support bases was accomplished by commercial carrier under contract. This was necessary because of the absence of rail facilities and lack of Army tanker vehicles. Commercially contracted bulk storage tanks were also required for POL static storage. These were positioned at each support base, MDH and at the 80th Transportation Company helicopter base. POL transportation within the maneuver area was accomplished through utilization of four 1,200 gallon tank trucks by OMLASB and three 1,200 gallon and one 5,000 gallon tank trucks by GASB. Some package POL delivery to elements of 1st Battle Group, 12th Infantry was accomplished by helicopter delivery. Bulk POL storage facilities were as follows:

OMLASB	10,400 gallons
GASB	21,000 gallons
MDH	5,100 gallons
80th Trans Co	8,500 gallons

An additional packaged stock of 15,000 gallons of MOGAS in 5 gallon cans was established at OMLASB for reserve and air delivery purposes. Quantities and types of POL issued by the support bases were as follows:

<u>Bulk</u>	
MOGAS	470,000 gallons
100/130	59,300 gallons
91/96	5,600 gallons
80/87	4,600 gallons
DF-A	25,000 gallons
<u>Packaged</u>	
DF-A	17,325 gallons
OE-10	4,720 gallons
Gasoline, unleaded	216 gallons
MOGAS	28,296 gallons
Kerosene	3,465 gallons
Oil, 1,065 wt	477 gallons
CO-80	660 gallons
Oil Pres, PE-1	550 gallons
OES	4,750 gallons
GOS	1,760 gallons
Weapons Oil	500 cans
Grease, A&A	2,444 pounds
Solvent	385 gallons
SAE 30	275 gallons
115/145	5,995 gallons
80/87	1,705 gallons
91/98	3,850 gallons

Two collapsible fuel tanks, 3,000 gallon capacity, were brought to the GASB for testing during Phase VII. One of the tanks was damaged in transit and could not be repaired in time for testing. The other tank was tested in temperatures ranging from +10° F to -15° F and proved very satisfactory.

c. Prepositioning of operational rations and non-perishable components of the modified "A" ration was accomplished in the support bases during Phase VI. During Phase VII, "C" rations, "5-in-1" rations, Assault Packets and modified "A" rations were available to participating units at the discretion of the major commanders concerned. Friendly forces subsisted on operational rations throughout the field exercise. Aggressor Forces augmented operational rations with one modified "A" ration. Types and quantities of rations issued are as follows:

Modified "A" Rations	37,119
"C" Rations	50,972
"5-in-1" Rations	12,860
Assault Packets	10,840

d. Class II and IV stockage in the support bases was limited to selected items such as spare parts for stoves, field ranges, lanterns and heaters; insulated boots and Herman Nelson engines on direct exchange; and water and gas cans for reserve and air delivery use. Emergency requirements for II and IV items were met through overnight supply service from US Army Supply and Maintenance Center, Alaska.

e. Distribution methods used by OMLASB for Class I and III supply to the US Forces were a combination of unit distribution and supply point distribution. Vehicle and helicopter delivery methods were used for both classes of supply and delivery made, in some cases, to platoon emplacements. Two 1,200 gallon tankers were used daily for POL resupply of the 12th Infantry. A combination of unit distribution and supply point distribution at the convenience of using units was used for Class I supply of support forces and MDH. One 1,200 gallon tanker was used daily for POL supply for support units and MDH.

f. GASB used supply point method of distribution for Class I supplies and unit distribution for Class III. Since the battle group had no organic POL resupply capability, this seriously hampered the GASB Quartermaster resupply function by extending tanker turn-around time to approximately ten hours in the final period of Phase VII.

g. Two air drops by Air Force C-123 aircraft consisting of a total of 10 tons of Class I and Class III supplies were made on 14 February 1960; one to each battle group. Aforementioned daily helicopter supply of Class I and III supplies to the 12th Infantry units commenced on 10 February and concluded on 20 February 1960. Items were rigged in the OMLASB Class I and Class III areas in A-22 containers on oversnow sled pallets. After rigging, pallets were trucked to the 80th Transportation Company area and held for

delivery by helicopter on call from US Forces. Rigging and delivery also included cans of water, mines and simulated ammunition. All rigging, both for air drops and helicopter external loads, was accomplished by personnel of the Quartermaster Air Items Branch, US Army Supply and Maintenance Center, Alaska who also conducted the 14 February 1960 air drops.

h. Procedures for evacuation of deceased personnel were not outlined in the Maneuver Plan, however, the Surgeon and Quartermaster informally agreed at the beginning of Phase VII that such evacuation would be made through medical channels to the 5040th Air Force Hospital Mortuary at Elmendorf Air Force Base. One fatality occurred early during Phase VII and the remains were evacuated as outlined above. A need existed for clearly defined procedures in the Maneuver Plan.

i. Laundry and bath facilities were non-existent during Phase VII. These services should be made available during future field exercises.

j. The GASB was required to displace on one occasion during Phase VII. The OMLASB was alerted to displace on two occasions and was prepared to move; however, the execution order was not issued.

k. Maintenance and repair of Herman Nelson heaters was conducted on a round-the-clock basis. Repair of 36 heaters out of a total of 57 was required during Phase VII. Electric powered heaters were satisfactory where power was available, but the gasoline powered heater gave more trouble than other items of equipment.

Figure 1 (Part V) to Section V. Refueling Aggressor M-41 Tank from M-8 Cargo Carrier.

Figure 2 (Part V) to Section V. Transferring incoming perishable ration components from heated cargo truck to conex storage container at Quartermaster ration breakdown point.

Figure 3 (Part V) to Section V. Utilization of externally rigged sled pallet for H-21 Helicopter delivery of supplies to forward platoon emplacements of US Forces.

SECTION V

Part VI - Signal

1. GENERAL. Signal supply and field maintenance facilities for support of Exercise LITTLE BEAR were in place and ready for operation on 8 February 1960 and continued in operation until the maneuver terminated.

2. MISSION. To provide Signal supply and field maintenance support to all elements participating in Exercise LITTLE BEAR.

3. DISCUSSION. a. Signal supply support was provided by US Army Supply and Maintenance Center, Alaska, for both US Forces and Aggressor Forces. Supplies were prepositioned at Old Man Lake Administrative Support Base and Gulkana Administrative Support Base and accountability for all items was retained by US Army Supply and Maintenance Center, Alaska, until items were actually issued. This eliminated the necessity for obligation of funds to transfer supplies to Yukon Command. This also permitted the rapid movement of supplies from one administrative support base to the other without transfering funds. By retention of accountability at US Army Supply and Maintenance Center, Alaska, the issue of repair parts to maintenance teams was expedited because stock control clerks at the support bases had immediate access to stocks located at Fort Richardson. Items were shipped daily as required on regular runs operated by US Army Supply and Maintenance Center, Alaska.

b. The cost of items issued for Exercise LITTLE BEAR is as follows:

Battery BA 2279 (AN/PRC-10 Radio)	$ 25,180.20
Battery BA 2270 (AN/PRC-6 Radio)	28,889.60
Battery BA 2230 (Flashlight, Telephone, etc)	1,913.75
Photo	5,620.05
Stock Fund items (Other than batteries listed above)	10,324.29
Non-Stock Funded items (Obligated)	14,854.90
TOTAL	$ 146,782.79

The cost shown above would be approximately $50,000.00 more if the normal replacement of batteries had been made during the maneuver. No batteries were issued to tactical troops except the initial five day supply at the beginning of the maneuver. Due to a shortage of funds all battery issues were suspended prior to accomplishment of replenishment issues. The extremely warm weather during the exercise and the fact that radio silence was imposed on the tactical troops contributed to the longer than normal life of all batteries.

c. Signal field maintenance support for Aggressor Forces and Gulkana Administrative Support Base was furnished by Yukon Command Signal Field Maintenance Shop and for all other participating forces by US Army Supply and Maintenance Center, Alaska, Signal Field Maintenance Shop by mobile teams. All teams were in M220 shop vans which did not prove too practical for forward support of maneuver elements. Except for the lack of mobility over snow, the concept of mobile maintenance is feasible in USARAL.

SECTION V

Part VII - Transportation

1. GENERAL. a. Initial plans called for the participating forces to be moved to and from the maneuver area via highway. Logistical support for these forces would also move by highway. Tracked vehicles such as the M59 armored personnel carrier and the M41 tank were to move under their own means. Tracked vehicles such as the M29 and M76 tracked cargo carriers and D7 and D8 bulldozers were to be transported to and from the maneuver area. Because of the limited military highway transportation means available and the relatively short period (5 days) allocated for the movement to the maneuver area, it was planned to utilize commercial highway transportation to reinforce the military means. The restricted availability of military petroleum tankers necessitated reliance upon commercial carriers to provide the line-haul transportation of bulk POL products.

b. The following Exercise LITTLE BEAR Objectives (Annex B to Maneuver Plan, Exercise LITTLE BEAR) were within the special field of interest of the Transportation Office, Headquarters, USARAL:

(1) Reinforcement of USARAL. A reinforcement of USARAL by air movement of troops from CONUS.

(2) Training. Training in tactics and techniques applicable to northern operations under winter conditions, to include:

(a) Cross-country movements in areas having poorly developed or non-existing road nets and communication lines.

(b) Utilization of the transportation company (light helicopter) (augmented) for deployment of troops, resupply and evacuation.

(c) Employment of the transportation company (armored carrier).

(d) Resupply to individuals, units and organizations on independent type missions.

(3) Troop Tests and Evaluations. Troop and equipment tests will comprise:

(a) Evaluation of Tractor, Cargo, M8A2.

(b) Evaluation of Transporter, Rolling Fluid.

(c) Evaluation of Trailer, Cargo Transporter, Off-Road, Rough Terrain, Large Wheel, 10-ton Capacity.

(d) Evaluation of "Polecat" (Commercial).

(e) Evaluation of GOER vehicle.

(f) Evaluation of "Snow Traveler" (Commercial).

(4) Continued Evaluation of Reinforced Battle Group. Continue to evaluate the capability of a reinforced infantry battle group, as modified and reinforced for northern operations, to engage in offensive and mobile defense under northern winter conditions and determine factual answers to the following questions:

(a) Was the logistical system, techniques and equipment which were utilized capable of functioning effectively and providing necessary support to dispersal elements of the battle group operating independently in the nuclear battlefield with limited lines of communications?

(b) What techniques and equipment are necessary for land navigation in the northern regions where limited landmarks and inaccurate map coverage exists?

2. MISSION. The mission was to provide for the movement of personnel, supplies and equipment and for transportation services (to include transportation supply and maintenance) during the period 4 January 1960 through 14 March 1960, on the Alaska Mainland, employing Army and commercial transportation means in order to supplement participating unit movement capabilities.

3. DISCUSSION. a. Preplanning.

(1) Aggressor Forces were to move from the Yukon Command area to the vicinity of Sourdough, Alaska, by means of a highway movement. Direct logistical support of the Aggressor Forces was to be provided from the Gulkana Administrative Support Base (GASB) which was initially to be located in the vicinity of Sourdough. Personnel for the Gulkana Administrative Support Base were provided by the Yukon Command. The Transportation Officer, Headquarters, Yukon Command, was appointed as the Area Transportation Officer, Yukon Sector, and charged with the transportation mission (less transportation supply and maintenance) for all participating forces of the Yukon Command. The Area Transportation Officer, Yukon Sector, established a Field Transportation Office within the GASB to coordinate movements into, within, and out of the maneuver area occupied by the Aggressor Forces (including GASB).

(2) US Forces were to move from the Fort Richardson area to the vicinity of Old Man Lake, Alaska, by means of a highway movement. Direct logistical support of the US Forces was to be provided from the Old Man Lake Administrative Support Base (OMLASB) which was initially to be located in the vicinity of Old Man Lake. Maneuver Director Headquarters (MDH) and the Umpire Group were to move from the Fort Richardson area to the vicinity of Tolsona Lake, Alaska, by means of a highway movement. Direct logistical support of MDH and the Umpire Group was to be provided from the OMLASB. The Transportation Officer, United States Army Supply

and Maintenance Center, Alaska, was appointed as the Area Transportation Officer, Chugach Sector, and charged with the Transportation mission (less transportation supply and maintenance) for all participating forces within the area of the Chugach Sector (less that area occupied by the Aggressor Forces), to include the areas of MDH and Umpire Group Headquarters. The Area Transportation Officer, Chugach Sector, established a Field Transportation Office within the OMLASB to coordinate movements into, within, and out of the maneuver area occupied by the US Forces, MDH, and Umpire Group Headquarters.

(3) Bulk petroleum products were programmed to be moved by commercial carrier from the Fort Richardson area to three sites in the maneuver area: OMLASB, MDH, and GASB. Responsibilities for these shipments were vested in the Area Transportation Officer, Chugach Sector.

(4) During the planning phases revised estimates of cargo tonnages to be moved into the maneuver area necessitated a review of the movement program. Requirements exceeded the capability of military means to accomplish them within the specified movement period. The funding for commercial movement of bulk POL required approximately one-third of the transportation funds available for the exercise, and there was no appropriate course of action possible which would either reduce the quantity of POL movement required or which would sufficiently increase the transportation funding so as to permit commercial movement of the over-flow requirements. Accordingly, permission was sought and granted to permit prepositioning of certain supplies and equipment which were not subject to cold-temperature damage nor required for training and/or tactical readiness for a state of emergency. This prepositioning was programmed and accomplished by military means of transportation. In addition, a commercial air movement of personnel of MDH to and from the vicinity of the maneuver area was planned so as to free military highway means of this requirement during the critical periods. This commercial charter was determined to be more economical than attempting to ship by commercial means the additional tonnages of cargo capable of being handled by the military by virtue of the elimination of the highway movement for the MDH personnel.

b. Organization. Transportation personnel participating in the exercise included the following units and activities:

(1) Table of Distribution units and activities. (a) Transportation Office, Headquarters, USARAL. This office provided a staff of three officers and three enlisted men for the staff of the Maneuver Director Headquarters.

(b) Transportation Division, United States Army Supply and Maintenance Center, Alaska, augmented by the Consolidated Transportation Motor Pool, US Army Supply and Maintenance Center, Alaska, as required. See Annex A to Part VII of Section V for detailed information.

(c) Transportation Office, Headquarters, Yukon Command, USARAL, augmented by the Yukon Command Transportation Motor Pool, as required. See Annex B to Part VII of Section V for detailed information.

(d) Transportation Supply and Maintenance Office, US Army Supply and Maintenance Center, Alaska, (includes Army Aircraft Field Maintenance Division). See Annex C to Part VII of Section V for detailed information.

(2) TOE Transportation Units. (a) 47th Transportation Company (Armored Carrier); 1st Battle Group, 9th Infantry (AGGRESSOR); Yukon Command, USARAL. See Annex D to Part VII of Section V for detailed information.

(b) 80th Transportation Company (Light Helicopter) (H-21) (Reduced Strength) (augmented with a combat aviation element), USARAL Headquarters Command, USARAL. See Annex E to Part VII of Section V for detailed information.

(c) 334th Transportation Detachment (Cargo Helicopter Field Maintenance). This unit is assigned to the 80th Transportation Company (Light Helicopter) (H-21). See Annex E to Part VII of Section V for detailed information.

(d) 521st Transportation Company (Light Truck) (Minus) (Reduced Strength) (augmented with one medium truck platoon equipped with 5-ton truck tractors and 12-ton stake and platform semitrailers), US Army Supply and Maintenance Center, Alaska. See Annex A to Part VII of Section V for detailed information.

(e) Platoon, 521st Transportation Company (Light Truck) (Reduced Strength), Yukon Command, USARAL. See Annex B to Part VII of Section V for detailed information.

c. Equipment Tests. See Section VI of this report.

ANNEXES:

A - Transportation Division, US Army Supply and Maintenance Center, Alaska
B - Transportation Office, Headquarters, Yukon Command, USARAL
C - Transportation Supply and Maintenance Office, US Army Supply and Maintenance Center, Alaska
D - 47th Transportation Company (Armored Carrier)
E - 80th Transportation Company (Light Helicopter) (H-21)

Annex A (Transportation Division, US Army Supply and Maintenance Center, Alaska) to Part VII (Transportation) to Section V (Logistics) to Final Report, Exercise LITTLE BEAR

1. GENERAL. The Transportation Division, US Army Supply and Maintenance Center, Alaska, is responsible for providing installation transportation services for all units and activities located at Fort Richardson, Alaska, and for the performance of Air Traffic Coordination Officer missions at Elmendorf Air Force Base, Alaska. As a result of this responsibility, the division participated in the transportation support of the reception and local support of the 1st Battle Group, 12th Infantry (with attached units), and the transportation support of the 12th Infantry, the Umpire Group, Maneuver Director Headquarters, participating units and activities of US Army Supply and Maintenance Center, Alaska, and other units based at Fort Richardson in the movement to and from the maneuver area. In addition, all transportation for the maneuver resupply, originating at Fort Richardson, was a responsibility of the division. The division was further responsible for the transportation support of the movement of the 12th Infantry from Fort Richardson to Elmendorf AFB for the return air movement to CONUS. The division was supported by the 521st Transportation Company (Light Truck) (Minus) (Augmented) and the Consolidated Transportation Motor Pool, US Army Supply and Maintenance Center, Alaska.

2. MISSION. a. Establish a transportation section within the Old Man Lake Administrative Support Base in support of the US Forces.

b. Control and allocate transportation facilities within the Old Man Lake Administrative Support Base.

c. Provide, in accordance with Exercise LITTLE BEAR Movement Orders, transportation in support of an administrative highway movement of troops and equipment from Fort Richardson to the maneuver area and return.

d. Provide local administrative transportation support of maneuver forces to include movement between Fort Richardson and designated airfields.

e. Grant movement clearances and notify state police, at earliest practicable date, movement dates of military motor convoys.

3. DISCUSSION. a. Organization.

(1) Field Transportation Office, Old Man Lake, consisted of one officer and three enlisted personnel.

(2) 521st Transportation Company (Light Truck) (Minus) (Augmented) consisted of a transportation light truck company (TOE 55-17) less one light truck platoon, and was augmented by one medium truck platoon (12-ton semitrailer) (TOE 55-18).

b. Operations. (1) The 1st Battle Group, 12th Infantry arrived at Elmendorf AFB during the period 3 January through 9 January 1960. A total of thirty-two C-124 aircraft was required to airlift 1676 troops, fifty-eight Conex containers, and a total of two hundred and twenty short tons of other equipment. Upon arrival of aircraft, troops and equipment were off-loaded from aircraft into buses and/or trucks and transported directly to billets at Fort Richardson. Baggage was unloaded by personnel from the 1st Battle Group, 12th Infantry; cargo was unloaded by Air Force personnel.

(2) Considerable difficulty was experienced in obtaining firm transportation requirements from various agencies; for example: 1st Battle Group, 12th Infantry; PX officer; and Headquarters Detachment, USARAL. This situation resulted in confusion, not only in the Transportation Division, but also with agencies to whom transportation had been allocated but could not be furnished as scheduled because of higher priorities for movement.

(3) Transportation Section, Old Man Lake Support Base, supported the movement of the 1st Battle Group, 12th Infantry; Headquarters Detachment, USARAL; Signal Company, USARAL; 51st Field Hospital; 56th Engineer Company; 562d Engineer Company; elements of 1st Battle Group, 23d Infantry (Umpire Group); USARAL Petroleum Distribution Unit; and the US Army Supply and Maintenance Center, Alaska, technical services to the Old Man Lake and Tolsona Lake areas by commercial and military vehicles and commercial air.

(4) Military vehicles from the 521st Transportation Company (Light Truck) performed shuttle movements of personnel, supplies and equipment into the Old Man Lake and Tolsona Lake areas from 6 December 1959 through 9 February 1960.

(5) Personnel of Maneuver Director Headquarters were transported to Gulkana Airstrip by commercial air and shuttled to Tolsona Lake by buses. Upon completion of the maneuver, MDH personnel were shuttled to Gulkana Airstrip by buses and airlifted by commercial air to Elmendorf AFB.

(6) Heavy equipment and technical service supplies were shipped to the Old Man Lake area by military vehicle and commercial highway carrier.

(7) During the field exercise, the Field Transportation Office, OMLASB, was organized to provide highway transportation support capability to the OMLASB and unit distribution of supplies to the US Forces.

(8) Highway transportation was provided from the OMLASB to Fort Richardson and return by daily shuttle, using a minimum of two vehicles from the 521st Transportation Company (Light Truck). All local requirements for vehicles were directed to the Field Transportation Office, where priorities were established and requirements placed on the 521st Transportation Company in the form of vehicle commitments. This procedure enabled the 521st to receive daily commitments from a single source and prevented over-commitment.

(9) The return of all units to the Fort Richardson area was accomplished by the same transportation means as the movement to the maneuver area. Convoys were made up and cleared for movement in coordination with the Traffic Headquarters established in the Transportation Division, US Army Supply and Maintenance Center, Alaska, which was notified of the time of movement and composition of each convoy.

(10) During the period 27 February through 1 March 1960, the 1st Battle Group, 12th Infantry was airlifted from Elmendorf AFB to McChord AFB, Washington, utilizing a total of twenty-seven C-124 aircraft to airlift 1624 troops, sixty Conex containers, and a total of approximately two hundred and seventeed short tons of other equipment. Conex containers were weighed and prepositioned in the aircraft loading area prior to the arrival of aircraft, thus being immediately available for loading upon arrival of aircraft. Troops were alerted approximately three hours prior to departure of aircraft, and transported directly from the billeting area at Fort Richardson to the aircraft for loading. All baggage and cargo was loaded prior to the arrival of the troops.

(11) During the play of the problem, it was necessary for the MDH to divert some of the vehicles of the 521st Transportation Company to provide support of the Gulkana Administrative Support Base (Aggressor) because the road conditions and length of travel in that area exceeded the motor transportation capabilities of GASB. These vehicles were returned to the 521st Transportation Company in time to participate in the return movement from the maneuver area. Because of better road conditions in the US Forces area and the availability of the 80th Transportation Company (Lt Hel) (H-21) to assist in resupply operations for the US Forces, the diversion of these trucks did not materially handicap the provision of motor transportation support in OMLASB.

(12) Some difficulty was experienced with unloading facilities to receive tracked vehicles in the OMLASB, but satisfactory ramps were eventually fabricated from snow and timbers and made available to units receiving tracked vehicles.

(13) Difficulty was also encountered in the disposing of loads shipped to OMLASB, due to the fact that units making the shipments did not provide for receipt at destination. Personnel qualified to operate the vehicles shipped were frequently not available, and the unloading area had

not been accepted by the owning organizations.

(14) The Consolidated Transportation Motor Pool dispatched in excess of forty satellited vehicles to the maneuver area. With few exceptions, there was little or no advance planning with the Motor Officer regarding the date, type, and number of vehicles to be dispatched. All vehicles had to be scheduled through maintenance prior to being dispatched to insure that engine heaters, personnel heaters, electrical systems, etc., were operating properly. Further, all vehicles had to have arctic lubrication and antifreeze added. Often the Motor Officer was notified the day before that a given number of vehicles had to be available for dispatch the following morning to the maneuver area.

(15) Little or no maintenance support was provided from the Consolidated Transportation Motor Pool in the maneuver area for the satellited vehicles. This support could have been provided if the requirement had been made known to the Motor Officer.

(16) The Consolidated Transportation Motor Pool dispatched three round trip convoys to the maneuver area in support of the exercise.

(17) Various activities on post, such as Bryant Field, Quartermaster POL, and the 521st Transportation Company (Light Truck) were authorized additional vehicles to be drawn through the Consolidated Transportation Motor Pool, for the maneuver. This action just prior to and during the maneuver placed an additional workload on the maintenance section as all vehicles had to be processed prior to operation.

(18) Operations of the 521st Transportation Company (Light Truck) are summarized in Appendix 1 hereto.

(19) Summarization of shipments by commercial carriers is contained in Appendix 2 hereto.

(20) Loading and off-loading supplies and equipment are not normally a Transportation responsibility, however, the 521st Transportation Company was given the task to deliver tracked vehicles to the maneuver area, unload, secure and issue these vehicles to the Umpire Group and the 12th Infantry. This was an unwarranted burden to the Transportation Unit.

(21) Several instances were recorded where Conex containers were used in the maneuver area as storage containers. In one instance, the containers were converted into deep-freeze storage facilities by covering them with eight to twelve inches of snow and a constant temperature of -10 to 0° was maintained.

TABLES:

1. 521st Transportation Company (Light Truck) Operations
2. Commercial Carrier Operations

Table 1 to Annex A (Part VII) to Section V

521ST TRANSPORTATION COMPANY (LIGHT TRUCK) OPERATIONS

	PHASE VI	PHASE VII	PHASE VIII	TOTAL
Total Miles	217,137	84,564	71,206	372,907
Total Tons	2,035	800	1,263	4,098
Total L/B Loads	61	3	41	105
Total Convoy	45	10	21	76

Table 2 to Annex A (Part VII) to Section V

COMMERCIAL CARRIER OPERATIONS

SECTION A: PHASE VI (Fort Richardson to Maneuver Area)

	NUMBER OF LOADS	TOTAL WEIGHT	TOTAL CUBIC WEIGHT	COST
Lowbeds:				
OML	11	156,072	14,457	$3,435.00
TOL	1	38,700	1,577	425.70
SD	1	38,700	1,577	425.70
Flatbeds:				
OML	16	403,438	21,670	$5,697.12
TOL	4	44,900	5,452	1,215.00
SD	11	286,586	13,962	4,321.91
Vans:				
OML	5	177,061	7,062	$2,115.14
TOL	0	0	0	0
SD	2	84,495	1,745	1,055.21

SECTION B: PHASE VII (Fort Richardson to Maneuver Area - During Maneuver)

Vans:				
OML	2	63,255	3,000	$ 759.06

	NUMBER OF GALLONS	COST
MOGAS:		
OML	92,795	$5,164.56
TOL	0	0
SD	172,787	9,385.38
DIESEL:		
OML	11,100	$ 690.98
TOL	0	0
SD	4,000	254.56
SECTION F:	PHASE VIII - BULK POL	
MOGAS:		
SD	15,603	$ 905,63
DIESEL:		
SD	6,000	381.84

SECTION C: PHASE VIII (Maneuver Area to Fort Richardson)

	NUMBER OF LOADS	TOTAL WEIGHT	TOTAL CUBIC WEIGHT	COST
Lowbeds:				
OML	3	96,125	4,192	$1,106.73
TOL	0	0	0	0
SD	0	0	0	0
Flatbeds:				
OML	18	430,779	35,777	$6,027.09
TOL	3	30,000	4,500	900.00
SD	10	175,000	14,680	3,280.00
Vans:				
OML	7	209,303	11,610	$2,612.12
TOL	0	0	0	0
SD	4	98,455	5,220	1,476.28

SECTION D: PHASE VI - BULK POL

	NUMBER OF GALLONS	COST
AVGAS:		
OML	3,500	$ 194.04
TOL	7,000	361.88
SD	0	0
MOGAS:		
OML	72,125	$3,998.62
TOL	22,250	1,253.54
SD	56,400	3,766.14
DIESEL:		
OML	7,000	$ 435.12
TOL	0	0
SD	10,000	758.36

SECTION E: PHASE VII - BULK POL

AVGAS:		
OML	51,000	$2,927.44
TOL	0	0
SD	0	0

Annex B (Transportation Office, Headquarters, Yukon Command) to Part VII (Transportation) to Section V (Logistics) to Final Report, Exercise LITTLE BEAR

1. GENERAL. The Transportation Office, Headquarters, Yukon Command, USARAL, provided transportation services and support for the movement of units (including the Aggressor Forces) and supplies to and from the maneuver area from the Eielson AFB - Ladd AFB complex, and provided transportation services and support within the Gulkana Administrative Support Base zone of responsibility. The Transportation Office was augmented by a platoon of light ($2\frac{1}{2}$-ton) trucks from the 521st Transportation Company (Light Truck), and the resources of the Yukon Command Transportation Motor Pool as required.

2. MISSION. a. Establish a Transportation Section within the Gulkana Administrative Support Base (GASB).

b. Control and allocate transportation requirements within GASB.

c. Provide transportation support for an administrative highway movement of troops and equipment from Ladd and Eielson AFB to the maneuver area and return.

d. Grant movement clearances and notify local state police, at earliest practicable date, movement date of military motor convoys.

3. DISCUSSION. a. Organization. The Transportation Section, GASB, consisted of a combination of the personnel and equipment (see Table 1 hereto) from the following sources:

(1) Transportation Office, Headquarters, Yukon Command, USARAL.

(2) Transportation Motor Pool, Yukon Command.

(3) Platoon, 521st Transportation Company (Light Truck), stationed in the Yukon Command.

b. Operations. (1) Summaries of movements and shipments to and from the maneuver area are contained in Table 2 and Table 3 hereto.

(2) Sanding of the highway was a necessity because of the icy conditions, however, the supply of sand required and sufficient equipment for application, was not available to do a thorough job. The high winds frequently blew the sand off the highway as fast as the sand was applied.

(3) On entry to the GASB, a steep hill, which had to be traversed after leaving the highway, presented a great problem. Commercial and Army vehicles had to be towed up the hill, causing delay and congestion, and resulted in some commercial demurrage cost.

(4) There were several major problems in the area of Class III bulk resupply. All bulk POL products were shipped from the Fort Richardson area via commercial carriers for discharge into storage tanks (which were primarily commercial petroleum semitrailers leased from commercial concerns). Prompt delivery of bulk POL products was uncertain because of the difficulties encountered in the communications system. Inability to move bulk storage (because of lease provisions) restricted the required flexibility for support operations, and limited capability of providing unit distribution. Lack of accomplished planned return of empty 5-gallon and 55-gallon containers required wheeled tanker delivery beyond the Aggressor Force LCP, extending the normal 4-6-8 hour turn-around to 11-16-23 hours, resulting in less MOGAS being delivered. Only three 1,200 gallon wheeled tankers and one 5,000 gallon wheeled tractor-semi-trailer combination were available for this mission.

(5) The shortage of transportation within the GASB area is highlighted by one incident where the organic vehicles (two $2\frac{1}{2}$-ton trucks) of the medical unit were commandeered for the purpose of hauling rations forward to the battle group ration distribution point. This necessitated unloading of medical equipment and supplies, thereby greatly limiting the medical unit's mobility.

(6) The variety of sizes and types of outlets on commercial tankers delivering to the GASB Class III point resulted in the expenditure of time and effort before pumplines could be rigged to take delivery.

(7) Convoy refueling was slow due to the exclusive use of tankers which could refuel only two vehicles at a time.

(8) The shortage of transportation to support the GASB resulted in the diversion of some of the resources of the 521st Transportation Company (Light Truck) which were not receiving adequate utilization in the OMLASB. This partially alleviated the problem for the movement of dry cargo, but was of little assistance in the problem area of bulk POL transportation.

TABLES:

1. Transportation Section Gulkana Administrative Support Base
2. Administrative Highway Movements to Maneuver Area and Return
3. Yukon Command Shipments

Table 1 to Annex B (Part VII) to Section V

TRANSPORTATION SECTION GULKANA ADMINISTRATIVE SUPPORT BASE

Trans Off

2 Movement Specialists

Asst Trans Off

2 TC Clerks

Motor Off

Maint Sgt

Truckmaster and Dispatcher

Parts & Supply Clerk

5 Drivers
8 Trks, Utility, $\frac{1}{4}$ ton
3 Trls

4 Mech

2 Drivers
2 Trks, 3/4 T M-37

Wrecker Operator

12 Drivers
12 Trks, $2\frac{1}{2}$ T PC M-211
7 Trls $1\frac{1}{2}$ T

6 Drivers
6 Trks, $2\frac{1}{2}$ T Cargo M-211
6 Trls, $1\frac{1}{2}$ T

3 Drivers
3 $2\frac{1}{2}$ T Tnk (1200 Gal)

3 Drivers
3 GMC Tractors
2 12 Ton Trl
1 5000 Gal Tnk

1 5-Ton Wrecker

Table 2 to Annex B (Part VII) to Section V

ADMINISTRATIVE HIGHWAY MOVEMENTS TO MANEUVER AREA AND RETURN

From Ladd and Eielson to Sourdough

Date	Personnel	Tracked Vehicles	Wheeled Vehicles	Trailers
6-8 Jan	54		19	
27 Jan	12		6	
1 Feb	760	94	173	18
7 Feb	1304		133	35
8 Feb	236		12	5
Total	2366	94	343	58

From Sourdough to Ladd and Eielson

Date	Personnel	Tracked Vehicles	Wheeled Vehicles	Trailers
21 Feb	1530		142	40
23 Feb	760	85	170	18
24 Feb	54		19	
27 Feb	12		6	
Total	2356	85.	337	58

Commercial Shipments Required for Return Trip

6 each M59 Armored Personnel Carriers
2 each M41 Tanks
1 each M8A2 Cargo Tractor
1 each 2½-ton Cargo Truck
1 each ¼-ton Truck
3 each 2½-ton Personnel Carrier Trucks
1 each 5-ton Wrecker

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Table 3 to Annex B (Part VII) to Section V

YUKON COMMAND SHIPMENTS

Shipped by Commercial Means

Rec'd at Sourdough	General Cargo	Total Loads	Vehicles	POL	Total
From Ft Richardson	93	42	22	849	964
From Ft Greely					
From Eielson	20	15	218		238
From Ladd	21	3			21
Total Short Tons	134	60	240	849	1,223

Approximate cost of shipments from North - $6,917.93.

Shipped from Sourdough	General Cargo	Total Loads	Vehicles	POL	Total
To Ft Richardson	24	10	36	56	116
To Ft Greely					
To Eielson		15	223		223
To Ladd	19	12	231		250
Total Short Tons	43	37	490	56	589

Approximate cost of shipment to North - $11,306.26.

Approximate cost of demurrage from North and to North, Total - $811.00.

Shipped by Military Means

Rec'd at Sourdough	General Cargo	Total Loads	Vehicles	POL	Total
From Ft Richardson	65	32	95		160
From Ft Greely	6	11		31	37
From Eielson	63	14	54		117
From Ladd	73	46	69		142
Total Short Tons	207	103	218	31	456

Shipped from Sourdough	General Cargo	Total Loads	Vehicles	POL	Total
To Ft Richardson	26	10	105		131
To Ft Greely	5	3			5
To Eielson	22	19	59		81
To Ladd	48	38	76		124
Total Short Tons	101	70	240		341

Annex C (Transportation Supply and Maintenance Office, US Army Supply and Maintenance Center, Alaska, to Part VII (Transportation) of Section V (Logistics) of Final Report, Exercise LITTLE BEAR

1. GENERAL. Planning for Army aircraft field maintenance support of Exercise LITTLE BEAR called for the Aircraft Field Maintenance Division to provide the support in the field by means of a contact team to be stationed at Nikolai Lake (within the general zone of the US Forces, and in proximity to the 80th Transportation Company (Light Helicopter) (H-21)). This contact team was to provide advisory services and minor field maintenance repairs in the field. Repairs above the capability of the contact team were to be accomplished by evacuation of the aircraft to the fixed installation Aircraft Field Maintenance Shop located at Elmendorf AFB. Transportation supply support (primarily aircraft items) was to be accomplished by means of a supply representative and a small stockage of items to accompany the aircraft field maintenance contact team.

2. MISSION. To provide transportation supply and maintenance support as follows:

a. Fixed-wing and rotary-wing aircraft field maintenance (3d and 4th echelon) and repair parts supply support for Aggressor Forces and Main CP, Headquarters, USARAL, by means of contact teams (except 3d echelon maintenance of TOE rotary-wing aircraft of 80th Transportation Company (Light Helicopter) (H-21).

b. Third and fourth echelon maintenance and repair parts support for fixed-wing aircraft assigned US Forces, by means of contact teams.

c. Fourth echelon maintenance and repair parts support for rotary-wing aircraft assigned US Forces, by means of contact teams.

d. Transportation supply support for all participating forces.

e. Aircraft field maintenance support above the capabilities of the contact team, by evacuation of aircraft to the Aircraft Field Maintenance Division, US Army Supply and Maintenance Center, Alaska, located at Elmendorf AFB.

3. DISCUSSION. a. Organization. Personnel comprising the contact team in the maneuver area consisted of one officer, two inspector-mechanics and one transportation supply specialist.

b. Operations. (1) Pre-maneuver.

(a) Effective 4 January 1960, the Aircraft Field Maintenance Division adopted a 60-hour work week in order to complete maintenance work on aircraft required for the problem. During this time, approximately 5,500 man-hours of "over-time" of a cumulative effort of 16,500 total man-hours were devoted to this purpose. This effort also involved timely support action by the Transportation Supply Section, US Army Supply and Maintenance Center, Alaska, in regard to expeditious handling of requisitions from the shop for aircraft parts. The effort was successful in that all

aircraft committed for the operation were out of the AFMD shop in time for the movement to the maneuver area.

(b) During this time, a list of aircraft repair parts, based upon anticipated usage factors, was submitted to Transportation Stock Control of US Army Supply and Maintenance Center, Alaska, and these items, along with some common items of Transportation supply, were made ready and loaded on a 2½-ton van which was to be taken to the maneuver area with the contact team.

(2) Maneuver period. (a) Actual field maintenance (the mechanical work) on aircraft participating in the maneuver was performed at the AFMD Field Maintenance Shop at Elmendorf AFB, except for some minor field maintenance repairs which were accomplished in the maneuver area by contact teams. Aircraft requiring repair normally were evacuated to the rear. This is consistent with realistic play of the problem in that the field maintenance shop would actually be an appreciable distance to the rear. Recovery and evacuation of aircraft, therefore, was a valid portion of the problem.

(b) Aircraft recovery and evacuation became an important function of the Transportation Supply and Maintenance Office. The Inspector-Mechanic Contact Team was called upon on several occasions, notable among which were the following:

1. On 10 February, supervised the evacuation and loading of a H-13 Helicopter. This involved the removal of the aircraft from the accident site; lashing it to the flat-bed semitrailer; removal and securing of the rotor blades; and the storing of the tail boom for transport back to Elmendorf AFB.

2. Inspected H-13H (12th Infantry) subsequent to a hard landing on 12 February.

3. Inspected 7" x 5" hole in cabin bubble of H-13. Determined replacement of bubble in field was impracticable due to lack of adequate heat required to work on acrylic plastic. Advised attempt be made to patch the broken bubble. Fortunately, the patch held, enabling the aircraft to remain in play.

4. Replaced main rotor and returned to Play H-13G which was damaged in an accident at the Aggressor Forces CP Pad. This was accomplished by a specialist team brought from Elmendorf AFB, which came to the maneuver area by truck and brought necessary parts and tools.

5. Flight-evacuated L-19A to Elmendorf AFB. This aircraft was accidently damaged at Nikolai Lake.

6. Evacuated L-19A by H-21 helicopter from crash site near Crosswind Lake to Elmendorf AFB.

(c) Supply. 1. A stockage of aircraft parts based upon estimated requirements for a fifteen day period was taken to the area. Of this quantity of aircraft parts, only three were called for by supported units. Of these three, two were asked for under another number belonging to an interchangeable part. These items were requisitioned from Transportation Stock Control who advised that interchangeables were present in the stockage in the field.

2. Delivery time on parts requisitioned from Fort Richardson area was extraordinary. Utilizing three possible modes of transportation (i.e., vehicular, tactical aircraft leaving Elmendorf AFB and Bryant Field (Fort Richardson), or the twice-daily C-47 shuttle flight from Elmendorf), the time between request and receipt varied from a maximum of overnight if the morning shuttle vehicle was used, to the same afternoon if the requirement could be called in to Transportation Supply in time to be put on the afternoon C-47 flight.

3. Adequacy of communications was the governing factor on time required to fill a request. Being in a tactical area, the contact team was hampered by Aggressor harassment in that the single, already crowded, telephone line was constantly being cut, or, if it was open, was constantly being used by the 80th Transportation Company. Average time to place a call to the OMLASB or beyond was 30 to 45 minutes. The longest time noted to reach OMLASB was 5 hours and 15 minutes.

4. Aircraft parts for the O&R Platoon of the 80th Transportation Company's augmentation were either received at Tolsona Lake and signed for "after the fact," or picked up by truck or plane if they were shipped via surface transportation to OMLASB, and thence to Nikolai Lake. The majority of the aircraft parts requested (26 out of 36) went to the 80th O&R Platoon. Parts for the 334th Transportation Detachment (CHFM) were issued "over the counter." Other TC items were issued "over the counter" from stock.

Annex D (47th Transportation Company (Armored Carrier)) to Part VII (Transportation) to Section V (Logistics) to Final Report, Exercise LITTLE BEAR

1. GENERAL. The 47th Transportation Company (Armored Carrier) is assigned to the 1st Battle Group, 9th Infantry (Reinforced), which acted as the Aggressor Forces during this maneuver. The 47th is organized under TOE 55-78T (ROCID), and is augmented to a strength of four officers, one warrant officer, and one hundred and forty-eight enlisted personnel. Augmentation consists primarily of one tracked vehicle maintenance section from TOE 55-76T (ROCID). The unit is authorized fifty-seven M59 Armored Personnel Carriers each, the task vehicle of the unit.

2. MISSION. a. To provide certain combat elements of the infantry division tactical mobility and protection with armored personnel carriers capable of operating either on roadways or cross-country.

b. To provide a means to resupply combat elements of the infantry division when the avenue of approach is covered by enemy ground observed fire.

3. DISCUSSION. a. The unit started the maneuver with the following strengths:

(1) Personnel: (a) Four officers.

(b) One warrant officer.

(c) One hundred and twenty four enlisted personnel.

(2) Task Equipment: (a) Total M59's in field: 51.

(b) Total M59's in Ordnance Maintenance (maneuver area): 1.

(c) Total M59's operational: 50.

b. Status of task vehicles dispatched at start of problem:

5 - A Company; task force mission (includes 1 carrying a dummy missile).
2 - B Company; 1 for trailbreaking and 1 to carry dummy missile.
1 - C Company; carrying infantry personnel accompanying Tank Company task force.
2 - D Company; trailbreakers and baggage carriers.
1 - Battle Group Company.

1 - Commanding Officer, 47th Transportation Company; required for liaison visits, reconnaissance, etc.
1 - B Battery, 15th Artillery; carrying Honest John Rocket.
2 - Mortar Battery; for ammunition resupply.
1 - Communications Section, Headquarters Company; for communications relay, etc.
2 - Headquarters Company; to carry administrative elements of forward CP.
4 - Battle Group S3; 2 for Mobile CP's, and 2 to carry baggage.
1 - Fire Support Coordination Center.
2 - Medical; for emergency evacuation.
6 - Battle Group S4; used as kitchen vehicles to carry equipment and rations forward every other night.
19 - Available in 47th Transportation Company area for missions.

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c. Dispatches throughout the Exercise generally approximated the status at the beginning of the maneuver, i.e., administrative-type static dispatches accounted for approximately two-thirds of the company's carriers, with one-third (one platoon) being available for missions. One platoon of M59's is sufficient to carry the assault elements of an infantry rifle company. However, this remaining platoon was frequently engaged in tactical and/or logistical missions which resulted in a partial loss of capability of the transportation company (armored carrier), by virtue of this piecemeal utilization, to quickly respond to requirements which were in accordance with the unit's TOE mission. Use of the M59's as mobile command posts, baggage carriers, kitchen vehicles, etc., did serve to provide some increase in the mobility of the infantry battle group, even though such usage is not in accordance with the original concept of the transportation company (armored carrier).

d. The greatest limiting factor in the unit's timely response to missions was the lack of adequate communications. The speed of advance resulted in the inability of wire communications to keep pace with the battle group elements. During the earlier stages of the exercise, radio silence was imposed upon the carrier company (as well as on other battle group units). Even when the radio silence was lifted, the situation was only partically remedied. This was due to the frequent unrealiability of radio communications within the region of operations where the "line of sight" radio communications are subject to interruptions and failure of contact because of terrain obstructions.

e. A major problem existed in the refueling of the task vehicles of the carrier company. This resulted from a number of factors; chief of which are:

(1) The use of leased commercial storage tanks precluded the POL storage area from displacing forward rapidly to keep pace with the advance of the battle group.

(2) The extreme primitiveness of the road hewn from the wilderness served to create an unacceptably long turnaround time for POL tankers (wheeled), which were forced to proceed at rates seldom exceeding five miles in the hour.

(3) Insufficient number of petroleum tankers within the battle group to overcome the long turnaround time. (The new TOE 55-47D, which the carrier company will soon be reorganized under will partially alleviate this problem because of its provision for three 1200-gallon tankers in the company.)

(4) The wheeled tankers were tied to the road, which necessitated the inherently more mobile tracked vehicles to come to the tankers, rather than the tankers going to the vehicles to be refueled.

(5) Lack of fuel transfer pumps on the M59 Armored Personnel Carrier results in excessively long refueling periods when POL is delivered to the vehicle in 55-gallon drums. One occasion was noted where the 55 gallon drum was lifted by hand to the top of the M59, laid on its side, projecting over the side of the M59, and the fuel gradually drained into 5-gallon cans, which were then poured into the fuel tank inlet. As the M59 normally requires in the vicinity of 70 to 80 gallons at each refueling when operating under the conditions encountered, the refueling from 55 gallon drums can be expected to average about one hour per vehicle.

f. The assignment of carriers in groups of less than squad size results in a loss of control by the carrier company commander, and creates administrative and logistical problems for the company. The constant shifting of the carriers results in no one at unit level ordering rations for the personnel, by virtue of the fact that rations are ordered in advance of actual requirements, and there is no way of anticipating what units will have what carrier personnel attached during the ration consumption period. The carrier company is not equipped nor manned to provide a capability of control and resupply of dispersed elements. The problem is made more acute because of the frequent unreliability of communications.

g. The rapid forward movement of the battle group created some problems in organizational maintenance, but did not result in any unusual deadline rates. Of the fifty-one M59's in the field, the maximum number deadlined at any one time was six (an availability of 88% of the vehicles brought to the maneuver area). Two vehicles were repaired in the maneuver area by the Ordnance field maintenance unit and returned to the carrier company prior to the completion of the problem.

h. As was the case in Exercise CARIBOU CREEK (1959), considerable difficulty was experienced with the heaters installed in the carriers. In addition to the frequent breakdown of the heater components, it was noted that in extreme cold weather the use of the heater to warm the vehicle's engine prior to starting frequently resulted in the batteries being drained so low as to be unable to start the engines.

i. When the battle group was given an order to withdraw on the afternoon of 18 February, the carrier company commander was instructed to "roundup" whatever carriers he could locate and assist in the evacuation of the infantry units from the forward area. Despite the limited communications, the task was accomplished in an expeditious manner, although the sudden change from the attack to the withdrawal created considerable confusion within the battle group rear area.

j. Operating conditions require that the carrier company commander or his second in command remain in close proximity to the battle group commander and S3 throughout the Exercise. The carrier company has no executive officer authorized in the TOE. Some officer must be taken from his platoon and assigned to duty as executive officer, in order to supervise the company's trains area, which includes the company administrative personnel, maintenance section, and those carriers not on dispatch. It is not feasible to keep the company's trains in the vicinity of the battle group command post. Consequently, the company commander loses control and current factual knowledge of the carrier company's continuing situation by virtue of his loss of ability to "circulate" to the various elements of his command. Substituting his second in command to perform the company commander's liaison duties at the battle group command post results in leaving both a platoon and the company trains area without a commissioned officer.

k. Weapons of the carrier company include rifles, carbines and caliber .50 machineguns. (Approximately fifty percent of the personnel of this unit are armed with the carbine.) Blank ammunition was issued to those personnel armed with the rifle. No blanks, however, were issued for carbines or caliber .50 machine guns (the weapon of the M59). This resulted in a definite lack of realism in the tactical play, as full utilization was not made of the carrier company's inherent fire power gained from the equipping of each M59 with the caliber .50 machine gun.

l. The shock action of armored vehicles against dismounted enemy was unexpectedly great. The inability of foot troops to dig in, and the shallow roots of trees which facilitated their knock-down by armored vehicles, contributed to an armored capability to run down, demoralize and/or destroy the enemy. Many enemy patrols were captured when pursued or even approached by armored carriers.

m. The armored carrier proved to be an excellent trail-breaking vehicle through woods. Trails broken by the carriers facilitated the movement of troops on skis, and were easily improved by engineer effort into a road.

n. Land navigation from an armored carrier proved to be a major problem. This is true particularly under conditions of restricted visibility such as at night or when proceeding through wooded terrain.

Annex E (80th Transportation Company) to Part VII (Transportation) to Section V (Logistics) to Final Report, Exercise LITTLE BEAR

1. GENERAL. See Part III (Aviation) of Section IV (Operations and Training).

2. MISSION. See Part III (Aviation) of Section IV (Operations and Training).

3. DISCUSSION. a. See Part III (Aviation) of Section IV (Operations and Training).

b. The unit displaced from its home base to sites in the maneuver area using the aircraft and the organic vehicle transportation of the unit. This points up the fact that, in almost all cases, displacement of these units is still tied to a road net, and to displace to the unimproved areas of Alaska would require the assistance of larger transport aircraft or tracked vehicles capable of off-road operation over rough terrain and thick underbrush overlaid with deep snow.

c. Missions were flown and deliveries made both day and night during the exercise. Typical logistical loads carried by the H-21 helicopters include:

(1) Skid-mounted A-22 aerial delivery container with forty-eight boxes of rations, weight 2000 pounds, carried as a sling load.

(2) Skid-mounted A-22 aerial delivery container with forty each, five-gallon gas cans with a weight of 1800 pounds, carried as a sling load.

(3) Skid-mounted A-22 aerial delivery container with four each, fifty-five-gallon drums, carried as a sling load.

d. Each of the three aviation segments had its own organizational maintenance section incorporated into the operating structure and located at the bases of operation. The 80th Transportation Company (Light Helicopter) (H-21, had the 334th Transportation Detachment (CHFM) in direct support at the 80th's location at Nikoli Lake. In addition, the contact team from the Army Aircraft Field Maintenance Division, US Army Supply and Maintenance Center, Alaska, was also located at Nikoli Lake in the performance of its mission of general support of all aviation in the maneuver.

e. Daily maintenance man-hours per day, per H-21 helicopter, averaged 5.6 hours. Post-flight time per H-21 helicopter per day averaged 2.46 hours, for a total organizational maintenance time of 8.06 man-hours per day per H-21 helicopter.

f. Aircraft maintenance man-hours per aircraft were not as high as that experienced in Exercise CARIBOU CREEK (1959). This can be directly attributed to the following factors:

(1) Each aircraft was given a complete technical and periodic inspection before the maneuver.

(2) The weather generally was not as cold as last year.

(3) The lighter operating schedule allowed more maintenance to be performed during daylight hours on a programmed basis.

(4) Only one side was supported by this unit this year.

g. Major maintenance performed by the 334th Transportation Detachment consisted of the following:

(1) Replace the lower left bubble in one H-21 (accident damaged).

(2) Replace a cylinder assembly on one H-13.

(3) Replace an engine in one H-21.

(4) Recover an H-13 damaged in the field.

(5) Recover one H-13 that "blew" a cylinder in the field.

h. In addition, considerable minor field maintenance was performed on the H-21's and the H-13's that consisted of adjustment and inspection.

i. Problems that developed were much the same as those found in Exercise CARIBOU CREEK.

SECTION VI - TROOP TESTS

1. MINE FIELD TESTS. a. Purpose. This test was to develop methods of utilizing mine fields within the logistical capability of an individual battle group operating in the northern latitudes.

b. Discussion. The US Force was allocated practice mines, anti-tank and anti-personnel. Mines were pre-loaded in pallets suitable for air delivery. The US Force utilized mines on four separate occasions, on two of these occasions deliberate mine fields were used, on the other occasions, the mine fields were simply protective fields for the individual units. There was no breeching of mine fields by the Aggressor, however, one portion of the tactical play of the maneuver involved one mine field.

c. Conclusions. Mine fields can be employed within the scope of the logistic support of the individual battle group and they will be effective in deep snow against the present armored vehicles.

d. Recommendations. Future exercises continue the use of the practice mines, and, if necessary, develop deliberate conditions for the use of mine fields. Wooden block mines should not be employed.

2. TEST OF ICE AND SNOW MELTERS. a. Purpose. The Aggressor Force was issued four ice and snow melters, 25-gallon per hour capacity, for use as a supplemental water source during the exercise.

b. Discussion. Two ice and snow melters were originally issued to two infantry companies of the battle group for their water supply, with the balance of the battle group companies depending upon the regular engineer water point. During the Exercise the battle group trains outdistanced the engineer water point and the four ice and snow melters were re-located in the trains area and furnished all water for three days.

c. Conclusions. The ice and snow melters are an effective item of equipment for use in the northern latitudes but are too heavy and bulky for company size units.

d. Recommendation. That the ice and snow melters, 25-gallon capacity per hour, be stocked as a Class IV item for engineer equipment with a limited number of sets to be issued to the USARAL battle group.

3. TRACTOR CARGO, M8A2. a. Purpose. The purpose of this test was to evaluate the employment of the M8A2, cargo tractor, with the infantry battle group in northern latitudes during winter months. The test was accomplished through observations and evaluation during Exercise LITTLE BEAR, supplemented by additional observations made during limited use of the vehicle between October 1959 and 1 February 1960.

b. Discussion. This vehicle was used as a prime mover for the trailer, cargo transporter, off-road, rough terrain, large wheel, 10-ton capacity, in addition to being utilized as a cargo carrier itself. The M8A2 tractor carried larger loads than the M59 armored personnel carrier and is capable of negotiating terrain equal to that traversed by the M59.

c. Conclusions. Principal conclusions reached are that the tractor possesses thorough snow capability. Each of three vehicles tested averaged over eight hundred miles cross-country through snow up to twenty-four inches in depth. The M8A2 was capable of breaking trail through all growth found in the maneuver area; it served well as a forward area logistical carrier; and, it has a track vehicle recovery capability.

d. Recommendation. That, pending availability of oversnow vehicles, the M8A2 cargo tractor be made available to battle groups when operating in this environment.

4. TRAILER, CARGO TRANSPORTER, OFF ROAD, ROUGH TERRAIN, LARGE WHEEL, 10-TON CAPACITY.

a. Purpose. This test was to determine the suitability of the 10-ton off road trailer for infantry battle group logistics operations in northern regions.

b. Discussion. Four of these trailers were issued to the 1st Battle Group, 9th Infantry (Aggressor) for testing during the maneuver. The extreme susceptibility to tire punctures, however, precluded conclusive evaluation of the trailer as a whole. Sufficient experience was gained to indicate that improved tires and sideboards would make the trailer suitable for operations in this area in that it could be used from the logistical direct support base to the battle group trains area, when convential trucks were not available or suitable for the road conditions. A smaller version of the trailer would be most suitable for movement forward of the battle group trains area.

c. Conclusions. The trailer cargo transporter is not suitable for northern operations in this locality under winter conditions in the present state of development, but has promising aspects for use in this area if overall size can be reduced, and an improved treaded all terrain tire can be provided, and the sideboards are strengthened.

d. Recommendation. That the 10-ton wheeled trailer not be adopted for use in the infantry battle group in northern regions.

5. SNO-TRAVELER. a. Purpose. To determine the suitability of the sno-traveler for battle group independent operations in northern areas.

b. Discussion. One sno-traveler was issued to the umpires for evaluation during the maneuver. Observations and tests were accomplished

by utilizing the vehicle in normal resupply of umpire activities during the Exercise. The terrain over which the sno-traveler was used included deep snow, tank trails and wooded areas with small and heavy timber and ice. Loads towed consisted of ahkios with varying loads.

c. Conclusions. The sno-traveler operated well on ice and snow that was free of logs, brush, and obstructions. The runner broke easily when the vehicle was used over bumpy roads or trails, or in snow that was filled with logs and obstructions. The rubber belt running from the engine to the rear sprocket frayed easily. The temperature during the period of use ranged from minus 30 degrees to plus 20 degrees. This vehicle traveled approximately 16 miles towing a sled, 200 pound capacity (ahkio), and did not maneuver well in close areas.

(1) The sno-traveler was easily maintained and repaired without any special requirements for tools or maintenance shelters. The vehicle was driven approximately 60 miles during the period of the Exercise.

(2) The sno-traveler does provide a method of moving personnel and supplies under ideal winter conditions, but has no use under summer conditions.

d. Recommendation. Recommend further testing of improved versions of this or other similar light vehicles.

6. TANK, FABRIC, COLLAPSIBLE FOR PETROLEUM, 3000-GALLON CAPACITY.

a. Purpose. This test was conducted for the purpose of evaluating the collapsible fuel tank under cold weather tactical conditions.

b. Discussion. Two 3000-gallon collapsible fuel tanks were taken into the field for use at Gulkana Administrative Support Base during Exercise LITTLE BEAR.

(1) One collapsible tank was used in temperatures ranging from plus ten degrees to minus fifteen degrees. Snow was used for banking and covering the tank. In all aspects this tank proved very satisfactory. Its use gave greater flexibility and greater storage capacity to Quartermaster POL operation.

(2) The other tank was partially filled when a leak was discovered. The leak was evidently caused by a small cut in the material near the inlet-outlet fitting and may have been caused by the fitting during transport to the field. This tank has never been used and only a visual inspection of it had been made prior to its attempted use.

(3) Patching was attempted but proved unsatisfactory under field conditions. Due to the difficulty of exhausting all gasoline and fumes from the tank, an open flame could not be used to warm the patching material, and although several attempts were made, it could not be applied under the low temperatures prevailing in the area.

c. Testing of the tank will be continued in future field operations and no conclusions or recommendations can be stated until all test data has been analyzed.

SECTION VII - CONCLUSIONS AND RECOMMENDATIONS

Part I - General

1. GENERAL. a. This section which contains the consolidated conclusions and recommendations has been divided into the following five parts:

Part I - General
Part II - Personnel and Administration
Part III - Intelligence
Part IV - Operations and Training
Part V - Logistics

b. The recommendations have in turn been divided into two parts:

(1) Recommendations requiring implementation by Department of the Army.

(2) Recommendations that will be acted upon by USARAL.

2. CONCLUSIONS. a. Exercise LITTLE BEAR provided an outstanding vehicle for training in tactics and techniques applicable to northern operations and provided additional information on the adequacy and suitability of US Army doctrine, organization and equipment for cold weather operations.

b. Reinforcement of USARAL by air movement of the 1st Battle Group, 12th Infantry (reinf) from CONUS required six days and was considered an unacceptable period for reinforcing ALCOM during an emergency. Additional airlift would have reduced this period to acceptable limits.

c. Doctrine as promulgated in FM 31-70 and 31-71 appears to be sound. With proper indoctrination, training, supplies and equipment, a CONUS battle group, in a relatively short period of time, can effectively execute cold weather operations with little overall reduction in combat potential.

(1) Table 1, page 36, FM 31-71 (Load Bearing Capacity of Fresh Water Ice) needs to be revised.

(2) Paragraphs 153.b, 164.b and 165.c and f, FM 31-71, need to be revised as indicated in paragraph 3b, below.

(3) Section IV, Chapter 6, FM 31-70 requires to be expanded to cover, in more detail, approved fighting techniques to be employed in deep snow in an attack situation, especially from the assault position forward.

3. RECOMMENDATIONS. a. DA level: None.

b. USARAL level: Incorporate as a part of Change 1 to FM 31-71 the following information:

(1) Substitute an up-to-date version for Table 1 (Load Bearing Capacity of Fresh Water Ice) on page 36, FM 31-71. (Revised Table is attached as Table 1 to Part I to Section VII.)

(2) Paragraph 164b, FM 31-71 (page 114): Delete sentence: "Mine-fields should be inspected at least twice yearly; prior to the fall freeze-up and subsequent to the spring thaw and defective mines and fuses replaced."

(3) Paragraph 165c and f, FM 31-71: Eliminate sentences which discuss parapets and breastworks. These items increase the missile potential in the event of a nuclear blast and should not be used.

(4) Paragraph 153b, FM 31-71: Change the sentence: "Lake ice tends to undulate and passage of large numbers of tanks will result in splitting ice and creating an unsafe condition" to "Any ice will undulate under heavy load. Passage of a large number of tanks should be spaced as indicated in Table IV and maintain the velocity shown."

TABLE:

1. Load Bearing Capacity of Fresh Water Ice

Table 1 (Part I) to Section VII

LOAD BEARING CAPACITY
OF
FRESH WATER ICE (Revised)

	ICE MEASUREMENT IN INCHES FOR TEMPERATURES 0 to 10 F		DISTANCE IN YARDS BETWEEN UNITS
	RISK	NORMAL	
Single Soldier on Skis	1.6	2	5
File of Soldiers - 2 Pace intervals	3	4	10
Vehicles:			
¼ ton Truck	6	7	25
3/4 ton Truck	9	10	50
2½ ton Truck	15	17	50
5 ton Truck	20	23	75
5 ton Tractor & Trailer loaded	32	37	100
Weasel	8	9	50
Otter	11	13	50
D-7 Tractor	18	20	50
D-8 Tractor	20	23	75
Crane 20 ton	23	26	75
Grader	15	17	50
Tank M-41	21	24	75
SP M-52	22	25	75
APC M-59	19	22	75
Tractor M8-A2	22	26	75

	ICE MEASUREMENT IN INCHES FOR TEMPERATURES 0°to 10°F		DISTANCE IN YARDS
	RISK	NORMAL	BETWEEN UNITS
Aircraft:			
H - 13	5	6	N/A
H - 21	12	14	N/A
H - 37	17	20	N/A
L - 19	5	7	N/A
L - 20	7	9	N/A
L - 23	8	9	N/A
U1-A	9	10	N/A
C-47	17	20	N/A

Vehicles other than aircraft should maintain speeds of not more than 10 miles per hour for water from 10 to 30 feet deep, and 20 miles per hour for deeper water.

SECTION VII

Part II - Personnel and Administration

1. CONCLUSIONS. a. Generally, personnel reports to Maneuver Director Headquarters were good as long as communications between the personnel officer, his subordinate units and this Headquarters were in operation. However, when these failed, the staff officer failed to avail himself of alternate means such as "hot lines," teletype and command and tactical communications.

b. Casualty reporting procedures were not given sufficient consideration to provide test experience or training.

c. Replacement personnel arriving at assigned units without complete equipment, proper staging and indoctrination were unprepared to cope with the adverse conditions of climate and terrain, thereby causing loss of efficiency to the unit.

d. A requirement does exist for military police when a battle group is operating independently.

e. A military police unit assigned to an administrative support base should consist of at least one officer and thirty enlisted men, so as to give proper support.

f. It is feasible to require military police to go forward to the battle group and evacuate prisoners of war.

g. Provisions should be made during future maneuvers to insure that equipment is not separated from prisoners of war.

h. The Post Exchange can be established and operated under extreme cold field conditions, provided adequate facilities are available for storage of merchandise. The tent, sectional, Jamesway, 16' x 16', is adequate for storage and operation of Exchanges.

i. Special Services facilities should be the subject of additional emphasis and more detailed planning for subsequent maneuvers.

j. The USARAL Aircraft Accident Investigation Board proved to be unsatisfactory in that several board members were not participating in the Exercise, resulting in a delayed investigation.

k. Units failed to adequately investigate and report accidents as they occurred; therefore, more training is needed in unit investigation of accidents.

l. The personnel section of a battle group operating independently should be located within the administrative support base.

m. The operation of a mobile type command post in an isolated area is feasible. However, further study is necessary to determine optimum size, organization and displacement capabilities.

n. Public information objectives were achieved. Troop information objectives were also well served by pre-maneuver instruction and publications, and by post-maneuver media. The lack of a vigorous daily (or at least weekly) news service to troops was notable.

o. The isolated area, the rugged terrain and the lack of roads limited observers in their coverage of the maneuver area. However, the use of helicopters and tracked vehicles greatly improved the capability of placing observers at desired areas of interest.

p. Cognizance should be taken of the fact that claims of the maneuver type may be presented within two years after accrual and therefore with the advent of warm weather the probability that claims may be presented by homesteaders, sportsmen and other land owners returning to their isolated properties within the maneuver areas is not precluded. Inspection, at the conclusion of the Exercise, however, of the areas where the maneuver activities were conducted indicated that additional claims may not be forthcoming.

q. In view of the adequate daily transportation facilities to Maneuver Director Headquarters from Fort Richardson, and in view of the difficulties that were encountered in obtaining transportation from Maneuver Director Headquarters to areas of inspection, it is concluded that the Maneuver Claims Officer's functions could have been discharged just as expeditiously from USARAL Headquarters.

2. RECOMMENDATIONS. a. DA level.

(1) APO's in each area of operation become operational upon arrival of the advance party with the area.

(2) Personnel who are due for discharge remain at their home station rather than be taken to the maneuver area.

(3) Further study be made on the operation of a mobile type command post to determine the optimum size, organization and displacement capabilities.

b. USARAL level. (1) A tactical military police unit (one officer and thirty enlisted men) be organized from existing strength at Fort Richardson and Yukon Command and that each be provided with the necessary TOE equipment to accomplish a tactical mission. These MP's will continue to perform their present mission, but will be "earmarked" to perform tactical missions.

(2) Transportation be made readily available for Chaplains, such as jeep, track vehicle and helicopter, for religious services to units without an assigned Chaplain within the maneuver areas.

(3) A central field PX be established for the receipt, issue and transfer of all merchandise, and that such merchandise be transported to this central field PX well in advance of the actual maneuver so that "Branch" Exchange Officers, located with each tactical force, can draw merchandise from this source.

(4) An Aircraft Accident Investigation Board, separate from the USARAL Board, be appointed for future exercises. Members of this board to be personnel who are located within the Maneuver area.

(5) Future exercises of this type have one Safety Officer and two enlisted men, to be assigned to the Maneuver Director Headquarters.

(6) Further study be made on the location of the personnel section of a battle group at the administrative support base when the battle group is operating independently.

(7) News be originated at troop level (company-battery) and processed through the battle group to higher level by fastest available means (TWX at night or messenger). Troop leaders should require this as an additional duty of specified officers or enlisted men with some aptitude and zeal for achieving recognition for their units.

(8) News bulletins at battle group and USARAL levels be published and distributed at least on a weekly basis.

(9) The necessity of maintaining a field headquarters for the Maneuver Claims Officer in subsequent maneuvers be more closely scrutinized on the criteria of:

(a) Location of the maneuver.

(b) Daily transportation facilities to the maneuver area from Fort Richardson.

(c) Status of the lands upon which the maneuver will be conducted.

(d) Number and location of privately owned land-tracts within the maneuver area as determined by engineer plots.

(10) CONUS pilots must participate in northern environmental transition training prior to the field exercise phase.

(11) Units receive further training in the collection, processing and submission of casualty reports.

(12) Provisions be made to hold replacement personnel arriving in this theater at higher level than the battle group for a minimum of three to four days for the purpose of issuing proper equipment and providing necessary basic cold weather indoctrination.

SECTION VII

Part III - Intelligence

1. CONCLUSIONS. a. Fixed wing aircraft and helicopters are the best means for observation over an extended area for positioning forward observation posts and behind the lines elements, for resupply of battle group reconnaissance elements operating over a dispersed area, and for other intelligence activities.

b. An Army aerial photograph capability is vital to the intelligence collection effort because of the relatively short period of time between photo mission requests and delivery of the finished print.

c. Speedy delivery means of processed Army aerial photography to requesting units must be assured to supplement the flash photo reports and to aid in the rapid tactical evaluation of targets.

d. The need exists for continued emphasis to be given to the training of all personnel in intelligence matters with stress on: observation and rapid reporting, scouting and patrolling, the Code of Conduct, security measures, and camouflage and deception activities.

e. Communications with elements of the battle group operating over a large area must be continuously maintained in order to report frontline intelligence information and collect target acquisition data.

f. Adequate communications must be maintained with long-range patrols and outposts to receive timely intelligence information.

g. Army pilots and Signal photographers need additional training in the technical aspects of aerial photography.

h. Aerial cameras with either 9" x 9" or $4\frac{1}{2}$" x $4\frac{1}{2}$" format, with interchangeable lenses (6", 12" and 24"), capable of lens settings and reloading in flight are required to maintain a continuous aerial photographic capability for manned aircraft within USARAL.

i. There is a specific requirement for intelligence personnel to be trained in the capabilities and appropriate use of interrogation of prisoner of war personnel.

j. Army Security Agency. (See Annex D (Classified) to Section IV.)

2. Recommendations. a. DA Level.

(1) Suitable aerial cameras be obtained for USARAL to maintain an aerial photographic capability.

(2) Army Security Agency. (See Annex D (Classified) to Section IV.)

b. USARAL Level. (1) Continued emphasis and command support be given to the training of personnel in intelligence matters with particular stress on: observation and rapid reporting, scouting and patrolling, security measures and the Code of Conduct, camouflage techniques, nuclear detonation surveying and monitoring, and employment of deception techniques such as dummy weapons and CP's.

(2) Elements of the Alaska National Guard Scout Battalions continue to participate in future exercises which will allow actual training in their primary mission of reconnaissance, surveillance, and patrolling.

(3) Army Security Agency. (See Annex D (Classified) to Section IV.)

SECTION VII

Part IV - Operations and Training

1. PRE-MANEUVER TRAINING. See Part I to Section IV.

a. Conclusions. (1) The pre-maneuver training program consisting of 2 weeks training in CONUS, 4 weeks in the staging area in Alaska, and 4 weeks cadre training under similar climatic conditions is considered a minimum requirement for a successful operation under severe winter conditions.

(2) Assignment of a fully qualified officer from USARAL to the participating CONUS unit in an advisory capacity in cold weather matters was sound. This advisor should join the participating unit prior to the maneuver training at home station.

(3) Several training subjects can be added and conducted at the home station to secure additional time for other subjects that can only be taught in this theater.

(4) Existing training films on operations in northern areas are limited and inadequate. A need exists for production of training films covering all aspects of fighting and living in northern areas including the proper use of equipment and weapons.

(5) Assignment of cadre personnel as observers for the battle group field exercise during the last week of training at Fort Greely was found ineffectual. The time could have been better utilized in additional formal training at the US Army Cold Weather and Mountain School.

(6) A number of basic subjects require additional emphasis at the Cold Weather and Mountain School.

(7) Review of training in techniques and tactics for northern operations, by the USARAL troops scheduled to participate in the Exercise, prior to the field exercise is highly desirable.

(8) The USARAL 100-mile ski patch program was found to be an excellent training incentive.

b. Recommendations. (1) DA Level.

(a) A complete series of training films be produced covering all phases of living and fighting in northern areas from the individual up to include tactical operations.

(b) Authorization be granted for wear of 100-mile ski patch on uniform.

(2) USARAL Level. (a) The following subjects be added to the program of instruction conducted at the home station (see Annex A to Section IV).

1. Establishment of bivouac areas to include security.

2. Techniques of extended ground reconnaissance.

3. Field expedients in medical evacuation.

4. Snowshoeing (this will permit additional time for skiing and related subjects after arrival in Alaska).

5. Techniques in loading and lashing of sled, 200-pound capacity.

6. Technique of dead reckoning.

7. Utilization of Army aviation, to include loading and unloading procedures, using the types of aircraft that will be available for the Exercise.

(b) The formal instruction at the US Army Cold Weather and Mountain School be extended from 3 to 4 weeks if students are not used as observers for field exercises. The additional week gained for formal instruction at the US Army Cold Weather and Mountain School be devoted to training in the following subjects:

1. Combat techniques in deep snow (both offensive and defensive) to include individual movement, carrying and handling of weapons and ski equipment, firing positions and weapons rests.

2. Trailbreaking techniques to include organization, equipment and function of trailbreaking parties.

3. Technique of skijoring.

4. Technique of ammunition resupply and evacuation in deep snow.

5. Planning, preparation and conduct of cross-country movements to include route selection and security on the march.

6. Maximum utilization of Army aviation under northern climatic conditions, i.e., security, resupply, reconnaissance,

7. Technique of land navigation in undeveloped areas of the North with poor visibility and few or no existing landmarks.

8. Operation and maintenance of Ordnance and Engineer equipment to include track laying vehicles, infantry and artillery weapons, and bulldozers.

9. Leadership in northern operations.

(c) Routine range firing program be replaced by familiarization firing under deep snow conditions during the individual and unit training phase in Alaska. This training should include use of various types of firing positions, weapons rests, use of skis and snowshoes when firing, firing of crew-served weapons, and the handling of weapons in deep snow.

(d) Additional emphasis be given to offensive and defensive combat techniques in deep snow, and techniques of trailbreaking during the individual and unit training phase.

2. OPERATIONS. See Part II to Section IV.

a. Conclusions. (1) Evaluation of the capability of a reinforced infantry battle group, as modified,and reinforced for northern operations, engaged in offensive and mobile defense under northern winter conditions (for Exercise objectives see paragraph 2, Section I), resulted in the following conclusions:

(a) The armored unit was limited by a logistical resupply which was inadequate; the helicopter-borne unit was limited to less than a one company lift capability at any one time.

(b) Nuclear defense appears to pose no greater problem in this area than in any other. Despite the fact that frozen ground precludes the utilization of extensive earthworks for protection, troops still gain their greatest protection from dispersion and mobility. The protection offered by armored personnel carriers and tanks, when available, is also another important consideration.

(c) Current TOE's do not provide adequate mobility or communications for the battle group command post.

(d) The current battle group needs improved observation and communication means to obtain adequate combat surveillance and target acquisition. Ground radar devices and increased reconnaissance type aircraft will greatly assist in establishing and maintaining observation over an extended area.

(e) M84 weapons carriers are required to give the 4.2-inch mortar the capability of supporting the battle group.

(f) All airmobile operations should be preceded by reconnaissance.

(g) Additional tracked vehicles are required to transport the battle group basic load. Five-ton ammunition trucks do not have adequate cross-country mobility to move the basic load.

(h) Engineer units should be utilized to take advantage of their complete capability rather than used exclusively for road building.

(i) Additional communication training is required at all levels to stress the importance of continuous communications between all units. In addition, a study should be made to determine what specific radio equipment should be added to the battle group to provide these continuous communications.

(j) Wire laying techniques in winter operations should be stressed in all training. Due to increased distances, current authorization for wire should be increased. Use of helicopters to lay wire should be exploited.

(k) Tracked ambulances and helicopter ambulances are required to adequately support the independent battle group in northern winter operations.

(l) The quality, quantity, interpretation and timeliness of Army aerial spot photographs gave the intelligence officers a tremendous assist in developing the intelligence picture.

(m) Intensive training in land navigation at all levels is required for effective operations in this area.

(2) Infantry. See Part II to Section IV. (a) Troops on skis or snowshoes averaged only 6 to 8 miles per day. This low mileage is attributed to excessive equipment carried by individuals and units, lack of satisfactory over-snow vehicles, improper route selection, and lack of training and inexperience in trailbreaking techniques.

(b) Extended lines of communications are vulnerable to the helicopter borne attacks and require organization and use of a motile force with aerial observation to protect main supply routes and support bases. In general, the reaction to airborne strikes against lines of communications was slow.

(3) Artillery and Nuclear Weapons. See Part II to Section IV.

(a) Artillery units must resort to decentralized control. Frequent registration is necessary with maximum use made of special registration positions to minimize disclosure of battery position. Employment of SP artillery will enhance the roving gun registration concept. Maximum use should be made of aerial photos and restitution techniques.

(b) In general, the difficulty experienced with the armored personnel carrier while towing 105mm Howitzers can be expected with any full tracked prime mover. Wheeled prime movers are not practical in deep snow; therefore, only self-propelled artillery meets the requirements for employment in the northern latitudes.

(c) Information concerning cold weather limitations and restrictions contained in FM 6-60 raises doubt as to the feasibility and practicability of employing actual HONEST JOHN/CHOPPER JOHN units in sub-zero temperatures in the uninhibited manner in which they were employed during the Exercise.

(d) The fact that both forces missed the target during their initial nuclear strike because the target had moved to another location, indicates that in addition to dispersion, mobility is one of the most effective means of protection in the nuclear battlefield.

(e) Nuclear weapons play during the Exercise. (See Annex E (Classified) to Section IV.

(4) Armor. See Part II to Section IV. (a) One of the primary missions of the Tank Company and Transportation Company (Armored Carrier) was trailbreaking. The engineers later developed this route into the main supply route. Rugged terrain and partially frozen ground and waterways became obstacles to movement.

(b) The tank provides heavy caliber direct support required by advancing dismounted troops. Further, it also provides protection against nuclear radiation and fallout. Considerable difficulty is encountered in navigating through spruce forests, thus rendering the tanks extremely vulnerable to tank killer teams. The use of infantry-tank teams is mandatory in this type operation. Armored units of platoon and company size are suitable to support infantry elements, however, terrain conditions typical of northern regions will limit employment of larger armored units.

(5) Engineer. See Part V to Section IV. (a) Construction of temporary roads develops no special Engineer problems. Improved equipment is desirable for this work. Latest tractor models should be suitable. Ice should be considered as a construction material and not avoided. Ice construction should be deliberate rather than hasty.

(b) Antitank and antipersonnel minefields are suitable for use in northern latitudes as a barrier within the tactical plan of a single reinforced battle group. They can be constructed rapidly and provide the most effective barrier for the tonnage required.

(c) Proper location of ADM's can provide suitable barriers for a single battle group in both attack and defense.

(d) This Exercise indicated that the future employment of tactical barbed wire entanglements will be limited or non-existent. There is a possibility that concertina may be employed in small quantity as local security for individual units. Units with nuclear warheads will require small quantities of concertina for security of the exclusion area.

(e) Construction of field fortifications is not possible with the equipment on hand in the infantry units. The frozen ground can only be worked with mechanical equipment and explosives. The water table is high even in winter and precludes development in many areas. The use of native timber for protection of small arms fire is questionable. It provides more debris to be blown about in the event of a nuclear detonation. Maximum protection can be achieved by use of camouflage, deception and natural terrain formations for cover. Improvements in the individual cover should be made as time and other conditions permit.

(f) Logistical Systems. 1. US Forces logistical system was satisfactory from an Engineer standpoint. It was able to support the Engineer units in their requirements. Engineer support of the system required no unusual requirement for movement of heavy engineer material. Movement of the support base or trains would have required extensive engineer effort.

2. The Aggressor logistical system did not support the Engineer units easily and required maximum effort from all Engineer units in support. The Engineer tractors are the major consumers of diesel fuel. This is only 3% of the total POL requirements, but without it the Engineer units are ineffective. The entire Engineer effort was expended in road construction so that wheeled vehicles could move POL up to the armor. This is not a new condition, but little progress has been made toward providing a cross-country capability to the logistical forces. This problem affects most of the technical services. The Engineer contribution is a tractor drawn sled train of new design. There exists fabric containers for POL that may solve part of this problem. They have not been used based on reports of failure in low temperatures. It is believed that this temperature problem can be solved by judicial use of insulation available, i.e., snow or open water.

(g) The basic load of mines as prescribed in FM 101-10 is adequate for the reinforced battle group in northern operations. The 12th Infantry consumed twice their basic load during a three day period.

(h) Engineer Support. 1. The reinforced Engineer Combat Company can support a single battle group in northern operations under present conditions. More training exercises are required to develop efficient engineers. A requirement exists for tracked cargo vehicles in the Combat Company to improve its effectiveness. The desirable tractor strength is four for each Combat Company.

2. The Engineer construction strength assigned to a supply base in support of a single battle group in northern latitudes is dependent upon the length of the MSR and the time available. It is estimated that a Construction Platoon with two tractors can adequately support twenty miles of new road. As the MSR lengthens more platoons are required.

(i) Land Navigation. 1. A compass for use in vehicles is required, and it should be night illuminated. Two would be required for each platoon of tanks or carriers.

2. An odometer on a tracked vehicle is required for the Battle Group Command Group. If an M8A2 is utilized as a command vehicle, this item should be mounted on it.

(j) Sodium bicarbonate is especially effective as a cold weather fire extinguisher.

(6) Aviation. See Part III to Section IV.

(a) Equipment. See Paragraph 8f, Part V (Logistics) to Section VII.

(b) Aircraft. 1. Current L-19A gross weight limitation is severely restrictive for operations conducted in northern latitudes.

2. The H-21 must be ski equipped for emergency no-power landings. The snow pad is designed for landing with power available and is not adequate for use in deep powdery snow.

3. H-13E and H-13G helicopters have insufficient power to transport one passenger, full gas load, and extra equipment installed on the aircraft (Winterization Kits, Bear Paw Pads and Survival Kits).

(c) Administrative. 1. Aircrews are not proficient in day and night, low-level, cross-country navigation.

2. The concept of prepackaging pallets is a major improvement in heliborne operations.

3. There were no combat tactical aircraft available during the maneuver period. Fourteen requests were received from US Forces. These requests were processed, approved or disapproved with the remark that tactical aircraft would be simulated and the requesting unit would be credited for the request but no damage could be assessed.

4. No close air support request was received from the Aggressor Force.

5. The majority of ground personnel still believe that helicopters can fly straight up and down and don't need approach paths.

6. Considerable time was lost in initiating alternate plans. The battle group staff officers apparently need additional training in the utilization of Army aviation, capabilities and limitations of cargo aircraft, effects of weather on the aircraft operating capabilities, and the effect of continuous operations on maintenance and aircraft availability.

(d) Tactics. 1. Observation aircraft were in the air whenever it was possible to perform observation.

2. Heliborne operations require that participating troops must:

a. Be experienced, so that they can be landed under fire and be ready to function upon debarking.

b. Unload in a minimum of time, because the helicopter is most vulnerable on the ground and usually lands the troops close to the enemy to expedite the engagement.

c. Seek cover rapidly and clear the landing area.

d. Set up supressing fire power immediately.

e. Be briefed before landing.

3. Infantry units caused considerable loss of time and made the aircraft vulnerable to artillery fire on pick-up points and objectives by not being prepared when aircraft arrived.

4. A combination of track and helicopter lift furnishes the best capability and flexibility for cross-country resupply of the battle group.

5. The helicopter base site would require more dispersal if tactical air had participated in the Exercise.

6. Small special force type units were helicopter landed behind enemy lines and were successful in disrupting supply bases, inflicting casualties, damaging equipment and gathering information.

7. Weather is a controlling factor in the employment of Army aircraft as high winds and periods of low visibility restrict the use of aviation.

8. Ice airfields are superior to airfields constructed on land. They require less engineer effort to construct and are in abundance in this area.

(e) Organization. 1. A minimum of 2 H-13, 2 L-19 and 1 L-20 aircraft is required for the separate battle groups.

2. One reduced strength helicopter company in direct support of a battle group is insufficient to meet transport requirements when the battle group has no other vehicles.

3. Manpower requirements in the aviation unit TOE for sub-arctic areas should be increased by 25% in the 674.10 MOS (Tandem Rotor Helicopter Mechanic).

(f) Maintenance. 1. Aircraft availability can be maintained at a relatively high figure as long as the unit is not in an active fire fight and there is a superior level of supplies immediately available both in the organization and in supporting units.

2. Blackout conditions at a tactical helicopter base seriously affected aircraft maintenance.

(7) Chemical. (a) Chemical Warfare.

1. The effectiveness of a chemical attack in northern latitudes cannot be definitely established based upon the limited play in the Exercise. Units can select profitable targets and deliver adequate toxic chemical fires on them. The failure of the fire marking system to function as planned precludes a realistic estimate of the impact of such attacks on the overall tactical situation.

2. The Exercise generated little chemical play. The US Force fired one chemical mission on 15 February and set off an ADM producing fallout overthe bulk of the Aggressor Force on 19 February. The Aggressor did not fire any chemical missions.

(b) Radiological Warfare. 1. The system developed for dissemination of fallout predictions developed early in the Exercise worked well and is adequate for use in northern operations.

2. Units require additional training in the requirements for, and technique of, conducting a radiological survey and in reporting radiological contamination readings to higher headquarters.

3. The basic wind data supplied by the Air Weather Service, while adequate for maneuver purposes, is of doubtful value in making actual fallout predictions when ground zero is located in a different major terrain compartment from the one in which the basic readings were taken.

(8) Signal. (a) Tactical Signal Units.

1. Wire. a. Installation of locals and interconnecting cables could be made more efficiently if 26-pair distribution cable was available for field use.

b. Direct support wire teams should be equipped with tracked vehicles when supporting a battle group in oversnow operations.

2. Communications Center. Sufficient rotary wing aircraft should be allocated to the Signal Officer to insure reliable serial messenger service when maneuver elements are beyond effective range of motor messengers, or where an absence of roads eliminates efficient use of motor messengers.

3. Photographic Services. a. The KA24-A serial camera is unsatisfactory due to its obsolescence and the non-availability of parts.

b. It is realized that the current trend in aerial camera development is toward cameras for drones. Drones would satisfy but little of our requirements since they are limited to approximately 35 miles from their launching site and 30 minutes flight. Inadequate and limited roads in the North would seriously hinder the movement of sites except by helicopter. Here again weight limitations limit range of movement.

c. A camera of 9" x 9" or $4\frac{1}{2}$" x $4\frac{1}{2}$" format with an interchangeable lens capability of approximately 6", 12" and 24" focal length is needed. The camera must be of such size and weight that it can be mounted on the floor of an L-20 aircraft behind the pilot's seat along with the camera control unit and intervalometer. This arrangement is to allow films, lenses and lens settings to be changed in flight, as rapid changes on weather conditions, altitude ceilings and the type of terrain in much of the North make pre-setting of equipment infeasible. The camera must be able to operate at temperatures of minus 40 degrees and have maximum flexibility if sufficient aerial photography of the quality needed is to be obtained.

4. Miscellaneous. a. Diesel power units are required in signal units supporting a major headquarters. These units provide a more reliable source of power and are less susceptible to outages due to motor malfunctions.

b. Speech security equipment for use on tactical radios and wire circuits is required for use by all tactical units.

(b) Battle Groups. 1. Radio Relay. Requirement exists for a radio relay capability in the battle group to provide the primary means of communication between echelons of the battle group, and from the battle group to its major subordinate units.

2. Radio. Radio sets within the battle group, which are normally mounted in wheeled vehicles, should be mounted in tracked vehicles prior to any oversnow operation.

3. Wire. Aerial field wire dispensers for use with fixed and rotary wing aircraft are required in battle group headquarters for laying field wire over otherwise inaccessible areas.

(9) Unconventional Warfare. Inasmuch as Exercise LITTLE BEAR did not afford a medium for use of Special Forces in their normal role, they were utilized for behind enemy lines intelligence gathering primarily. Pre-exercise planning and coordination of Special Forces operations was inadequate and late arrival of Special Forces teams from the US Army Cold Weather and Mountain School further hampered proper use of these teams.

(10) Psychological Warfare. Both forces prepared propaganda themes, letters, and newspapers which were airdropped, forwarded through the message centers, sent through US mail directly to an individual by name, through prisoners prior to "repatriation" or by clandestine measures. In this respect, the Aggressor was particularly successful because of realism of information contained in the letters and the seemingly innocuous newspaper articles which took a second reading to digest as a propaganda effort (samples of leaflets are attached as Annex C to Section IV).

(11) Umpire System. (a) A modified area umpire system is suitable for a free maneuver the size of Exercise LITTLE BEAR with the resident umpire still the core of the umpire system.

(b) For a maneuver involving the amount of artillery firing as was simulated in Exercise LITTLE BEAR, sufficient L-19 aircraft should be available to the umpire organization to keep one air artillery fire marking team in the air at all times.

(c) Nuclear fire markings teams should be air mobile by helicopters.

(d) The chief umpire should have a flight section assigned to him and the aircraft available for his use exclusively. It is felt the minimum should be at least two each H-13, H-21 and L-19 type aircraft.

(e) The umpire organization should be prepared to support itself to include float radios and vehicles.

(f) Proper radio equipment should be made available to the chief umpire from equipment in depot stock. These radios should be of frequency bands.

(g) The umpiring of simulated equipment is not feasible.

(h) The physical location of the Maneuver Director Headquarters (including Umpire Operations Center) near the middle of the maneuver area was a distinct asset communication-wise.

b. Recommendations. (1) One of the objectives of the Exercise was to evaluate the capability of a reinforced battle group, as modified and reinforced for northern operations, to engage in offensive and mobile defense under northern winter conditions and determine factual answers to certain questions. Based upon experiences of this Exercise the following conclusions and recommendations are made:

(a) DA level. 1. Units operating under northern winter conditions be completely mobile to include armored personnel carriers in sufficient quantities to mount the combat elements of the battle group. In addition, helicopter airlift capability should be increased.

2. Command and reconnaissance type aircraft be assigned to the battle group to enhance reconnaissance, security, target acquisition and communication capabilities.

3. Ground radar devices for front-line combat surveillance be issued in the battle group.

4. The battle group be issued additional track-laying vehicles in lieu of current wheeled vehicles. Vehicles used for logistics, evacuation and communication must possess the same mobility as that of the units they support. (See recommendations in Part V (Logistics) to Section VII.)

5. 4.2-inch mortar units be equipped with the M84 weapons carrier.

6. Tracked ambulances be provided the battle groups in sufficient quantity to insure adequate evacuation capability for units of the battle group when operating over extended frontages.

7. Helicopter ambulances be made available to support battle group field operations.

(b) USARAL level. 1. Stress be placed, during all phases of training, on dispersing, moving to concentrate to complete a mission, and rapidly dispersing again.

2. Intensive training be conducted at all levels in land navigation.

3. All airmobile training should stress the requirement for reconnaissance and that battle groups incorporate air mobility training as a routine activity in connection with all other training.

4. The amount of Engineer support available for the battle group (one reinforced Engineer combat company) is considered adequate for northern winter operations.

5. More stress be placed on the effective use of Engineer troops and equipment to obtain maximum utilization of Engineer capability.

6. Particular attention be given to communications training with emphasis on maintaining communications over extended distances under cold weather conditions.

7. Increased emphasis be placed on wire communications to include improvement of wire-laying techniques utilizing Army aircraft.

(2) Infantry. (a) DA level. None.

(b) USARAL level. 1. Further study be made on reduction of the individual and unit loads applicable to cold weather conditions for the purpose of increasing combat effectiveness cross-country mobility.

2. Highly mobile forces with air observation capability be designated by the battle group commander with the mission of securing vulnerable lines of communication and rear areas against heliborne operations.

3. Infantry troops with minimum equipment, and supported by over-snow vehicles, select their own routes through areas, using frozen waterways, lakes and muskeg wherever possible in order to reach their objectives rapidly. Further, they must take maximum advantage of their over-snow mobility, to include skijoring.

(3) Artillery and Nuclear Weapons. (a) DA level. All artillery units earmarked for operations in the northern latitudes be equipped with self-propelled howitzers in lieu of towed artillery.

(b) USARAL level. Maximum use be made of aerial photos and restitution techniques.

(4) Armor. (a) DA level. None.

(b) USARAL level. 1. Armored units be given missions for which they are best suited rather then using them for trailbreaking.

2. Armored units of platoon or company size be used in infantry-tank team role in supporting northern operations.

(5) Engineers. (a) DA level.

1. Vehicular compass for command vehicles be provided.

2. Odometer and azimuth position device for major command vehicles be made available.

3. Position fixing device be provided to enable moving elements to be located from a stationary control location.

4. Airborne device for laying standard mines be developed. This device should be loaded on the ground and be carried as an external load for a helicopter. It must be controlled from within the helicopter.

(b) USARAL level.

Emphasis on cold weather training to state clearly that:

a. Ice crossings for vehicles should be constructed with deliberate, rather than hasty Engineer effort.

b. Preliminary route reconnaissance by the heaviest vehicle will by its nature eliminate ice crossing.

c. Prescribe a basic load of explosives for Engineer companies (2000 pounds per company is recommended).

d. Acquire the new model arctic tractor for the combat companies and operational projects stocks. Engineer platoons in the battle group should be issued one of these tractors.

e. Equip Engineer units with M8A2 tractors as outlined in separate requirement statements.

f. Combat Engineer units locate water points at the battle group ration break-down point, thus the consumer will be able to combine two missions into one trip.

g. Continue to use sodium as the fire extinguisher, to replace all but CO_2 extinguishers. Increase training in the use of sodium bicarbonate as a fire extinguisher.

(6) Aviation. (See Paragraph 8i, Part V to Section VII.)

DA level. 1. All aircraft should be equipped for instrument flying if they are to be utilized in night operations.

2. Cargo helicopters be designed for ramp loading instead of the present side loading.

3. Aircraft should be designed to have a capability of operating in the field for 60 days with only minor maintenance and servicing.

4. Skis are required for H-21 helicopters.

5. Shoulder harness is necessary in all models of the H-13 aircraft; not just the H-13H.

6. The evacuation litters on the H-13 are impractical at temperatures below 0° F for flights over 15-minute duration.

7. Truck set Number 1, Army Aircraft Crash, be modified for cold weather operations. The tank heater is inadequate during sub-zero temperatures.

8. A more suitable lightweight aircraft survival kit be developed.

9. Standard aircrew flight clothing be developed.

10. A portable gasoline powered pump be developed to pump AVGAS from 55-gallon drums; this is especially true when refueling large aircraft such as the H-37.

11. Develop adequate aircraft mechanic clothing.

12. The following subjects should be included in the training programs, and Army training tests of battle groups supported by aviation should be mandatory for STRAC units:

a. Weather - how it affects, aids and limits aviation.

b. Flight and load limitations of the various types of aircraft.

c. Airfield and heliport construction.

d. Loading and unloading procedures for various types of aircraft.

e. Mission preparation time for large scale operations, to include coordination problems and timing.

f. Maintenance problems and inspection requirements for aircraft and how they affect availability.

g. Fatigue and its effect on pilots and aircrew.

h. The need for providing perimeter security forces.

13. Aviation units in cold weather climates should not be assigned at reduced strength.

(7) Chemical. (a) DA level. Use of the M-10 aircraft spray tank mounted on L-20 type aircraft be investigated as a more effective method of marking toxic artillery fires.

(b) USARAL level. 1. At least one ground employed delivery system for executing a BW attack be introduced into future exercises.

2. Radiological survey, monitoring and reporting of radiological contamination be stressed in the pre-maneuver training of all participating forces, including support troops.

3. USARAL Electronic Metro detachments accompany Headquarters, USARAL, to the field and make daily radio sound observations to supplement the data provided by the Air Weather Service.

(8) Signal. (a) DA level.

1. Tactical signal units. a. For radio equipment see recommendations in paragraph 1a, and paragraph 7b, Part V (Logistics) to Section VII.

b. Distribution cable, 26-pair, should be made available for general field use.

c. KA24-A aerial camera be replaced with a camera of either 9" x 9" or 4½" x 4½" format with interchangeable lens of approximately 6", 12" and 24" focal length.

d. Speech security equipment on FM radios VHF radio channels, and wire circuits be made availalbe for use by tactical units to company level.

2. Battle groups. Two each 10KW power generators and 4 each PP-1097 power supply converters be added to TOE of battle group headquarters to provide reliable power source for organic communications equipment.

(b) USARAL level. 1. Tactical signal units.

a. Rotary wing aircraft be allocated to Signal Officer on a full time basis during Exercise to provide aerial messenger service.

b. Diesel driven power units be authorized to Signal Company, USARAL (4 each), and Signal Company, Yukon Command (2 each).

2. Battle groups. None.

(9) Unconventional Warfare. (a) DA level. None.

(b) USARAL level. Further exploitation be given to the unconventional warfare in the northern latitudes.

(10) Psychological Warfare. (a) DA level. None.

(b) USARAL level. Psychological warfare activities be planned and conducted in future exercises for additional experimentation.

(11) Umpire. (a) DA level. A dry dye packet be developed for use of personnel operating in rear areas to mark damage to enemy supplies, equipment and facilities.

(b) USARAL level. 1. The chief umpire have an adequate flight section in which the aircraft are available only to him.

2. The umpire system be self-supporting rather than depending on participating units including radio and vehicle backup.

3. Radio frequencies be assigned the umpire system that do not overlap those of the participating units.

4. All umpires be given an aerial reconnaissance of the maneuver area before the start of the exercise.

5. VHF and relay equipment should not be used by umpires and participants jointly.

6. Aircraft markings be plainly visible and aircraft be used only by the agency to which it is assigned.

7. Logistic scenarios be developed for future exercises, for discretionary employment by the maneuver director, to assure testing of aspects of logistic operations not developed by maneuver play.

8. The staff logistic umpire be provided an NCO and a staff working area in Umpire Control Center.

9. Logistic umpires be provided radio communications in the umpire net.

10. Logistic umpires be utilized for transmittal of reports within the umpire system.

11. A helicopter courier service be established for collection of unit umpire reports from consolidation points.

12. Equipment holding areas be established under control of logistic umpires for securing equipment declared out of action.

13. Definite procedures be established under control of logistic umpires for securing and processing personnel declared out of action.

SECTION VII

Part V - Logistics (G4)

1. GENERAL. a. Conclusions.

(1) A Field Exercise of short duration, with excellent weather throughout, did not actually test the ingenuity of commanders concerned, nor did it really point up any real logistical problems that were not already known.

(2) A fallacy of the Exercise was that of beginning field operations in an area which had two Administrative Support Bases already established and operating before the combat elements arrived plus the fact that supply and equipment was considered unlimited with no shortages.

(3) The support build-up for the Exercise had been so great that the Exercise could have been continued beyond the termination date, funds permitting. Therefore, logistical planning was thorough and realistic to the extent that at least minimum support was never in doubt or questionable.

(4) The greatest equipment needs of Army Forces operating in Alaska are:

(a) Signal Items and Systems. 1. Oversnow tracked vehicles which will accommodate Shelter S-178 and associated power units for a VHF radio set (AN/MRC-69).

2. AN/GRC-46 radios mounted on suitable tracked vehicles to replace radio sets AN/GRC-26 used in direct support of battle groups.

3. A compact four channel VHF radio system should be authorized to provide a primary means of communication between echelons of the battle group and its major subordinate units.

4. Modification of radio sets AN/PRC-6 and AN/PRC-10, presently authorized battle groups, to provide greater operating distances. (Or replacement of the radios with items of equipment that will provide the capability.)

5. The addition of three AN/VRQ-3 radios to the battle group signal platoon to provide an increased radio relay capability.

6. The addition of five RC-292 radio antennas in the battle group headquarters to provide extended range for AN/VRQ-3 radio sets.

7. The addition of two each 10KW generators and

four each PP-1097 power supply converters to the TOE of the battle group headquarters to provide a reliable power source for organic communications equipment.

(b) An Arctic tractor for testing in northern environment (a prototype has been manufactured).

(c) M8A2 cargo tractors as interim transport for personnel and cargo.

(d) A full track recovery-wrecker type vehicle. The T119 wrecker may be the solution.

(e) Modern over-the-snow vehicles (T114-T116) to replace the M29 (Weasel) and M76 (Otter).

(f) For testing, a tracked Class III tank, or rolling fluid transporters with treads (1200 to 5000-gallon capacity).

(g) Collapsible gasoline storage tanks (10,000 gallon-capacity) that may be used in temperatures lower than -20°.

(5) A need exists within USARAL for a Quartermaster support type unit to provide Class I through IV field support. This type unit would alleviate the Class III handling and distributing problems.

(6) Unit distribution is not only feasible and practical for units operating in northern latitudes, but is highly desirable. Use of the system is limited only by the resourcefulness and ingenuity of commanders and logistical personnel concerned.

b. Recommendations. (1) DA level.

(a) USARAL should be given a priority by DA which is sufficiently high to insure that the command is issued the following items of equipment as soon as possible.

1. The Signal items (and systems) listed in 1a(4)(a), above.

2. An Arctic tractor for test to replace the conventional Engineer tractor during Exercise WILLOW FREEZE.

3. A sufficient quantity of M8A2 cargo tractors for test to ultimately replace some wheeled vehicles used to transport personnel and cargo.

4. A full-track recovery-wrecker type vehicle.

5. Modern over-the-snow vehicles (T114-T116) to replace the M29 (Weasel) and M76 (Otter).

6. Testing of tracked Class III tanker type vehicles or rolling fluid transporter, with treads (1200 to 5000 gallon capacity) during Exercise WILLOW FREEZE.

7. Collapsible gasoline storage tanks (10,000 gallon capacity) that may be used in temperatures lower than -20°.

(b) A protective cover should be developed for use in protecting patients from the point of injury in the front lines back to the aid station. Current practice is to use a sleeping bag.

(c) An Army field hospital should be assigned to USARAL to facilitate hospitalization and evacuation during exercises as well as during normal training.

(d) An additional Transportation Company (Light Helicopter) (H-21) should be assigned to USARAL to permit normal backup support to the two currently assigned battle groups and to reduce the overland transport of personnel and equipment during field exercises and possible actual combat.

(e) Authority should be granted USARAL to activate a Quartermaster support type unit (TOE 10-107D at reduced strength) to properly man support bases and provide Class I through IV supply (Quartermaster) to include Quartermaster equipment maintenance, bath service and laundry service.

(2) USARAL level: None.

2. CHEMICAL. a. Conclusions. Denatured alcohol, utilized for protection of vehicle fuel systems, can be issued most efficiently with the gasoline at Class III supply points.

b. Recommendations. (1) DA level: None.

(2) USARAL level. (a) In the future, issues to participating units, prior to actual maneuver phase, should be held to a minimum to insure that at least one resupply action will be required in the field.

(b) Denatured alcohol, when utilized as a vehicle fuel system additive, should be issued in conjunction with the gasoline at Class III supply points.

3. ENGINEER. a. Conclusions.

(1) Construction. (a) The organization of an independent support base and a battle group requires maximum cooperation and information between Engineer unit commanders. A Staff Engineer at the battle group or base would improve the operation.

(b) Support base engineers should be at least equal in strength to the combat engineer unit being supported.

(c) Winter road construction and improvement can be expedited by the use of unfrozen gravel. Pits can generally be found within travel distance, and opened easily with a small expenditure of explosives.

(d) Explosives should be available for all Engineer units and used with imagination.

(e) Engineer information on terrain, ice, etc., must be available to the lowest ranking individual who makes construction decisions. This might be a tractor operator who is widening a road.

(f) Engineer construction should be planned to avoid operations in heavy timber during black out conditions.

(g) Engineer units can support active operation in this area with their TOE equipment although an Arctic tractor is desirable.

(2) Engineer Maintenance. (a) A small Engineer maintenance detachment of twenty to thirty men is adequate for support of one battle group. The organization should plan for excessive generator repairs.

(b) Contact teams should be completely equipped with tools to perform all possible repairs where new parts are not required.

(c) Fuel contamination can be solved in the unit. Supply points, however, can aid this with improved marking. Coordinated instruction to user on the use of Class III supplies is required.

(d) Increased operator protection against the elements is required in tractor cabs.

(e) A recovery attachment is required for mired Engineer equipment. This should be readily available to all Engineer units.

(f) Repair parts should be issued on a direct exchange basis.

(3) Engineer Supply. (a) Engineer Class IV supplies for exercises are estimates, based upon possible courses of actions by the participants. Since every eventuality planned for will not occur, a stock accounting system that will save all unused items is mandatory.

(b) Stock required for maintenance float should be the property of the maintenance unit; unused items can be returned for credit.

b. Recommendations. (1) DA level.

(a) Provide the Arctic tractor as rapidly as possible, for test, as a likely replacement for the D7 bulldozer in Alaska.

(b) Provide cross-country trafficability maps in volumes sufficient to enable issue to smallest units (this is the subject of separate correspondence with ACSI).

(2) USARAL level. (a) Continue maintenance training as conducted in this Exercise.

(b) Clearly mark anti-freeze containers.

(c) Improve operator protection in tractors.

(d) Institute direct exchange of spare parts.

(e) Fabricate a tractor recovery attachment for use during Exercise WILLOW FREEZE.

(f) Plan Class IV supplies and equipment to provide for all possible courses of action.

(g) Issue all float equipment to maintenance units.

4. MEDICAL. a. Conclusions.

(1) Over-the-snow mobility remains a problem for evacuating patients from the forward areas to the aid station. The use of Army aircraft for evacuation is the most desirable means.

(2) The only means of communication between the aid station and the clearing platoon is by wire. This should definitely be replaced by radio as recommended in previous maneuver reports.

(3) Freezables can be protected and transported utilizing the chest, whole blood. These will be added to the equipment of the aid stations and clearing platoons currently in Alaska.

(4) Polyethylene containers for fluids used in the field are superior to glass containers. More tests are being contemplated on this item and a complete report will be submitted.

(5) The addition of a dentist is a great asset to the operation of a field hospital.

(6) Complete definitive treatment can be performed in the field during northern operations. It was not necessary to evacuate any patient out of the maneuver area for any specialized treatment.

b. Recommendations. (1) DA level. Currently there is no protective cover for patients from the point of injury on the front lines back to the aid station. It is proposed that the Quartermaster sleeping bag issued to personnel be modified by replacing the existing zipper with a double action zipper. When he becomes a casualty, the soldier can be placed within his own sleeping bag and evacuated to the aid station.

(2) USARAL level. (a) Even though no deaths are anticipated, definite plans, both medical and other, for handling current dead should be formulated prior to the maneuver.

(b) Consideration should be given to assigning the Field Hospital Headquarters of the hospitalization unit to the Maneuver Headquarters. This will provide support personnel to the unit plus giving the headquarters excellent training in the actual direction of the activities of the hospitalization unit.

(c) Whenever a clearing platoon of a medical company is committed, headquarters platoon of the clearing company should also be committed to assist the platoon and provide training for headquarters personnel in directing the activities of a medical platoon.

(d) All operating units of the field hospital should be in Jamesway tents. The minimum requirement would be twenty-four sections.

(e) A clearing platoon should be placed in direct support of each battle group. This would cut the evacuation time to the next level of medical treatment.

5. ORDNANCE. a. Conclusions.

(1) Ammunition. (a) The issuing of simulated ammunition (sand-filled ammunition boxes) provides vital realism to the logistics of the problem.

(b) Some units did not transport their basic load on organic vehicles and did not move the entire basic load into the maneuver area.

(c) The demands for resupply from ammunition supply points (ASP's) were not realistic as they were much less than normally expected of an operation of this size.

(d) Blank ammunition and explosives were issued excessively with the attendant problem of damage resulting from packaging being opened but contents not fired or expended.

(e) The ASP's remained in a static position despite the forward displacement of the battle groups.

(f) There was a lack of understanding of the allocation, security and handling procedures on simulated TADM and HONEST JOHN rockets.

(g) For safety reasons blank ammunition should be clearly marked and segregated from simulated ammunition during the Exercise.

(h) It is essential that an Available Supply Rate (ASR) be published and implemented if ammunition is to be controlled realistically.

(2) Supply and Maintenance (II & IV). (a) Equipping the using unit with only a limited number of fast moving items, and insuring that the direct Support Ordnance Unit is fully equipped, appears to be both feasible and an expedient to insuring greater mobility and flexibility for the battle group.

(b) The mortality rate of M211, 2½-ton trucks, and M59 APC engines and transmissions was excessive. These vital components will continue to fail at a relatively high rate, even with proper operation and care. Comprehensive instructions are in the hands of using organizations and Direct Support (DS) Ordnance companies covering the proper operation and maintenance of these vehicles.

(c) The M8A2 cargo tractor proved to be a good addition to the track vehicle fleet serving as a forward logistical support vehicle, and was also effective as a recovery item for other track vehicles.

(d) The technique of supporting forward combat elements with Ordnance DS platoons, as was accomplished by the 136th Ordnance DS Company and by the 704th DS Platoon of the 12th Infantry, proved to be sound and effective.

(e) One Ordnance DS Company, minus one platoon constitutes a minimum requirement for properly supporting a separate, reinforced battle group operating in this environment.

(f) A full track recovery-wrecker type vehicle is required if the DS company is to accomplish this part of its mission. A possible solution is to obtain the full track T119 wrecker (T236 chassis) scheduled for type classification in FY 61.

(g) Pre-maneuver training in maintenance and operation of equipment played an important role in preparing the CONUS unit for satisfactory operation during the actual field exercise.

(h) Personnel of the 1st Battle Group, 12th Infantry, and armor units of the 1st Battle Group, 9th Infantry, established enviable maintenance records. Their low deadline rates indicate technical competence and hard work, and reflects great credit upon personnel of these organizations.

(i) Maintenance requirements and deadlined vehicles within armor units of the 1st Battle Group, 9th Infantry, were not as high as expected; and, emphasize the point that track vehicle maintenance can be held to a minimum when operations and maintenance procedures are conducted properly.

b. Recommendations. (1) DA level.

(a) The M8A2 cargo tractors be procured and issued as interim logistical carriers to augment and/or replace the current wheeled vehicle fleet used for this purpose.

(b) Efforts be continued to obtain suitable full-track recovery vehicles for this Command, possibly the T119 or T120 when standardized.

(c) Pre-maneuver training of CONUS units be continued on the order and scope as conducted for this Exercise.

(2) USARAL level. (a) All units develop a loading plan and that current USARAL Memorandum Number 203 be revised commensurate with each using units's responsibility to transport the basic load of Ordnance Class V supplies authorized.

(b) An Available Supply Rate (ASR) be established and implemented for training in future exercises.

(c) For future use, all blank ammunition and explosives be stocked in ASP's and issued on a controlled basis, daily, as required.

(d) ASP's be assigned as Army units and placed under the operational control of an Army Ordnance Officer.

(e) For realistic training, actual launching equipment, nuclear weapons training devices and personnel trained in the employment of these systems be utilized.

(f) All commanders place emphasis on explosive safety criteria for all future exercises.

(g) In future exercises of this type, battle groups be furnished with the minimum spare parts load, and Ordnance DS companies carry their normal load.

(h) One Ordnance DS company minus one platoon be placed in support of each battle group.

(i) Continued emphasis be placed on proper operation and maintenance of M211 2½-ton trucks, and M59 APC's, with particular emphasis on engines and power train components. Further, that these vehicle types be replaced with later, more durable items of equipment at the earliest practicable time.

6. QUARTERMASTER. a. Conclusions.

(1) Activation of a Quartermaster support type unit is necessary to properly man support bases and provide necessary equipment and properly trained personnel for:

(a) QM POL field storage and distribution.

(b) QM Class I and Classes II and IV supply points.

(c) QM equipment maintenance.

(d) QM bath service.

(e) QM laundry service.

(2) Personnel from US Army Supply and Maintenance Center, Alaska; and Yukon Command, USARAL, designated for duty in the two support bases were in many instances not adequately trained, particularly in the Class III field. The two commands do not have a field capability in POL operations.

(3) Participating battle groups require equipment capable of delivering bulk Class III forward of the battle group trains area.

(4) Report requirements from support bases should be held to minimum essential information.

(5) Herman Nelson electric powered heaters proved more satisfactory than gasoline powered heaters.

(6) One centrally located non-tactical support base to support all forces, Maneuver Director Headquarters and support troops is desirable if TOE units and suitable equipment cannot be provided for separate tactical type support bases.

(7) Locally fabricated oversnow pallets proved to be an excellent item for use in helicopter delivery to battle group units and C-123 air drops.

(8) Clearly defined procedures for handling of deceased personnel were needed during Phase VII.

b. Recommendations. (1) DA level.

(a) CONUS battle groups participating in USARAL field exercises be provided with a Class III resupply capability forward of battle group trains.

(b) Test items for evaluation during field exercises arrive in the theater well in advance of the exercise.

(2) USARAL level. (a) Activate a Quartermaster Direct Support Company, TOE 10-107D, (reduced strength), to provide field support as follows:

1. Supply points for issue of Class I and Quartermaster Class II and IV supplies.

2. Field bakery facilities.

3. Class III supply points to provide static POL storage and field delivery capability; also provide package POL to augment capabilities of supported units.

4. Operate a salvage collecting point.

5. Perform field maintenance on Quartermaster equipment as required (except Quartermaster air type equipment). This service would include mobile repair teams.

6. Provide laundry, bath and clothing exchange service.

7. Provide graves registration service.

(b) Reduce Quartermaster reports requirements during field operations to the minimum essential information required at Maneuver Director Headquarters level, i.e., daily stock status of Class I and III supplies on hand at support bases.

(c) Use electric powered Herman Nelson heaters to the maximum extent possible instead of the gasoline powered heater.

(d) Continue use of the modified sled pallet with A-22 aerial delivery containers to the maximum extent possible during cold weather operations for air drops, external helicopter delivery and oversnow towing.

(e) Include clearly defined procedures for handling of deceased personnel in future maneuver plans.

7. SIGNAL. a. Conclusions.

(1) The system used for Signal supply and maintenance support of Exercise LITTLE BEAR is suitable for activities of this type except that the Mobile Maintenance Teams should have a better oversnow capability to permit close-in support of participating tactical units.

(2) The reliable transmission range of most of the present Army aircraft UHF and VHF radios is less than 30 miles. HF radio is the only known solution for transmitting over the extended distance encountered.

(3) The maintenance of Signal communications during a continuous operation becomes a serious problem for a reduced strength helicopter unit.

b. Recommendations. (1) DA level.

(a) That better oversnow capability be provided for Signal Mobile Maintenance Teams.

(b) A lightweight automatic retransmission device be developed for Army aircraft FM radio relay.

(2) USARAL level. That a base supply point be established similar to the base of supply at Fort Richardson for future maneuvers, and a forward supply point be established for each participating tactical unit similar to those established at Old Man Lake and Gulkana.

8. TRANSPORTATION. a. Conclusions. (USARAL Transportation Office)

(1) Military highway transportation means of USARAL are inadequate to support two infantry battle groups (reinforced) at dispersed locations of combat-type operations for sustained periods.

(2) There is a critical need for additional bulk POL line-haul transportation capability to support combat-type operations at dispersed locations on the Alaska mainland.

(3) The outstanding availability rate attained by the 80th Transportation Company (Light Helicopter) (H-21) may tend to be misinterpreted by supported units and their major commands. This high rate was primarily attributable to the fact that the helicopters were flown very little during the month preceding the maneuver. This permitted an abnormal amount of maintenance to be performed to render the helicopters in an above-normal condition of readiness.

(4) Cross-country movements, in northern operations under winter conditions, in areas having poorly developed road nets and lines of communications are limited with the present tracked and wheeled vehicles available within USARAL.

(5) The Transportation Company (Light Helicopter) (Augmented) is of great value for deployment of troops, resupply and evacuation during northern operations under winter conditions, but is handicapped during periods of adverse weather conditions.

(6) The Transportation Company (Armored Carrier) increases the tactical mobility of the infantry battle group engaged in northern operations under winter conditions, but is restricted as to the type of terrain it can traverse in this locality.

(7) Resupply to individuals, units and organizations on independent type missions in northern operations under winter conditions is feasible, but limited by the cross-country capability of present USARAL vehicles and the weather and maintenance limitations of present USARAL aircraft.

(8) The Tractor, Cargo, M8A2 would be a valuable addition to the USARAL vehicle fleet.

(9) The Transporter, Rolling Fluid, while not available for testing during Exercise LITTLE BEAR, appears in concept to be a major solution in the problem of bulk POL resupply for infantry battle groups (reinforced) operating in the North under winter conditions. The tread-type should be tested during Exercise WILLOW FREEZE.

(10) The Trailer, Cargo Transporter, Off-Road, Rough Terrain, Large Wheel, 10-ton capacity, is not suitable for northern operations in this locality under winter conditions in the present state of development, but has promising aspects for use in this area if overall size can be reduced, an improved treaded all-terrain tire can be provided, and the sideboards are strengthened.

(11) The "Snow Traveler" (commercial) appears to have a feasible application as a command and reconnaissance vehicle over selected terrain.

(12) The logistical system, techniques, and equipment which were utilized were not capable of functioning effectively and providing necessary support to dispersed elements of the battle group operating independently in the nuclear battlefield with limited lines of communication. This is true, in view of the necessity for the need for prepositioning of supplies and equipment prior to the Exercise, and the necessity for utilization of commercial carriers (and storage tanks from commercial sources) for the handling of bulk POL shipments during the Exercise.

(13) The Transportation staff office of the Maneuver Director Headquarters was improperly drawn into the operating portion of the Transportation mission by virtue of the fact that the Area Transportation Officer for the US Forces was also responsible for shipments from Fort Richardson to the enemy (Aggressor) Area Transportation Officer, and messages and information of routine operations were channeled through the Maneuver Director Headquarters staff because fo communications difficulties and security considerations.

(14) Aerial resupply by a repacked, palletized, skid-mounted unit slung under an H-21 helicopter proved successful and is worthy of exploitation in future operations.

(15) Limited availability of military transportation requires that supplies, equipment and personnel moved to dispersed locations should be the minimum amount necessary to meet immediately foreseeable requirements,

and that loading and unloading plans, facilities and personnel must be available sufficiently in advance of movements so that minimum turn around time and maximum vehicle utilization is achieved.

b. Conclusions (Transportation Division, US Army Supply and Maintenance Center, Alaska).

(1) Transportation support rendered was adequate to satisfy the requirements of the Old Man Lake Administrative Support Base. However, inasmuch as the bulk of resupply was prepositioned prior to Phase VI, transportation play during actual conduct of the Exercise was extremely limited, and, with few exceptions, resupply cargo was transported via daily shuttle runs between Old Man Lake Administrative Support Base and Fort Richardson.

(2) Transportation facilities were adequate to fulfill the mission on a timely basis during all phases of the Exercise, except Phase VI and Phase VIII, for the movement of personnel and equipment of the US Forces only. It was necessary to augment the 521st Transportation Company (Light Truck) with commercial carrier vehicles and Consolidated Transportation Motor Pool buses for the movement to the maneuver area and return. In addition, reliance had to be placed upon commercial carriers for line-haul transportation of bulk POL products.

c. Conclusions (Transportation Office, Headquarters, Yukon Command, USARAL).

(1) Transportation support was inadequate for the mission of resupply of a reinforced infantry battle group equipped with large numbers of vehicles, and relying solely upon ground vehicles means of resupply transportation.

(2) Considerable difficulty was encountered because of the need for dependence upon commercial carriers to provide line-haul transportation of bulk POL products.

d. Conclusions (Transportation Office, Transportation Supply and Maintenance Office, US Army Supply and Maintenance Center, Alaska).

(1) The Contact Team composed of inspector-mechanic personnel proved to be a highly effective method of accomplishing field maintenance support of units participating in northern operations under winter conditions. In physically locating the Team during future Exercises, the adequacy of telephone communications and proximity to using units is highly desirable. For example, placing the team in the vicinity of the 80th Transportation Company was of little advantage, as (per mission) no H-21 repair parts were carried. The most dealt-with unit was the O&R platoon of the 80th Augmentation which was located on Tolsona Airstrip near Maneuver Director Headquarters. Proximity to any airstrip could be construed as relatively unimportant, as those repair parts delivered by air were shipped directly to the using unit and signed for later. Those items shipped via surface transportation to Old Man Lake Administrative Support Base had to be picked up by vehicle and delivered to the using unit. Location of the contact team in the Old Man Lake Administrative Support Base or Maneuver Director Headquarters vicinity would have proven more advantageous because of better communication facilities and easier accessibility to the aircraft primarily supported (i.e., MDH, Umpire Group).

(2) The generator set 7.5 KW (APU) should be mounted on four wheels instead of the present two-wheel chassis.

(3) The heater, tent, gasoline, 250,000 BTU has a blower motor that is too fragile and will not stand up under continuous operation.

(4) Tent-type shelters to cover aircraft are required to provide heat and to prevent wind from reaching the aircraft and crews during periods of maintenance; each tent requiring a 450,000 BTU heater unit.

(5) The aircraft maintenance sections need portable lighting units.

(6) Light-weight knock-down type of aluminum work stands are needed in the maintenance sections for field use.

(7) Aircraft availability can be maintained at a relatively high figure for reasonably short periods of prolonged operations provided the tactical situation: permits uninterrupted maintenance; the aircraft are all in an above normal maintenance condition at the start of the problem; and supplies and spare parts are immediately available in plentiful quantities.

(8) A requirement still exists for some sort of collapsible canvas covered aircraft shelter capable of covering one-half of an H-21 with its blades removed. This shelter is needed to provide warmth and protection from the wind. If provision could be made in the same shelter to accommodate the nose tail section of the U1A airplane, it would satisfy requirements for northern operations under winter conditions.

(9) Aviation units in northern operations under winter conditions need some means other than fifty-five gallon barrels and five gallon cans in which to store and carry oil for aircraft. This not only poses a problem of space for storage, but also poses a problem of heating the oil to keep it fluid in very low temperatures. This is now usually done by keeping the oil in the maintenance tents close to the outlet of a 450,000 BTU heater. Beside being inconvenient and dangerous, it takes up needed space in the maintenance tent.

(10) Extreme cold increases the frequency of aircraft skin and structure cracks, and a good portion of the time spend in maintenance is to repair these cracks. Further, cold weather materially reduces the capability of maintenance personnel (particularly in MOS 674.10), and results in a decrease of effective manpower for aircraft maintenance.

(11) Maintenance manhours, while higher than that experienced in garrison, were not as high as was experienced in Exercise CARIBOU CREEK. With proper shelters and heating equipment, this figure could probably be maintained and possibly reduced in future operations of comparable pre-maneuver preparation and period of operations.

(12) Low percentage of issue from air items carried as stockage to the maneuver area indicates a need for re-evaluation of the supply of aircraft repair parts in future problems. However, the high percentage of issue from TC common items of supply carried as stockage to the maneuver area shows that the need for these items can be reasonably estimated and transported to the maneuver area. Cold weather proved little obstacle for the supply function in general.

e. Conclusions (47th Transportation Company, Armored Carrier).

(1) Piecemeal dispatching of the Transportation Company (Armored Carrier) restricts the company's ability to promptly and expeditiously accomplish the mission assigned to it by TOE. Likewise, static dispatch serves to negate the principle of centralizing transportation so as to achieve maximum support with the minimum number of vehicles.

(2) The infantry battle group engaged in northern operations, under winter conditions, requires replacement of its present wheeled vehicles with vehicles possessing more mobility over the terrain conditions encountered.

(3) Lack of a TOE Executive Officer in the Transportation Company (Armored Carrier) serves to reduce intra-company control and administrative support.

(4) The M59 Armored Personnel Carrier is capable of operating over terrain and through snow conditions as encountered during Exercise LITTLE BEAR, provided that proper route selection principles are adhered to.

(5) Present radio communications provided to the Transportation Company (Armored Carrier) are unreliable by virtue of the fact that terrain obstructions can prevent radio contact with elements which are within the normal operating range of the radios used.

(6) A fuel transfer pump is required as installed or OVM equipment on all M59 Armored Personnel Carriers.

(7) Present wheeled petroleum tankers and petroleum tractor-semitrailer combinations unduly restrict the mobility of the infantry battle group by virtue of their inherent limited mobility.

(8) The employment of M59 Armored Personnel Carriers in wooded terrain has great shock action on enemy foot troops.

f. Conclusions (80th Transportation Company (Light Helicopter) (H-21)). As in last year's maneuver, the $2\frac{1}{2}$ KW, 1 KW and $\frac{1}{2}$ KW generators were found to be inadequate and not durable enough for prolonged periods of operation under winter conditions during northern operations.

g. Recommendations (USARAL) DA level. (1) That a composite Transportation medium truck platoon (consisting of one squad equipped with ten each 12-ton cargo semitrailers and one squad equipped with 20 each 5,000-gallon petroleum semitrailers) be included in the Exercise WILLOW FREEZE troop list to be provided from CONUS.

(2) That future problems involving practice in reinforcement of Alaska by air in time of emergency provide for the movement of CONUS troops to Alaska in a more expeditious manner.

(3) That selected wheeled vehicles of the infantry battle group operating in the northern regions be replaced with tracked vehicles or an improved version of the wheeled vehicle.

h. Recommendations (47th Transportation Company (Armored Carrier)) DA level.

(1) That the TOE of the Transportation Company (Armored Carrier) (TOE 55-78) and the Transportation Company (Tactical Carrier) (TOE 55-47) be changed to provide an Executive Officer (Lieutenant, MOS 0660).

(2) That a fuel transfer pump be provided for each M59 Armored Personnel Carrier; either as installed or OVM equipment.

(3) That the present radio sets of the Transportation Company (Armored Carrier) and the Transportation Company (Tactical Carrier) be replaced with sets capable of providing greater reliability for establishing radio contacts within the normal operating ranges of the sets.

(4) That the M59 Armored Personnel Carrier be equipped with some sort of aid to land navigation, such as a small gyro compass, when engaged in northern operations under winter conditions.

(5) That research and development of a suitable cross-country vehicle be continued as a priority project, so as to provide increased mobility for battle group administrative and logistical elements in northern operations.

i. Recommendations (80th Transportation Company (Light Helicopter) (H-21)) DA level.

(1) That the present $\frac{1}{2}$KW, 1 KW, and $2\frac{1}{2}$ KW generators which are components of various sets of TOE 55057 be replaced with larger, more durable generators.

(2) That TOE 55-57 be modified to include a minimum of three lighting sets per maintenance section.

(3) That knock-down aluminum frame canvas shelters be developed for aircraft maintenance sections.

(4) That TOE's of Army aviation units be modified to include at least one truck, oil servicing, type L-6, capacity 750 gallons, FSN 2320-555-8720, to provide heated oil to aircraft in cold climates, as well as to provide protection for the oil from dust and dirt contamination in the summertime.

(5) That all aviation units participating in the northern operations be authorized a minimum of three enlisted men in MOS 686.10, and be authorized to perform minor sheetmetal repairs on non-structural members of the aircraft.

(6) That Team KD, TOE 55-500R be modified to increase the present number of enlisted men in MOS 686.10 so as to at least double the number presently authorized when operating in northern areas where cold climate becomes a major maintenance factor.

(7) That the assistant maintenance officer be reinstated in TOE 55-57B, recently published.

j. Recommendations (USARAL) USARAL level. (1) That shipments of supplies and equipment (to include resupply and repair parts stockage) to the maneuver area be restricted to minimum quantities on an austere basis.

(2) That shipping and receiving agencies make timely and adequate provision for prompt loading and unloading operations of supplies and equipment shipped to the maneuver area, and that such provision include sufficient qualified loading and unloading personnel.

(3) That all drivers of tactical and administrative vehicles receive periodic refresher training in convoy and cross-country driving operations, to include training under both summer and winter conditions.

(4) That aerial resupply by a repacked palletized ski-mounted unit slung under an H-21 helicopter be exploited, and techniques of employment in the field be developed.

(5) That Transportation representatives be included in the groups responsible for the selection of routes and sites for exercise areas.

(6) That all non-TOE vehicles in the maneuver area be placed under the Transportation Officer of a General Support Base in order to provide centralized dispatch and control over available transportation resources in the maneuver area.

k. Recommendations (Transportation Division, US Army Supply and Maintenance Center, Alaska) USARAL level.

(1) That the 521st Transportation Company (Light Truck) be authorized three drivers for each two 5-ton tractor trucks assigned. With the normal availability of 75% of assigned tractors, this would provide relief drivers to maintain the continuous operation this unit was called upon to perform.

(2) That the 521st Transportation Company (Light Truck) be brought to full authorized strength of personnel by 1 October 1960, in order to properly train drivers for Exercise WILLOW FREEZE (1961) and accomplish necessary prepositioning of supplies and equipment, that all personnel assigned to the unit as of 1 November 1960 have rotation dates scheduled not earlier than 10 March 1961, in order that sufficient trained personnel will be available in the unit to accomplish the mission for Exercise WILLOW FREEZE.

l. Recommendations (Transportation Office, Headquarters, Yukon Command, USARAL) USARAL level.

(1) That forward area technical service representation be established with the supported forces' trains area in order that maximum utilization of vehicles may be obtained and prompt coordination effected.

(2) That supply points be established in areas which are readily accessible to main routes so as to cut down turn around time, and reduce demurrage costs in the event that commercial vehicles are used.

(3) That future published maneuver plans contain detailed procedures governing assistance to commercial carriers to be utilized in support of maneuvers.

m. Recommendations (Transportation Supply and Maintenance Office, US Army Supply and Maintenance Center, Alaska) USARAL level.

(1) That the Inspector-Mechanic Contact Team concept continue to be utilized in future maneuvers.

(2) That a minimal quantity of aircraft repair parts be taken to the maneuver area as stockage in future maneuvers, with reliance being placed upon prompt communications and transportation for the supply of required parts.

(3) That the Transportation Supply and Maintenance Office be placed in a central administrative location in future maneuvers.

(4) That a ULA aircraft be made available to the AFMD during future maneuvers for the purpose of scheduled (once or twice daily) flights between the maneuver area and the Fort Richardson-Elmendorf AFB complex in order to quickly and effectively transport specialist maintenance crews and high priority parts, to include parts from other technical services.

n. Recommendation (47th Transportation Company (Armored Carrier)) USARAL level. Future exercises which include participation of the Transportation Company (Tactical Carrier) emphasize employment of this unit in accordance with the TOE mission.

o. Recommendation (80th Transportation Company (Light Helicopter) (H-21)) USARAL level. That Army aviation units activated at reduced strength within this command be authorized the full strength basis for administrative air field operations, and maintenance personnel.